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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCI.

MR. H. W. DUNNE.

THE career of Mr. H. W. Dunne, Assistant Controller of the Central Telegraph Office, London, the subject of our portrait this month, is more than usually interesting.

Entering the service in 1890 as a Telegraphist, Mr. Dunne waited until 1922 for something to turn up. Unlike Micawber, however, he spent the intervening years in improving his knowledge of the service and its requirements, and when things began to move his progress was startlingly rapid. In 1922 he became an Overseer, and passing through various grades found himself an Assistant Controller in 1930.



From Telegraphist to Assistant Controller in eight years is not bad going.

Mr. Dunne is proud of his Irish descent and has the Irishman's sense of humour. He knows his own mind, has a "way wid him," and is popular with all ranks because he demands no service which he would not himself be willing to give.

Mr. Dunne has many outside interests. At 56 he still plays tennis. He makes a hobby of travelling between London and Brighton twice daily; understands the difference between Auction Bridge and Solo Whist, and utilises some of his spare time in the service of the Royal Sussex Hospital of which he is a Governor.

The Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

VOL. XVIII.

OCTOBER, 1931.

No. 199.

AN OLD, OLD SONG.

THE old story of the deficit on the telegraphs, and our numerical inferiority in telephones, compared with America, is a favourite subject with publicists. Mr. Harold Cox, in a recent article on "Telegraphs and Telephones" in the *Sunday Times*, presents his own version of the results of Government ownership of those services with many of the omissions and inaccuracies to which we are accustomed in our critics. He represents the telegraph service as a flourishing concern when it was taken over from the companies in 1870. It may have been, but he omits to state that the service was restricted to the larger, and therefore more remunerative towns, that the charges varied, according to distance, from 1s. to 2s. for 20 words in Great Britain, and amounted to 6s. for 20 words for a message to Ireland, being supplemented by further charges when the telegram passed over the systems of more than one company. The Post Office, on acquiring the system, had to provide a truly national service and extend the benefits of the telegraph to the smaller places. Indeed, in the first two years of their ownership, about 2,200 additional telegram offices were opened. Then in 1885 Parliament pressed upon the Post Office the unremunerative 6d. telegram; but the resultant increase in business was never sufficient to counterbalance the expense of handling the additional traffic at this low rate. Finally the competition of the ever-growing telephone system, resulted in a gradual decrease of traffic, a phenomenon observable also in all other European countries, which like Great Britain have long had to carry on a national service at a loss.

Mr. Cox has fallen into the error of supposing that the American telegraph service is furnished by the American Telephone

& Telegraph Co. It is, of course, provided by private companies, which, however, leave the needs of small towns to the ministrations of telephone undertakings.

Turning to telephones, he says: "In Canada also the telephone system is privately owned, and in the principal European countries State control is limited." We do not know precisely what the latter sentence means. The German Post Office certainly budgets for itself, but the telegraphs and telephones are directly under its control. In all European countries where the telephone development is highest, with the exception of Denmark and Norway (private and State), the service is operated by the Postal or Telegraph Administration. As regards Canada, the majority of telephones there are owned by private companies, but there are Government Departments in charge of the systems of the progressive States of Manitoba, Saskatchewan, and Alberta. "Nearly all these countries (he continues vaguely) have more telephones per head of population than Great Britain."

Nearly all the countries of Europe, however, have *less* telephones per head than Great Britain, the exceptions being Denmark (chiefly private companies), Germany, Switzerland, Sweden (all State systems), and Norway (mixed). Germany and Switzerland have owned their telephones from the beginning, and it was when the Government entered into competition with the Stockholm Telephone Company (which they subsequently bought out) that the Swedish telephone development began to progress so rapidly. So much for three of the best developed countries in Europe.

Mr. Cox forgets how gladly the public must have hailed the introduction by the Post Office of a flat rate of 1s. for 20 words in 1870, and how they must have welcomed the extension of the telegraph to village post offices throughout the length and breadth of the land. He forgets, perhaps, how insistently Parliament and the press call upon the Post Office to provide unremunerative telephone call offices in the Welsh mountains and the Highlands, in order that a doctor may be speedily summoned in cases of emergency. A Post Office Department is expected to provide facilities which a commercial undertaking would not attempt, and then is blamed because its profits are not sufficiently high. The public, however, expects and requires a telephone and telegraphic service which is national in the fullest sense of the term, and probably, at bottom, realises that a Government administration, which is not working entirely for profit, is best designed to afford it.

HIC ET UBIQUE.

THE following letter has been received in the Gloucester District from a subscriber in the Worcestershire fruit growing district:—

"I have just remembered that I omitted to write a note of appreciation of the work done in connexion with my complaint regarding the service between Pershore 50 and Woolston (Southampton) 63.

The extraordinary care which was observed by your engineers and the checking and cross-checking, to see that everything was absolutely right, impressed me very much.

It is a pity that the people who are always talking about the telephone service being this, that and the next thing, could not be put on to do one of these engineer's jobs for a day or two.

Probably you are in the same position as myself in that many people constantly tell me how much better we should do our work. I should like to bring them in here and give them a taste of it, but for the terrible mess we should have to clear up."

As every schoolboy ought to know, says the *Glasgow Herald*, a kiosk is a Turkish summer house and a very pretty thing. Lady Mary Wortley Montagu, wife of a famous British Ambassador at Constantinople, described it as a "large room beautified with a fountain in the midst, raised nine or ten steps, and enclosed with gilded lattice round which grow vines, jessamine, and honeysuckle, the scene of their greatest pleasures." That being so, some irreverent critics take upon themselves to criticise the official mind for applying the term "telephone kiosk" to those austere sentry-boxes of concrete and glass which are springing up everywhere. They say that the word is foreign, inept, and a glaring example of how the official mind revels in the pompous and inappropriate.

The answer seems to be that in the first place all Turkish kiosks are not necessarily of the splendour of that described by Lady Mary; and in the second place, that words extend their meaning in the course of a century or more. The word kiosk has long been naturalised in Western Europe as a kind of stand for the sale of newspapers, tobacco and sweetmeats, and the like. A critic who could deem a gay red call-office kiosk "austere" could, no doubt, also consider the word "kiosk" pompous!

We learn from the *Sunday Express* that the only complaint of Mrs. Nims (of St. Louis) regarding Englishwomen is: "Gee! but they are afraid of the telephone bell."

"You see (it adds), Mrs. Nims, who is staying in London at the Savoy Hotel, is the wife of Mr. Eugene D. Nims, president of the South-Western Bell Telephone Company, which has 19,000,000 direct and indirect subscribers."

We like this method of counting in "indirect subscribers," but we don't know why one should stop at 19,000,000, when South-Western Bell subscribers can communicate with about 30 million "indirect subscribers" in Canada and Europe. Strangely enough, the British, French, German, Swedish, and other European systems have also 30 million "indirect" subscribers in this sense.

A gentleman who is in favour of the flat rate, writes to the *Bristol Times & Mirror* saying: "In Canada, every subscriber is charged a flat and inclusive rate of 12s. per quarter, and one may telephone where, when, and as often as one pleases."

Either the writer is grossly misinformed, or he is one of those who is incapable of expressing his meaning in clear English. In Toronto and Montreal the business man pays round about £17 10s. a year, which is clearly more than 12s. a quarter. In Vancouver he pays £16 10s. There are residence rates and party line rates on a decreased scale in the larger towns and in different parts of Canada, and, for all we know, there may be very small places where 12s. a quarter is paid for a party line. But how can one possibly venture to say that *every subscriber in Canada* pays that rate?

According to the *Electrical Review*, on July 29, 49 additional towns in South Africa were connected with the trunk service at Cape Town, and for the first time Natal was connected to Cape Town. This extension of long-distance facilities has become possible by the installation of repeater apparatus at Johannesburg. Hitherto Pretoria has been the furthest point within telephone reach of Cape Town.

Our correspondent in Egypt, says the same journal, informs us that the special new auto-exchange equipment of the ministries and their administrative departments has been officially opened in Cairo and its suburbs, but the opening of the Cairo general auto-exchange equipment has been postponed till the beginning of October of this year.

"On the subject of telephones, says the *Irish Times*, it is high time that the Minister for Posts and Telegraphs should find some means of bringing down his charges for telephones and telegraph services. His policy of killing the telegraph habit by charging 50% more for messages than is demanded in Northern Ireland is, I understand, intended to help telephone revenues."

We read no further, sufficiently astonished to hear of a Postal Administration accused of trying to help the telephone at the expense of the telegraph. How far we have travelled from the eighteen-eighties!

REVIEWS.

"From Telegraphy to Television. The Story of Electrical Communications. By Lt.-Col. Chetwode Crawley, M.I.E.E. Published by Frederick Warne & Co., Ltd. XII + 212 pp. Price 6s. net.

Up to the present no general account has been written of the development of the various methods which are employed to-day for the transmission of intelligence by means of electricity. The present book has been written to fill this gap in scientific literature. Beginning with the earliest forms of land line telegraphs, the evolution of the various instruments and systems is followed through high-speed and type-printing telegraphs, cable telegraphy, the telephone, ship-and-shore wireless telegraphy, point-to-point wireless telegraphy, wireless aids to navigation, wireless telephony, picture telegraphy and television. The book concludes with a breezy and amusing chapter in which the author gives a number of his personal experiences during the last thirty years while he has been engaged on wireless work.

The whole subject is treated in a very readable manner, and the book is fully illustrated with excellently reproduced photographs and is well printed and bound.

We have only one adverse criticism to offer—the pages are uncut. It is always irritating to the reader to have to go through a book cutting the pages before the book can be read, and we hope that in future editions this matter will be remedied.

"THE NEW POOR."

THIS is the very apposite title of a comedy by Cosmo Hamilton which has been selected by the G.P.O. Players for their Autumn production. In the atmosphere of general depression which now prevails, a gay comedy such as this is invaluable.

It is to be preceded by "Where the Cross is Made," the one act play by Eugene O'Neill, with which the G.P.O. Players recently won the Russell Scott Trophy in the C.S.D.L. Competition.

The production will take place at King George's Hall, Tottenham Court Road on Friday and Saturday, Oct. 30 and 31, commencing at 7.30. Tickets 5s. 9d., 3s. 6d., 2s. 4d. (all reserved) are obtainable from Mr. W. L. Gartland, Room 13, 4th Floor, G.P.O. (N.), E.C.1. (Phone: Central 3600 Ext. 871.)

SHIP-TO-SHORE TELEPHONES.

COMMUNICATION from a ship in dock to the local exchange in the town in which the dock is situated is not new. That is to say, that where a ship goes to the same berth in the dock each time she enters, there has been no difficulty in providing a service. In the South Wales ports, which are chiefly used for the export of coal (there is some general cargo also shipped) the position has been more difficult. A ship coming into dock never knows at which berth

when in use. When not in use a screwed cap is fitted on the socket for the same purpose. The flexible cable is securely fastened inside the portable telephone box and has, therefore, to be carried with it. A running clip is placed on the cable so that advantage can be taken to clip the cable on to a hoist, &c. to give headroom to people passing on the dock side.

On the connexion being made to the ship, the first call a shipmaster should make is to the Supervisor of the Exchange, giving the name of the ship and the local shipowner or broker.



FIG. 1.

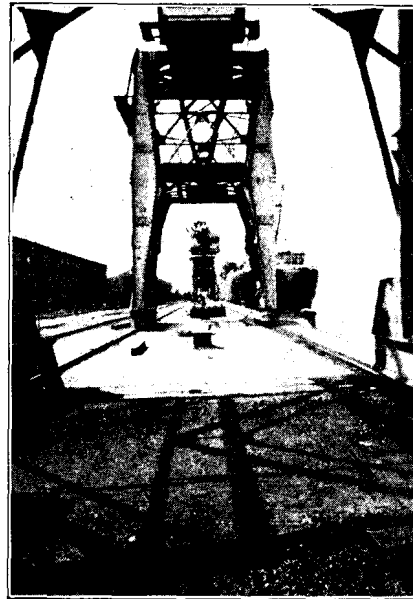


FIG. 2.

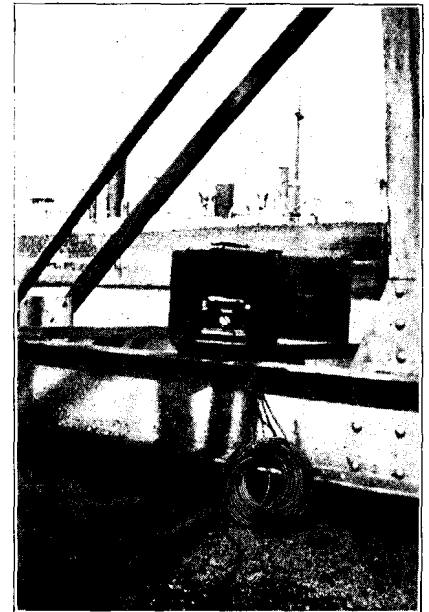


FIG. 3.

she is going to be placed. The scheme now outlined provides that at any part of the dock wired for this service connexions with the local exchange can be provided.

The scheme was installed at the South Dock, Newport, on Aug. 10, 1931. The first ship to have the connexion was the *Clan Murray*, owned by Messrs. Cayzer Irvine & Co., the local representatives of the firm being Messrs. Jones Heard & Co., Ltd. At the inauguration of the service, Messrs. Cayzer Irvine & Co. were good enough to provide a luncheon on board the *Clan Murray*, and representatives of various public bodies, along with press representatives, were asked to be present to give a good send-off to this new service. Calls were put through from the ship to Glasgow, London, and Liverpool, with excellent results.

Photographs 1 and 2 give an indication of the Dock-side at Newport on which the trial is being made, and Photograph 3 gives an idea of the apparatus which is put aboard the ship. This consists of a box measuring 1 ft. 4 in. by 1 ft. 1 in. by 1 ft. in which is mounted the bell and the new type of hand micro-telephone, alongside which there is room for the Telephone Directory.

Photograph 4 shows a sign which is erected in a prominent position at the entrance lock to the dock, so that, as a ship enters the lock, the service is advertised to the ship master at once.

The dock, which is 1,320 yards in length, has been wired on one side to provide for 9 plugging-in points. At the moment only one telephone is provided, but if it is found that more telephones are required, the service has been so arranged that these can be provided at little cost.

The underground connexion box is 8 ins. square. Each box is bored at one end to take the socket for plugging in the flexible cable, which is 150 ft. long. (Type cable E.L. 250 volts .0017). 10 Ampere waterproof plugs and sockets are used and each has a screwed flange which prevents any faults should the box be flooded

No calls are passed until it has been ascertained from the shipowner or broker that he agrees to the connexion. These arrangements are completed by telephone, and if agreed, calls can be passed forthwith and the shipowner or broker is called up to get the necessary agreement signed. So far the system has been in use 19 days, and on 14 days the service has been utilised.

The charge for the service is 3s. 6d. per day, which includes free service to all exchanges within a radius of 7½ miles of the exchange to which the service is connected. Trunk calls and telegrams are charged at the ordinary tariffs. Further trial schemes are in hand at Cardiff and Swansea. The Great Western Railway Co., who own the docks referred to, have given every possible assistance to render the scheme effective.



FIG. 4.

If the trials prove remunerative there appears to be no reason why the system should not be extended to each side of every dock, not only in South Wales but throughout the country.

TELEGRAPHIC MEMORABILIA.

"Late News" from the *Daily Telegraph*, Aug. 31, 1856. "The Mediterranean Submarine Electric Telegraph Co. gives notice announcing the loss of the new electric cable—about 130 miles long—while an attempt was made to lay it between Sardinia and the Coast of Africa. The previous one was lost and never recovered."

Television.—As far back as the end of July Mr. Remer, M.P. for Macclesfield, made the following statement in the House of Commons. As reported in the *News-Chronicle* of July 29 last, the hon. member said: "It has been stated that as early as next October it will be possible for a company of actors operating in a studio in America to be shown in 40 or 50 cinemas in this country." One should never prophesy before one knows, but there are no signs in these, the last fading days of September, that the art of television will have reached this ideal standard. Nevertheless, serious experiments are being made in more than two or three countries, and one never can tell. Television is gradually but certainly becoming recognised, as, for example, in France, where Monsieur B. Barthelemy, the leading authority on that art, has recently been appointed a Chevalier of the French Legion of Honour. The latest interesting item concerning television is perhaps the registration of the Philco Radio and Television Corporation of Great Britain, Ltd., with Mr. James M. Skinner (the president of the Philadelphia Storage Co. of America) as Chairman, with Mr. Carleton Dyer, a Canadian, as managing-director in active control. It is also understood that of four other directors two American gentlemen have already been appointed, while two of British nationality are yet to be selected. See also under U.S.A. below.

The B.B.C. is about to arrange for weekly half-hour broadcasts from the B.B.C.'s own studio instead of from the Baird studio at the inconvenient time of midnight. Tests may also be made later on of television broadcasts from the northern regional and national stations.

Personal.—Captain P. P. Eckersley has joined the *Daily Mail* as wireless editor. Mr. E. Harper, M.I.E.E., Chief Engineer to the Post and Telegraph Department, Ceylon, for 10 years, is about to relinquish that post and to return to England.

Countries.—AUSTRALIA.—The date of the imposition of the increased duty on imported radio valves from 25 to 40% has again been postponed.

Radio Trouble.—The recent international conference at Semmering, where every European country except Russia, it is understood, was represented, and where the international broadcasting authorities discussed the very urgent problems concerning the crowding of the European ether, represented no less than 100,000,000 listeners. Vice-Admiral C. D. Carpendale, Controller of the B.B.C., and the chief engineer of the latter corporation, Mr. Noel Ashbridge, represented the interests of the British Isles. The main business of the conference was the drawing up of the agenda for the broadcasting discussions at the Madrid International Radio Conference. It is understood that opportunity was taken of an informal meeting between the B.B.C.'s chief engineer and the German experts to find an amicable solution of the problem of the present interference between Muhlacker and the London Regional stations.

BELGIUM.—It is announced, says the *Electrical Review*, that with the object of financing the extension programme until 1933 the Belgian State Telegraph and Telephone Exploitation Co. is to raise a loan of 650 million francs, about £3,714,300.

CHILE.—According to a report on economic conditions in Chile by H.M. Commercial Secretary at Santiago de Chile, there are three large stations owned and operated by the chief local daily newspapers, which it is permissible to utilise for advertising purposes. There are also a number of smaller stations, most of which are situated in the capital, and in addition, two large radio stations in Chile, both of which are situated in the vicinity of the capital. One of these, that at Quilicura, erected in 1928, is a short-wave Marconi station operated direct from the Transradio

Company's Santiago office, which "maintains telegraphic communication with all countries of the western hemisphere."

CHINA.—Sir William Peel, Governor of Hong-Kong, and the Provincial Governor of Canton recently exchanged greetings over a new long-distance *telephone* line which was formally opened on Sept. 1. Had our information ceased at this point, the item just mentioned would naturally have been relegated to the telephone columns, but it appears that although the circuit has a capacity for 30 conversations and covers a distance of 116 miles, it also provides facilities for the telegraphic transmission of photographs. This latter item, of unique interest to our telegraphic colleagues, could scarcely have been omitted from the "Memorabilia" columns, especially in view of the steady developments of this same phase of the science of telegraphy between Great Britain and Europe, as witness the opening last month of the London-Rome service. The entire combination of telegraphy and telephony to the extent of so many channels is the first of its kind to be installed in China.

COSTA RICA.—H.M. Consul at San José, says the *Board of Trade Journal*, reports that proposals are under consideration for an increase in custom duties on imported wireless apparatus, among other items.

CUBA.—The Cuban press, says the *Electrical Review*, states that private United States interests may purchase the Cuban Government's telegraph system as well as the radio systems. The ground for this statement is apparently based on the generally well-known fact, in telegraph circles, that details regarding the properties, earnings, costs, &c., of the telegraphs are being prepared by the Cuban Government for Mr. Edwin R. Seligman, who, it is presumed, is negotiating on behalf of an American syndicate and was actually in Cuba at the time.

DENMARK.—*Radio Interference*.—Messrs. Philips Lamp Co., Ltd., are reported to have made the statement that the standard of radio reproduction in Denmark, especially in the vicinity of power stations, "leaves nothing to be desired." These ideal conditions are attributed to the initiative taken by more than 16 electricity generating stations in combating radio interference "which might result from the operation of their own machinery." No less than 29 power stations have altered their conditions for the supply of electricity current and in addition made alterations to their plant.

EGYPT.—The wireless correspondent of the *Electrical Review* in Egypt reports that the Egyptian Government has decided to install a powerful wireless station in Upper Egypt, which will be either at Luxor or at Aswan, in order to facilitate air navigation. The cost is to be met from the budget surplus of the current financial year of 1931-2.

GERMANY.—Probably owing to financial reasons, it is stated that the opening of the new high-power stations at Frankfurt, Breslau and Leipzig are not expected to be ready until February next. The new Leipzig transmitter, says *World-Radio*, is to have a power no less than 150 kw. at the outset. German newspapers declare that there has been considerable increase in the number of wireless licences made out due to (a) the establishment of the large new Muhlacker station at Heilsberg and (b) the increase in efficiency in the transmitters previously erected, and (c) other technical improvements of transmitting and receiving apparatus.

The pianoforte, cum-wireless valves, cum-microphone, &c.—A recent number of the *Electrician* reports that Prof. Nernst, of Berlin University, in collaboration with Siemens and Halske, again in collaboration with the Bechstein piano firm, "has produced a baby-grand pianoforte fitted with single instead of the usual triple strings." It is also provided with "wireless valves and 18 microphones which amplify the sounds before their emission through a loudspeaker, the volume of the notes being controlled by a pedal." Oh! One had almost forgotten, a gramophone is also "embodied in the pianoforte!"

GREAT BRITAIN.—The London *Daily Telegraph's* wireless correspondent, in their issue early in last month, remarked that "There is no doubt the B.B.C. clearly realises that unless something is done to revise the wavelength situation before the winter sets

in reception conditions in this country are going to be very bad indeed," and adds that on this account the ultra-short waves are "being intensively explored as a possible means of meeting the interference menace," reference to which has already been made in these columns. The same correspondent understands that the Marconi Co. is building a special 1-kw. ultra-short wave transmitter for the B.B.C. and that tests will begin early in the New Year.

Interference with broadcast radio reception due to trolley omnibuses and electric tramways is very considerable in some districts, and is naturally not confined to this country. Practically all countries have made certain efforts to reduce the trouble, and with varying results. The Technical Council of the Radio Association "has been prompted," the *Electrical Review* states, "to offer a gold medal for the best constructive paper on the subject." The competition is open to all radio engineers in England. An interesting item in the contest is that, while major attention should be paid to technical matters, it is desirable for competitors to deal with administration, "with the object of determining the division of responsibility. The Post Office and the B.B.C. are making investigations into the matter, in co-operation with traction authorities.

Every present and every future holder of a Broadcast Receiving Licence in these islands of ours should have the very great satisfaction of honestly assuring himself that the expenditure of the annual 10s. fee, far from being an unnecessary outlay, will prove to be something of a patriotic act, now that a portion of this amount is to go towards the financial balancing of the Budgets of the present and coming year. The facts are, of course, known to our home readers, but for the benefit of those patrons of the *T. & T. Journal*, some of whom are "stowed away" in odd parts of the world it may be interesting to place the following particulars on record: "On Sept. 17 last the Chancellor of the Exchequer announced in Parliament that the B.B.C. had agreed to forgo the sum of £50,000 for the period ending March next, and £150,000 during 1932. The total net amount thus available for the Treasury for the present and next year is estimated at no less a figure than £1,423,166."

International Photo-telegraphy.—A service of picture-telegraphy is now available between London and Rome.

IRISH FREE STATE.—The Irish Free State accounts for the financial year 1930-31 regarding Revenue from Radio, show that the total revenue derived from the tariff on wireless parts imported into the Free State was £34,663, while the sale of wireless receiving licences, while slightly less than that of the preceding year, amounted to £13,408.

ITALY.—To provide further work for the unemployed in the coming winter, the Italian Ministry of Communications has arranged to spend 1,865,526,000 lire (according to the *Electrical Review*) upon improvements to the railways and to the postal, telegraph, and telephone systems. The number of men so to be employed will be about 120,000. This would represent in English money about £20,000,000. The third Annual Italian Radio Show will be held in Milan from the 10th to 18th of the current month.

LATVIA.—The duty upon electric accumulators and batteries, complete and in finished condition, upon importation into Latvia has been raised from 0.75 to 1.00 lat per kg.

MEXICO.—A licence has been granted by the Government to a private citizen for the establishment of a big radio station at Villa Acuna, Coahuila, across the border from Del Rio, Texas, reports *World-Radio*. Its call letters will be XER and it will operate on a frequency of 665 kilocycles, with a power of 75 kw. It is expected to commence transmission during the present autumn.

NEW ZEALAND.—Reuter's Wellington agency informs us that broadcasting is to be controlled by an independent board modelled on the B.B.C. The Government is introducing legislation providing for such a body to take over the service on the expiration of the New Zealand Broadcasting Company's licence in December.

NORTH AFRICA.—As these lines go to press, work is actually in progress for the laying of a new submarine telegraph cable between Marseilles and Tunisia to supplement the existing cable which was put into service in 1898. It is expected that there will be a considerable increase in the speed of the new cable.

PORTUGAL.—The *Wireless World* informs us that the first attempt in Portugal to provide a regular broadcasting service is now being made by Abilio Nunes dos Santos, Lisbon. The station which is private has the call-sign CTIAA, and is now operating on 291 metres with a power of 2 kw. Regular programmes are given on Mondays, Wednesdays, and Saturdays from 10.20 p.m. to 12.20 a.m. On Thursday an additional 42.9-metre transmission is provided with announcements in Portuguese, French, English, German, and Italian.

RUSSIA.—The Moscow *Isvestia*, a newspaper which is reputed to have a daily circulation of two million copies is reported by the *Morning Post* to have been making experiments in the transmission of copies of its pages by wireless telegraphy, in order that the paper may be published simultaneously in two places. Should this experiment prove successful, it is fairly sure to open up a vista of possibilities for telephotographic transmission with a considerable reduction in the composing staff of multiple newspaper organisations, as a sequel.

SCOTLAND.—The *Electrician* states that amongst other advantages—with which these columns are not concerned—the substitution of the Fischer bow collector in place of the trolley poles on the Glasgow Corporation tramways, is the anticipated elimination of interference with radio reception.

SWITZERLAND.—The additional necessary building for housing the League of Nations wireless station have been completed. The station is expected to be ready for operation on the first of next month.

U.S.A.—The *T. and T. Age* informs us that the National Broadcasting Company has filed with the Federal Radio Commission, an application for a new experimental Television station to operate in the ultra-high frequencies and determine their practicability for visual broadcasting. The company already has three experimental television licences, one for a station in New York City to operate in the regulation short wave television band, another for a similar experimental station at Bound Brook, and third, for a portable station of low power to operate in ultra-high frequencies. The new application, however, requests an "anchored station" of high power of the order of 5,000 watts, to be employed in exploring the upper strata ether. The application requests bands of 43,000/46,000, 48,500/50,300, and 60,000/80,000 kilocycles. *Teletype in American stores and police!*—The Teletypewriter is becoming a successful medium in transmitting orders to the head offices of certain American stores. The New York City police have also recently made successful experiments with similar apparatus for simultaneously communicating important orders or descriptions to scores of police departments throughout the country. *International Relays.*—The Columbia interests have completed arrangements, it is understood from information received from New York, for a regular interchange of programmes between the United States and five European countries. The five countries mentioned are England, France, Austria, Hungary, and Czechoslovakia. The arrangement which, says the *Electrical Review*, is on a reciprocal basis will commence this autumn. In addition one-way German-American relays have been arranged.

URUGUAY.—Three new automatic wireless beacon stations, says the *Electrician*, are to be erected on the Uruguayan coast by Marconi's Wireless Telegraph Company, on behalf of the Hydrographic Department of the Government of Uruguay. The stations, which are expected to be placed in commission in the summer of 1932, are to be of the fixed omni-directional type. Two of the transmitters will be installed in lighthouses—at Lobos Island and Cape Polonio, and the third in the English Bank Light Vessel. Normal operation of the beacon signals will be on the higher wavelength in each case, but a telegraph keying circuit has been incorporated, so that in case of emergency or special need the beacons can be used as wireless telegraph stations.

VENEZUELA.—Through the medium of the Caracas branch of Reuter's Trade Service, it is understood that a contract has been awarded to the Telefunken Company of Berlin for the erection at Maracay (State of Aragua) of a radio transmitting and receiving station, complete, short wave, 20 kw. for telephony and telegraphy. The station, it is anticipated, will be able to maintain constant communication day and night with Europe and the United States.

Sincerity.—Halfdan, thou art bright and pleasant. Let thy sword-hilt glisten with gems, if so thou has the mind, but when thou drawest it, let all men know thy blade is steel."—*King Bele to his son.* J. J. T.

QUESTIONS ON TELEGRAPHY, TELEPHONY, ELECTRICITY AND MAGNETISM.

IX.

DESCRIBE any method by which the maximum working speed of a long telegraph circuit may be increased.

A prize of a book will be awarded for the best answer which should reach the Editor by Oct. 31. The correct solution will appear in the December issue.

SOLUTION OF QUESTION VII.

The answers to this question were not quite up to the usual standard. The electrical characteristics and adjustments of the Relay were dealt with rather more fully than its construction. The answer submitted by Mr. R. C. Paulsen, Telegraphs, Hull, is considered to be the best. In view of the large number of Standard B relays in service, the following description may be of general interest.

The Standard B relay consists, essentially, of two electro-magnets placed upright, side by side, on a metal plate clamped to

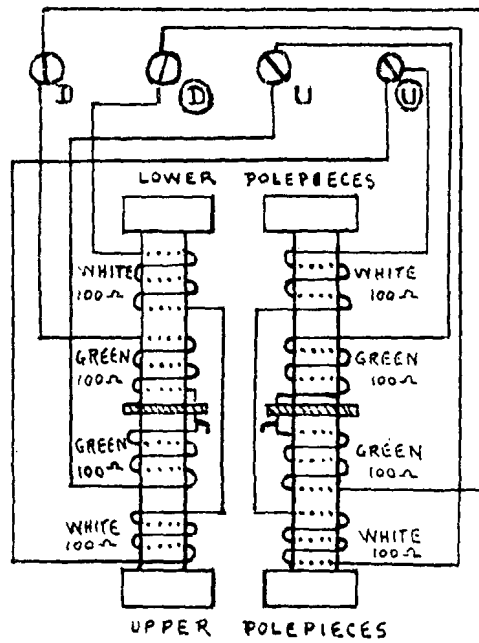


FIG. 1.

a rectangular base of wood. Each core has shaped pole-pieces and is of one solid piece, soft iron, annealed in gas to avoid residual magnetism. The bobbins are split lengthwise into two halves, each piece having a flange in the middle, so that when the two halves are joined upon the core, they form the equivalent of two bobbins. Each bobbin has a white and a green winding; the outer ends of each winding, both top and bottom, are connected to terminal plates into which the external connecting screws on the base of the relay are driven. The inner ends of the windings are brought together through the flange and soldered. This arrangement of windings in relation to terminals is shown in Fig. 1. Two soft-iron

armatures attached to an axle standing between the electro-magnets are free to move to the pole-pieces on either side. The axle also carries, above the armatures, a horizontal arm with a T-shaped extremity; the amount of movement of the T end (known as the tongue) is limited by platinum-tipped contact screws carried in brass contact blocks mounted on an ebonite platform. The armature axle has pivots at each end, the upper works in a bearing drilled in a brass bridge-piece, whilst the lower passes through the metal base of the relay and rides upon a small, polished, hard steel plate beneath.

Connexion between the two contact screws and the external connecting terminal is made by means of stout wires passing through the base, vertically, to a screw in the relative contact block. Connexion between the tongue and the external connecting screw is made by connecting the terminal to the base-plate which is in metallic contact with the armature axle. As a precaution

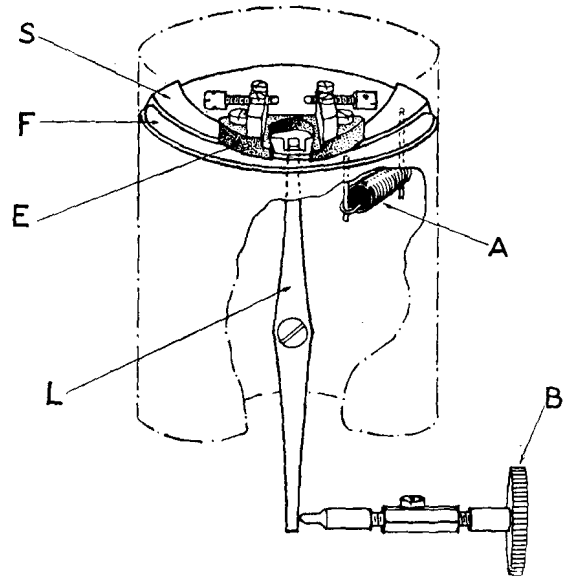


FIG. 2.

against faults arising due to dirt or rust in the lower bearing, a spiral of fine wire is attached to the armature axle and the base-plate by small screws.

The ebonite platform E is fastened by screws to a metal slide S, fixed beneath a grooved portion of the upper frame plate F, but able to move over a small arc. The slide is cut to receive the upper end of a vertical lever L pivoted at its centre.

A strong steel spring A is fastened to pins, one in the top frame plate, the other in the slide. At the right-hand side of the relay, near the base, a screw B passes through the cover of the relay and bears against the lower end of the vertical lever. The external portion of the screw has a milled head steady-pinned to the threaded portion. Turning the screw (known as the biasing screw) in a clock-wise direction, moves the upper end of the vertical lever, and therefore the slide, to the right against the tension of the strong spring. The platform, contacts, and tongue are therefore moved over, nearer to the right-hand electro-magnet. If the biasing screw is retracted the spring is free to act, moving the parts to the left. Thus either a "spacing" or a "marking" bias may be given to the relay. This arrangement is shown in Fig. 2.

A powerful horse-shoe permanent magnet, bent to form half a circle partially encloses the electro-magnets. The upper limb of the magnet, with the S-pole, is placed in position with the pole quite close to the fixed end of the upper armature; the actual distance can be varied by means of an adjusting screw. The lower limb, with the N-pole, is similarly placed with respect to the lower armature. Thus the armatures are magnets by induction.

The whole of the parts described are enclosed in a cylindrical brass case having a hinged glass cover at the upper end. The latest type of rectangular base relay has three terminals instead of four, as are shown in Fig. 1.

THE NEW PHONOGRAM ROOM AT LEEDS.

BY C. A. G. SALMON (*Telephone Traffic Department, Leeds*).

THE value of the model layout of the Leeds Instrument Room has been greatly enhanced by the opening of a new Phonogram Room adjacent to it, in which switchboard equipment of a new type was brought into use at 8 a.m. on Sunday, Aug. 23. The Phonogram Room was formed from a portion of the Instrument Room when the size of the latter was recently reduced and the two rooms are divided by a glazed partition finished at the top with a screen faced with pulpboard to insulate the Phonogram Room from excessive noise, whilst the floor covering of thick cork carpet further assists in obtaining quietness.

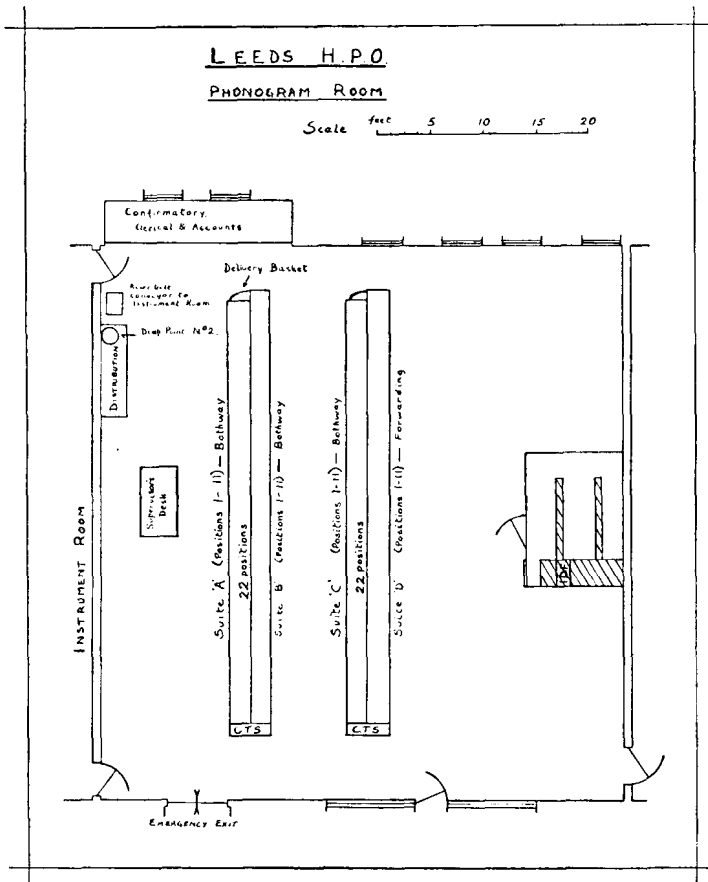


Fig. 1. Plan of layout of Phonogram Room.

The switchboard equipment embodies the usual features of other continuous ancillary installations but has many which are entirely new and of exceptional interest, and have been developed by collaboration between the Headquarter Traffic Section and the Engineer-in-Chief. The switchboards are designated "Phonogram No. 4" and are mounted on iron supports above double tables, in the centres of which run horizontal message belt conveyors of the "V" type, and on each side of which are the operators' positions.

Two double tables have been installed initially accommodating a total of 44 positions (11 on each side of each table), and the table run is extended at one end of each to cover the motor and switches for the belt conveyor drive which is individual to each table. The tops of the tables are covered with linoleum and the steel faces of the "V" conveyors are insulated from the tables by a layer of sponge rubber to minimise vibration. The use of both sides of the switchboard is obtained by running the cables in upper and lower positions respectively, so that the face equipment occupies either the lower or upper half to correspond.

The cable racks are closed in by removable panels of wood so that the whole length of cabling can be exposed, and drawn straight back and out if necessary. These panels are fronted with sheets of glass behind which operating notices are displayed.

The tables are 27 inches in height to permit of typewriter reception which it is hoped will shortly be introduced experimentally to a limited extent. Chairs of the Tan-Sad pattern in use in the

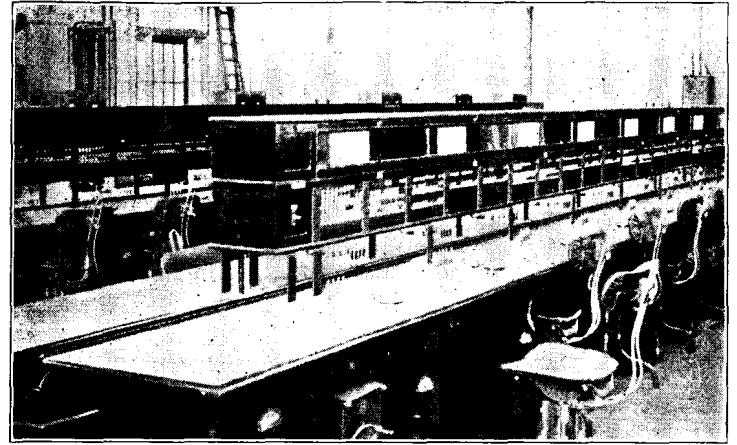


FIG. 2. GENERAL VIEW OF SWITCHBOARDS.

Instrument Room have been provided throughout; these are upholstered in green leather cloth, and are adjustable as to height, and angle and height of backrest.

The usual headgear instruments are worn, and duplicate jacks per position are provided as in standard switchboard practice.

The Key Shelf equipment is arranged to the left of each operator and consists of two pairs of cords with keys associated for speaking, dialling, ringing, and transmitter cut-out, and with full supervising lamp facilities.

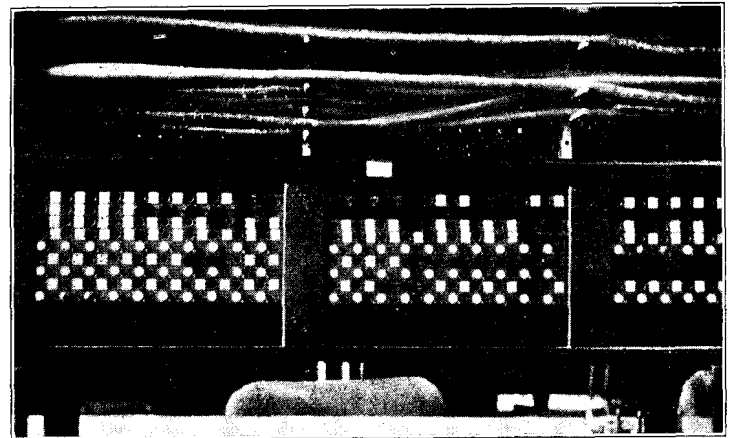


FIG. 3. NO. 1 POSITION OF "A" SUITE.

The dial is mounted flat and its face turned slightly anti-clockwise to give a good operating position.

There is in addition, for each bothway working position, a valve amplifier for reception brought into use by a key, and adjustable for signal strength by a knob controlling a rheostat of the wireless type.

The cords and pulleys hang in the casings separating the operators positions, whilst the cord circuit apparatus is accommodated in flat boxes near the floor under the centres of the tables.

The outgoing Junction multiple is one of five panels (covering two positions), and the ancillary of the calling equipments appears similarly every five panels. Both outgoing and incoming circuits are banked on the end positions to give full accessibility.

The new feature of the calling equipment is the conversion of the steady glow of a calling lamp to flashing after a certain period. At Leeds the following arrangement is being applied: as soon as an incoming signal is received on a given circuit, it seizes a rotary line switch which will, sometime during its period of rotation of 15 seconds, pick up an earthed contact; 15 seconds after the earthed contact has been picked up flashing will commence and continue for that signal until the call is answered. The device is an experiment to gauge the effect of

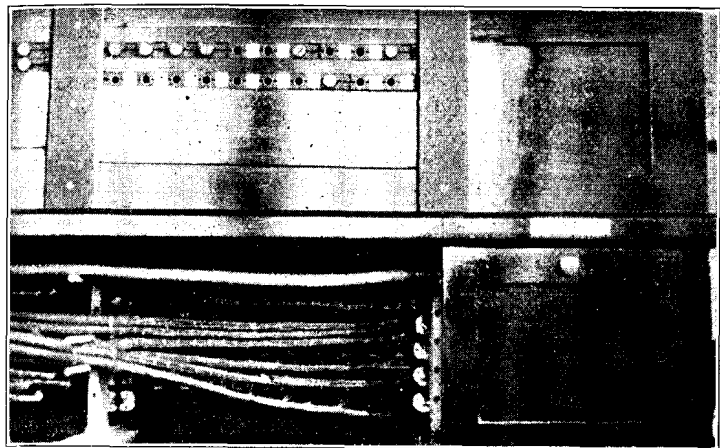


FIG. 4. NO. 1 POSITION OF "D" SUITE.

ensuring primary attention to flashing signals and the consequent answer of calls more nearly in turn, and is applied at present to the calling signals of junctions from Manual exchanges as well as of the "90" level circuits from Automatic Exchanges.

Three of the four suites of 11 positions each (A, B and C) are equipped for both-way working, and the fourth suite, "D," for forwarded work only. No. 1 position of "A" suite serves as an "Enquiry" position with the appropriate lines terminated solely

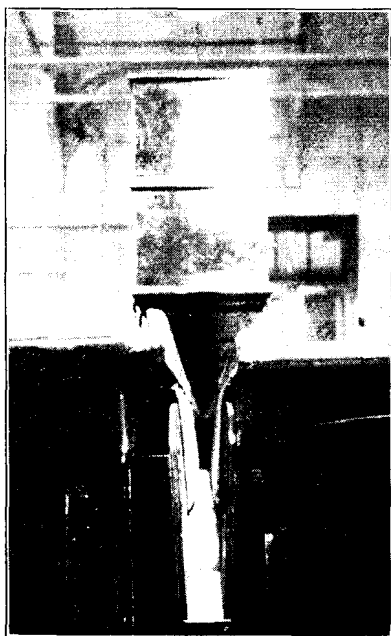


FIG. 5. END VIEW OF DOUBLE TABLE, SHOWING CONVEYOR.

at that point, and serves also as the "night" position through its designed proximity to the door from the Instrument Room from which attention is given upon the operation of the night alarm bell.

One "lighthouse" pilot lamp per suite is provided to call the appropriate section supervisor who uses the special telephone jack provided in the centre of each suite.

The Supervisor's Desk has the usual equipment, with the addition of an amplifier for reception and facilities for transmission and reception tests of operators' telephones.

The conveyor belts at present carry the messages to wire baskets fixed at the ends of each table, from which they are taken

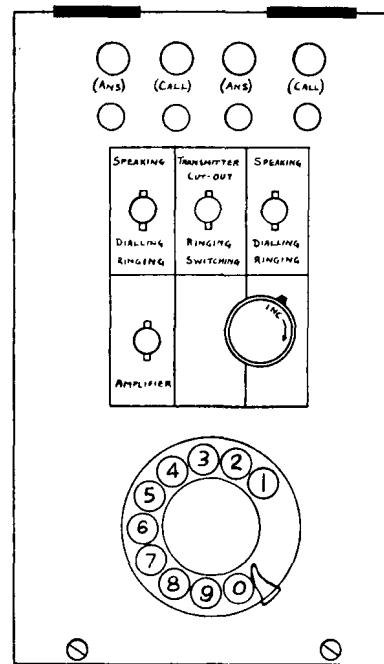


FIG. 6. KEYSHELF LAYOUT

by hand to the distribution table, and thence sent to the Instrument Room by a "riser" belt and overhead "V" belt conveyor.

Forward traffic arrives at the distribution table by belt from the Instrument Room.

Semi-indirect lighting is installed experimentally in the Phonogram Room, four pendants with 100-watt lamps being hung vertically over the centre line of each double table at a height of approximately eight feet. Separate pendants of lower wattage will be provided for the Supervisor's desk, distribution and posting tables.

Pending the completion of the Leeds Exchange new Apparatus Room, the Phonogram apparatus racks have been temporarily installed in the space reserved for a future extension of the Phonogram switchboards.

BIRMINGHAM NOTES.

Promotions.—Mr. L. G. Allen has left us to take up his appointment as Traffic Superintendent, Class I, Glasgow. At a Social gathering on Aug. 25 last Mr. Allen was presented with a cabinet gramophone by the District Manager (Mr. J. L. Parry) on behalf of all sections of the staff. In making the presentation Mr. Parry voiced the feelings of the Birmingham staff when he said that Mr. Allen's work in Birmingham had more than justified the promotion, and that there was no doubt Mr. Allen would be as successful in Glasgow as he had been in Birmingham. Mr. Allen was an exceedingly popular officer. Congratulations were showered upon him, and he will doubtless long remember his "send off" from Birmingham.

We are pleased to welcome Mr. W. Moseley, who has been promoted from Assistant Traffic Superintendent, Liverpool, to succeed Mr. Allen.

Mr. N. G. Parsons, Contract Officer on Development Duty, was the recipient of a gold watch from his colleagues on his promotion to the post of Contract Officer, Class I, Canterbury. The heartiest congratulations and best wishes for his future were extended to Mr. Parsons. Birmingham's loss is Canterbury's gain.

Birmingham Telephone Society.—The programme of the meetings of the Society for the ensuing season has been drawn up on similar lines to those which were so successful last winter.

LETTERS FROM A RETIRED CONTRACT MAN TO HIS SON.

(IV.)

MY DEAR TOM,—You are a terrible one for asking questions. Your last letter, which we were glad to get, seems full of them. Mother says she would like more news of how you are getting on and if your new diggings are satisfactory and whether you are being fed properly. Tell us more about this when next you write to ease her mind and mine. She asked me to tell you that the socks you sent home for repairing are beyond it, and you should lay in a new stock, which reminds me that a Contract Officer's feet are only second in importance to his head, for if he has trouble with one, he won't be able properly to use the other, as his mind will always be in his boots.

I am glad you liked my little joke about "sallying into all the alleys." I put it that way to make an impression on your mind as it is important and it evidently has had its effect.

Now to try to answer your questions. First, then, as to the proper method of carrying your papers, agreement forms, advertising literature—if I may call it that—and any other matter you may find necessary to enable you satisfactorily to carry out your duties. I think that it is to some extent a matter of taste and also a matter of the type of area you may be working. Some Contract Officers simply won't carry a pouch as they feel that it makes them conspicuous and prevents them getting interviews. I don't think this is so in a business area, but in the residential areas there may be something in it. Some have their tailors build a "poacher's pocket" in the lining of their jacket, which I have no doubt their tailors tell them is ruinous to their appearance and soon puts the jacket out of shape. I suggest that you experiment, try both methods and note the result. Personally I found that when I had many paper cases some of them running to batches of papers half an inch or more thick, a pouch was essential. On the other hand, when the papers were few and canvassing was the order of the day, a pouch was not necessary. The main thing is to see that you have all you require with you, however you elect to carry the items.

Yes, I think you would be wise to carry a small clothes brush with you to remove mud-stains from the trouser legs, &c. I always had one of those thin brushes with just one row of stiff bristles. You have seen it many a time. It took up no space in the pocket and enabled me to remove the mud spots in wet weather and dust in dry. I will see if I can find mine and send it on to you.

As your mother has seen to it that you keep the house tidy, I need hardly remind you to exercise care in wet weather about how you dispose of your dripping umbrella or hat when you enter an office or house—particularly the latter. If you don't wipe your feet on the mat but wait till you get into the dining-room and carry your dripping umbrella with you instead of placing it where it will do no damage, you will not be welcomed back.

The point you raise about people who write to the papers complaining that, taking the rental of the installation into account as well as the cost of calls, the cost per call works out at say 5d. or 6d. is quite a common argument, which you will constantly be called upon to reply to. It is a very shortsighted argument in my opinion. In any case the cost per call can readily be reduced if the subscriber will make more use of the service and increase his calling rate. He will save time and trouble by doing so. If he will but double his calling rate he will practically halve his cost per call. Probably he does not understand all the possibilities of the service; it will be your job to enlighten him. He always fails to make any allowance for incoming calls, which may be many and very valuable to him. He does not give any information as to the value of the outgoing calls. One call may have results which may well cover the whole rental of the installation for a year. I have noticed that this is just the type of man who grumbles at the cost of the service but who when his circuit goes out of order complains

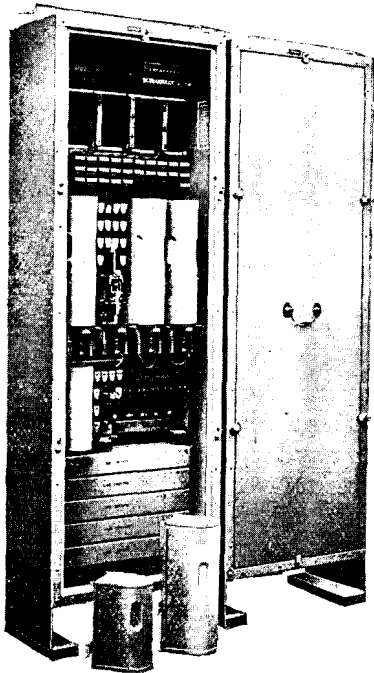
that he is losing pounds every day. Again, as an assurance against emergencies the telephone stands alone. I noticed in the papers the other day that an M.P. stated in the House of Commons that it was the means of saving his house from destruction by fire. Does he count the cost per call I wonder? Does a man whose house is insured against fire, burglary, and so on, write to the papers about the cost? I haven't noticed it. When the emergency arises the value of the expenditure of a few pounds a year is at once apparent. So it is with telephone service, but this has the added advantage of being useful in many other directions.

Why was the unlimited service abolished you ask? A little Jew boy was sent by his mother to the grocers for a tin of cocoa. "I wish a tin of cocoa, pleth," he said. "Vi-cocoa?" asked the grocer. "Vy not?" said the boy, and so I say, why not? The unlimited service served a useful purpose in the early days of the art, but as the user increased among the busy subscribers and the small user had to pay the same rate, it is obvious that the small user was helping to pay the large users rental, an obviously unfair position. A message rate system was introduced along-side the unlimited rate, and the small user paid a rental to cover the annual charges on the cost of providing the service plus charges for the calls used, which was fair. As the system increased the value of the service to the large user increased and the cost of running the service also increased in proportion to the additional facilities provided, and it is obvious that some means had to be adopted to obtain from subscribers payment more in proportion to the use they made of the service, and so the message rate was introduced generally. An alternative would have been to increase the unlimited rate charge, but in the case of large users it would have had to be very largely increased to cover the cost of the service, and as the system grew further additions would have been necessary to cover the cost of providing the service. In view of the high rental, development would have been restricted, as few subscribers would have been prepared to rent expensive circuits needed to cover their increasing traffic. The fair and business-like way, therefore, was to fix a rental to cover the annual costs of providing and maintaining the installation, plus a charge to cover each call made, and the authorities not only in this country but in practically every country, adopted the message rate. You may meet the argument that certain other public services maintain a flat rate for the facilities provided. That certain electric light companies have a flat rate for current in some instances, that railway companies provide season tickets, that water is supplied on a flat rate, and so on, may be quoted to you. All this may be quite true, but people lose sight of the fact that telephone service is not quite analogous, because for each exclusive line two distinct wires have to be provided and maintained from the subscriber's premises to the exchange and in the exchange itself exclusive apparatus is necessary for each individual subscriber, whereas in the case of electric light or water the service is provided by tapping a common main, and a railway company has not to provide any special accommodation for each individual traveller.

There are other arguments which will occur to you, but I have said enough on this subject if I am to reply to any of your other queries.

With reference to the question of recording calls about which many people grumble, the methods adopted by the Post Office are absolutely up to date and are identical with those adopted by other administrations. The greatest possible care is taken to see that recording is accurate and checks are made unknown to the staff of manual exchanges to see that the regulations are being properly carried out, while the registration on Automatic systems is purely mechanical. Subscribers themselves are responsible for inaccuracies, firstly by failing to advise the telephonist of wrong numbers obtained either on the manual or automatic systems, and secondly, by someone using the telephone unknown to the subscriber. I can tell you two such cases where the records were disputed. In one case the subscriber's records were much below those of the Department, but it was proved that a member of the subscriber's household was conducting betting operations on an

G.E.C.



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SUPERVISORY EQUIPMENT—S



DURING the forty years of experience which the Staff has had in the design and manufacture of telephone equipment, unfailing operation has been a constant aim.

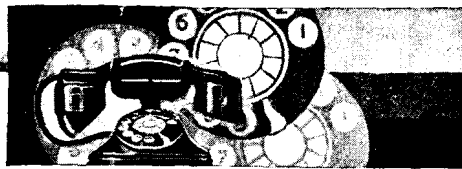
How well it has succeeded is illustrated by the provisions made in every Strowger installation for the prevention of service interruption should any unstandard condition occur. Complete and comprehensive is the supervisory equipment of the Strowger System, that such conditions are detected and reported before any interruption to service is possible. Combined with audible and visible signals flash distinctive warnings to the attendant and inform him of the exact nature and location of the trouble—allowing him to correct it without loss of time.

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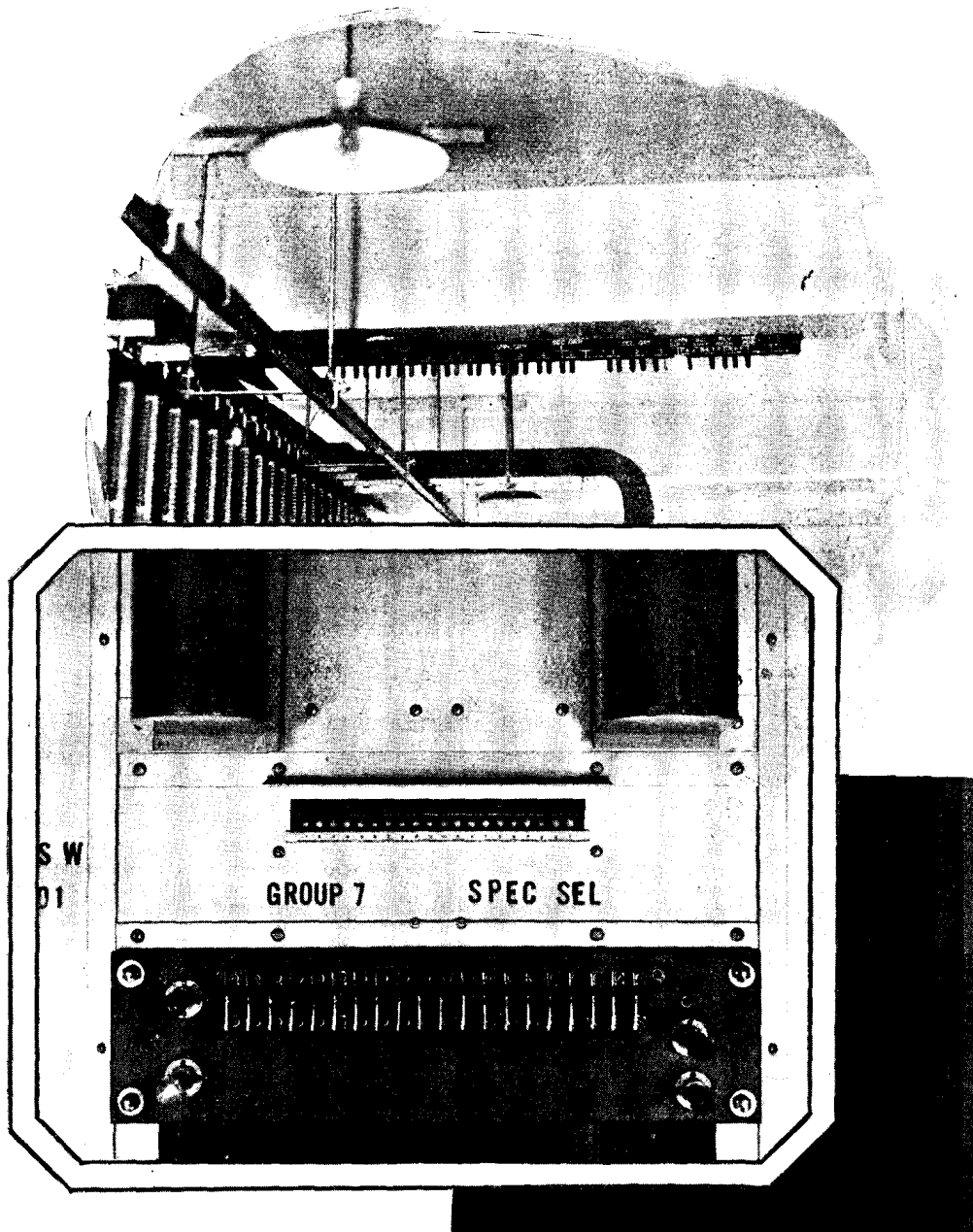


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extensive scale unknown to the subscriber; in the other case a neighbour made use of the telephone in the absence and without the knowledge of the subscriber. In both instances the subscriber had to admit the accuracy of the Department's records. Such cases are of constant occurrence. I have found that the Department is quite willing to investigate any exceptional jump in the calling rate and did so in the above cases with the result mentioned. Some people ask that a meter should be provided at their end of the line so that they might see the actual recording, but no satisfactory apparatus has yet been found to fulfil the necessary conditions, although many arrangements have been experimented with.

The only other question I can deal with in this letter, which even now is a bit lengthy, is the one you raise about people arguing that the Department should provide service rent free and fix a coin collecting box at the subscriber's premises into which the subscriber would pay a fee of 2d. each time he used the service. It is argued that if this can be done at call offices, it could also be made to pay in the case of subscriber's installations. This is an impossible suggestion. It would only be adopted by the subscriber whose user was so small as to produce something less than the current rental plus fees which it has been shown is the least that the Department requires in order to make the system a paying proposition. Such people argue that if this arrangement were adopted there would be an enormous increase in the number of subscribers. No doubt, but if a loss were made on each such installation, obviously that way bankruptcy lies, and either other subscribers must pay more or the loss must be borne by the taxpayer. It is only possible to provide call offices on this basis of payment because the user is heavy.

I am afraid that I have not gone as fully into these questions of yours as I might have done, but a whole letter could be filled up with the answer to any one of them, and I have just indicated the general line of argument in each case, and you can fill in the gaps yourself, or where you are not sure of the correct answer to some argument you meet, ask your chief about it and he will help you out.

Well, I must stop as there is a "job of work" which wants doing in the garden, and as it looks like rain, I want to get it done right away. Fony seems to think I have been sitting still quite long enough and ought to be getting up to take him for a walk, and I will, too, after I have finished in the garden. Drat it!! There's the rain. I must hurry.

Love from us both. Write soon.

Your affectionate Father,
THOS. E. L. SERVICE.

LET GLASGOW FLOURISH!

EFFECTIVE EXHIBITION ENTERPRISE.

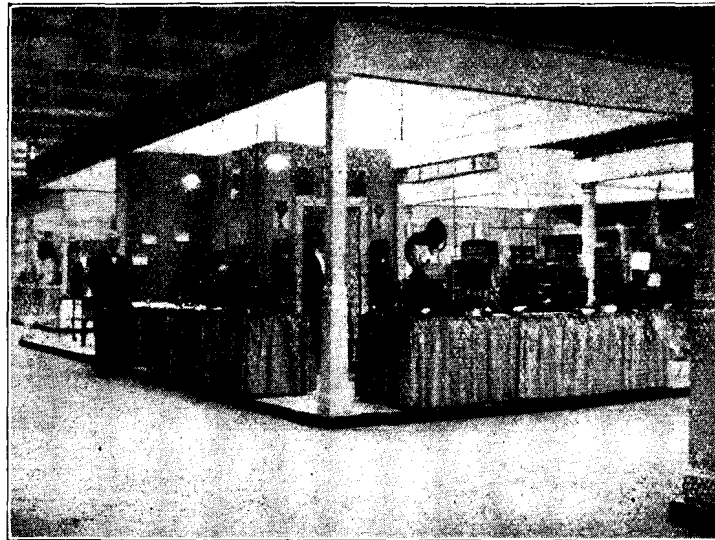
By D. REID (*Contract Officer, Class I, Glasgow*).

IN conjunction with Glasgow Civic Week a Civic and Empire Exhibition was promoted by the Corporation of Glasgow and held within the Kelvin Hall from May 29 to June 13. The object of the show was primarily "Civic"—to educate and interest the citizens in the workings of the various municipal undertakings such as the transport, electricity, gas, water and fire departments—but the entry of the Empire Marketing Board with a huge display of home and colonial produce introduced the "Empire" interest.

The Exhibition, during its run of fourteen days, created two records. It established an attendance record for Kelvin Hall of over 300,000 visitors and a record for the number and value of telephone orders booked at the Post Office stand in comparison with any similar exhibit undertaken in any part of the country.

Under the sign of the "Post Office Telegraphs and Telephones" a small stand was rented in a prominent part of the hall and fitted with an automatic demonstration set, two teleprinters (working to and from each side of the stall), an open-fronted hall multi-coin collecting box, a small cordless switchboard, a valve amplifier, extension bells and various types of telephone instruments, including the new handmicrophone in black, old gold, oxidised silver and walnut. Within the space at our disposal (20 ft. by 15 ft. (the lay-out of these exhibits was arranged to provide the best possible means of direct view and access to the public.

Many callers expressed amazement at the unexpectedness of Post Office representation at the Exhibition and sarcastic remarks were frequently heard about the Department "adopting commercial methods of advertising at last," but these comments were turned to expressions of approbation before the callers left the stand. Without doubt the Department created a favourable impression locally by appearing in public and the Post Office stand evoked great praise from all who listened to the demonstrations. Exceptional interest was concentrated on the automatic unit and hardly a demonstration ended without several people expressing their thanks and appreciation of the interesting talks and information accorded by the staff.



POST OFFICE TELEGRAPH AND TELEPHONE STAND: CIVIC AND EMPIRE EXHIBITION, GLASGOW.

Owing to the large crowds attending the Show and to reach the outskirts of the assembled listeners at the demonstrations, talking had to be replaced by loud lecturing. In this connexion showmanship at times had to supplant the more modified method of address. The number of orders actually booked at the stand has been the subject of official commendation, but the actual results from the distribution of printed advertising matter cannot yet be assessed. Enquiries on post cards distributed at the exhibition are still coming to hand. The most popular piece of literature seen in the Hall was the kiosk folder (C.M. 55W.).

Conducted parties of senior scholars from the city schools visited the show in large numbers each day. Many of these pupils were from good-class homes—probable telephone tenancies—into which the kiosk folder and other telephone literature would be taken. The youngsters, therefore, were of great propoganda value to us, and no doubt much new business subsequently will result.

The Exhibition was the outstanding attraction of Glasgow's first civic week and the Post Office Stand shared honours with the leading exhibits from the point of view of attracting attention. The Corporation of the City of Glasgow deserves commendation for its enterprise and the Post Office for participating in its success.

GLoucester NOTES.

Presentation to Mr. G. P. Mapp, Contract Officer, Class II, on promotion to Contract Officer, Class I, at Cardiff.—On Friday, Aug. 30, a few members of the Gloucester District Contract Department gathered to meet Mr. Mapp before taking up his new duties in Cardiff. Mr. Mapp, although a member for 20 years of the Gloucester Staff, had been stationed at Worcester all that time, so that apart from his Contract colleagues there were few in Gloucester who knew him intimately and the gathering was thus somewhat small.

Mr. Brodie, the Contract Manager, in presenting Mr. Mapp with a fitted dressing case on behalf of the staff, spoke highly of Mr. Mapp's qualities and voiced the good wishes of his colleagues. Mr. Barker, of the Traffic Section, and Mr. Jack, of the Accounts Section, also wished Mr. Mapp health and happiness in his new sphere.

After Mr. Mapp had responded the little informal gathering broke up.

We congratulate Capt. H. E. Parry, A.C.G.I., A.M.I.E.E., on his promotion to the rank of Traffic Superintendent, Class I, and welcome him to this newly upgraded District.

We trust that he will find the air of Gloucester congenial and that the happy relations he has already established with the staff will be maintained for a very long time to come.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office system at July 31, 1931, was 2,006,040, which represents a net increase of 1,992 on the total at the end of the previous month.

The growth for the month of July is summarised below :—

Telephone Stations—	London.	Provinces.
Total at July 31, 1931	720,936	1,285,104
Net Increase	511	1,481
Residence Rate Subscribers—		
Total	184,543	287,583
Net Increase	—	574
Call Office Stations (including Kiosks)—		
Total	7,241	28,517
Net Increase	82	185
Kiosks—		
Total	2,500	8,679
Net Increase	44	175
Rural Railway Stations connected with Exchange System—		
Total	17	1,999
Net increase	—	11

The total number of trunk calls in May 1931 (the latest statistics available) was 10,322,247, representing a decrease of 228,482 (2%) on the total for the corresponding month last year. Outgoing international calls in May numbered 45,190, and incoming international calls 49,322, as compared with 48,354 and 51,027 respectively in May, 1930.

Further progress was made during the month of August with the development of the local exchange system. New exchanges opened included the following :—

PROVINCES—Ancaster (Grantham), Bodenham (Salisbury), Baumber (Horncastle), Bayston Hill (Shrewsbury), Bridge Sollars (Hereford), Colmworth (Bedford), Chulmleigh (Barnstaple), East Meon (Petersfield), Ewelme (Oxford), Hoxne (Diss), Henham (Bishopstortford), High Jervaulx (Bedale), North Hykeham (Lincoln), Sampford Peverell (Tiverton), Swanton Abbot (North Walsham), St. Bees (Whitehaven), West Meon (Petersfield), Whiteparish (Salisbury), West Lulworth (Wareham), West Cornforth (Ferryhill), Woodborough (Marlborough), Whitwell-on-the-Hill (Malton) (all rural automatic); Welwyn Garden (manual exchange);

and among the more important exchanges extended were :—

PROVINCES—Brighthouse, Bromsgrove, Beaconsfield, Great Yarmouth, Hagley, Kidderminster, Kilmacolm, and Lowestoft.

During the month the following additions to the main underground system were completed and brought into use :—

Burnley—Nelson,
Bracknell—Wokingham,

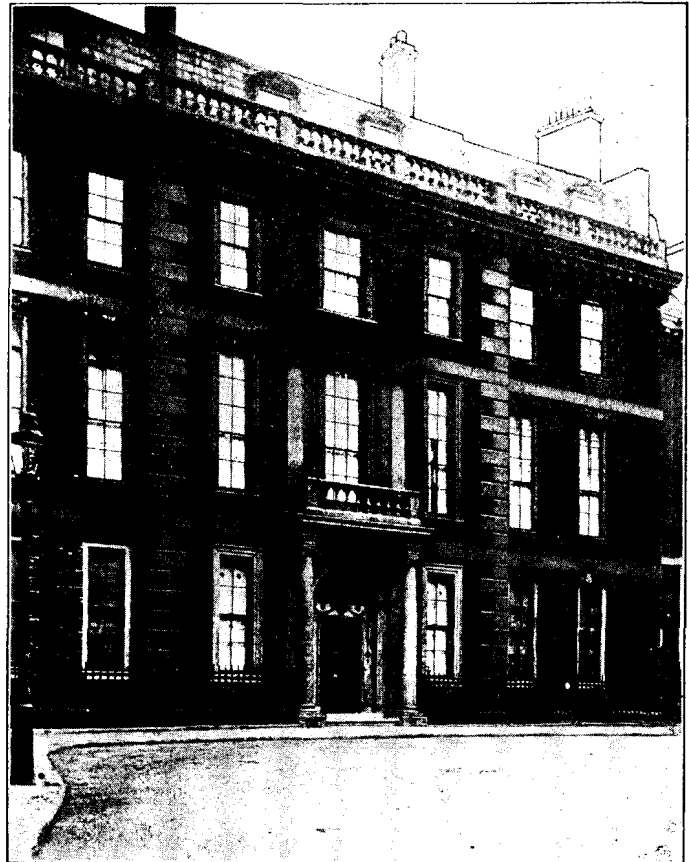
while 70 new overhead trunk circuits were completed, and 73 additional circuits were provided by means of spare wires in underground cables.

WHITEHALL AUTOMATIC EXCHANGE.

THE Whitehall Exchange, opened on Oct. 3, is unique among London Automatic exchanges in that it has special features of interest both on the administrative and historical side.

From the administrative standpoint its outstanding interest lies in the fact that it is in a special sense the "Government" exchange serving Buckingham Palace and the Houses of Parliament and some 27 Government Departments, including the Admiralty, Ministry of Agriculture and Fisheries, Air Ministry, Colonial Office, Foreign Office, Ministry of Health, Home Office, India Office, Ministry of Labour, Ministry of Transport, Treasury, War Office.

It has a capacity for about 7,900 lines and opens with a nucleus of about 2,300 lines from the present Whitehall Manual Exchange, Gerrard, and Regent. On present development forecasts the capacity of the Whitehall Exchange should provide for the requirements of its area until 1937.



[Photograph by Edward Yates.

HARRINGTON HOUSE BEFORE THE CHANGE.

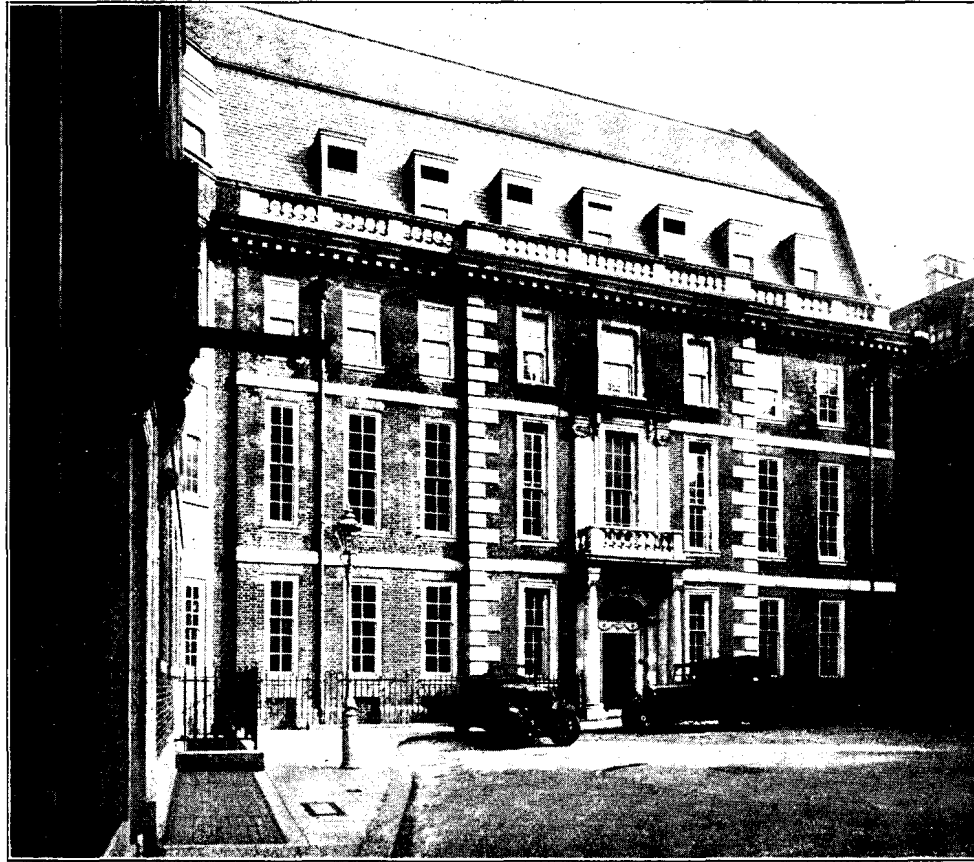
It is, however, on the historical side that general interest in the new exchange is likely to be strongest. Whitehall is the first automatic exchange in London in which part of a building scheduled as a "Historical Monument" has been incorporated in the exchange structure; and on this point the following article, reprinted from the *Journal of the London Society* by the kind permission of Mr. Lovell, the editor, will be of special interest to readers of our *Journal* :

HARRINGTON HOUSE.

(Extract from the "Journal of the London Society.")

Mr. Stratton, of the Office of Works, in describing the building, said :—
"The way in which the old work has been adapted is most ingenious and a credit to both architect and contractors, although, of course, it is now but a fragment of archaeological interest that takes no part in the work of the exchange beyond acting as a screen to keep out the weather. . . .

"The date of the House is, in my opinion, about 1690. The name of its architect, if any, is unknown. It is interesting, however, to find that Northumberland House, built by the son of the Earl of Surrey about 1605, had been sold previous to 1700 and that Wren, as Surveyor of Works, had occupied it, presumably using it for offices and workshops. Northumberland House is to the rear of Harrington House. I do not suggest that Wren designed the latter, but I do think some pupil, or master mason of his, may have done so. The first floor centre window is a rather wistful reminiscence of Wren, but the cornice with its top moulding more Gothic than classic and general coarseness of profile, is surely the design of a mason. The internal staircase again shows signs of Wren's influence, and was probably the work



[Photograph reproduced by permission of H.M. Stationery Office.]

HARRINGTON HOUSE AS A TELEPHONE EXCHANGE.

of one of his joiners, but the details appear to be those in vogue in the seventeenth and eighteenth centuries. In this connection the setting out of the panelling should be noticed. It has neither rhythm nor reason, and supports a suggestion I wish to make that the stair is an insertion in the original house and necessitated an alteration in the panels. By the way, some of the balusters are oak and some are pine. The narrow stair, now demolished, to the attics was definitely of the seventeenth century. Looking again at the outside we see that the setting out of the windows and piers is also irregular. The actual workmanship of the building was very rough; one of the beams had the fork of the tree left at one end, the sort of device for spreading the weight of the floor which a tradesman might adopt, but not an architect; a part of the front wall was leaning 10 in. out of the vertical.

"My conclusion is, therefore, that the client employed no architect, but engaged a master mason and a master carpenter, probably men who had been on Wren's staff, and so the building is more interesting as an example of craftsmanship than of design.

"To complete the history of the Mansion: At some unknown date prior to 1780, it was bought by Lord Harrington, whose family name is Stanhope. The first Earl—the title being created in 1742—was a Diplomatist, and died at his house in Stable Yard, St. James.

"The Earls of Harrington continued to live here till about 1917, the reigning Earl of that date riding out to the Park on horseback down the narrow entry, which had been the cause of an accident to Speaker Onslow in 1762, and so of the Westminster Paving Act. In 1917 the building was sold to Cox's, the Army bankers, and in 1925, together with adjoining property on the north side, to the Postmaster-General; the site was required for a telephone Exchange.

"Following correspondence between the Postmaster-General, the First Commissioner of Works and various learned societies, including your own, it was decided to sacrifice a certain amount of floor space for the sake of retaining the West front and staircase of a building which the Royal Commission on Historical Monuments had scheduled as 'specially worthy of preservation.' The front wall was carefully underpinned, and large bases inserted to take the steel stanchions for carrying the floors. This was a risky job, and great credit is due to the Clerk of Works, Mr. Barber, and Mr. Knight, Foreman of Messrs. Leslie, and the workmen, that it was carried through without any mishap. The shape of the original roof is not known, and no compunction was felt in removing the mansard which covered the building at the time the Postmaster-General purchased it. The new roof, if its whole width could be seen from Whitehall, would look top-heavy, but seen foreshortened from the Court, it adds to the appearance of the house, and is necessary, in order to cover and screen the extra storey added to contain the Switch Room.

"It was found impossible to retain what was left of the old balustrade, but the new one is on the old lines, and the baluster is of the same shape. Only one rainwater head of late date existed on the front; two additional heads were necessary, owing to the new roof. One of these is an old lead head recovered some years ago from a building demolished at the Mint, and has King George III's monogram; the other is a replica, with the exception that it has King George V's monogram. It is well that the future antiquarian shall have his puzzles.

"We have scraped the jam off the stairs, which are of oak and pine but were treated to represent mahogany and they now sport all oak, and have repaved the hall with black and white marble, the original paving having disappeared. The new hanging lamp is based on a Stuart model.

"The new wing has been designed not to appear of the same date as the old house, but to bear a family resemblance to it, and be a sort of younger second cousin."

GLASGOW TELEPHONE NOTES.

On the evening of Monday, Aug. 24, a large number of telephonists, supervising and district office staff gathered in the Ca'doro Restaurant, under the chairmanship of the District Manager (Mr. A. E. Coombs), to give Mr. E. J. Johnson, Traffic Superintendent, a fitting send-off on the occasion of his retirement. The proceedings opened with a number of vocal items provided by the Misses Green, Watson, Whyte, Coombs, Maclean, Hoskins and Crockett and Mr. G. Hunter and a number of dramatic monologues rendered by Miss Pollock. Everyone by this time had got to know everyone else and the time was appropriate for the more important part of the evening's programme, which was opened by the Chairman. Mr. Coombs paid great tribute to the way in which Mr. Johnson had worked so smoothly with everyone and to his kindly understanding in all questions affecting the staff, both operating and in his own office. He asked Mr. Johnson to accept a few gifts from the members of the staff which would serve to remind him of his Glasgow friends whilst in his new home at Minehead. These gifts consisted of a wristlet watch and wallet of money, together with a crystal tray and manicure set for Mrs. Johnson. Miss Caughie (C.O.A.) and Miss Mowat (U.P.W.) then spoke on behalf of the supervising and operating staffs and both expressed appreciation of the sympathetic way in which Mr. Johnson had always dealt with matters affecting the efficiency and well-being of the staff. Mr. F. Lucas (Contract Manager)—in what he himself would call a "quaint" speech—made mention of the close co-operation and help which Mr. Johnson had always afforded the Contract Branch. Mr. G. Lane (Traffic Supt., II) commenced his tribute to Mr. Johnson by expressing fear for the

effects of his speech, as when he had rehearsed it over to his wife he had left that good lady in tears. This, however, he modestly attributed to its moving nature. Mr. Johnson, in reply, thanked everyone for the handsome presents they had made to him and the kind feelings which had prompted such an act. He made interesting comparisons between the telephone service of 1890 and that of to-day. The company then adjourned for tea, after which the musical programme was resumed. There was a "regrettable incident" during this part of the programme, when the lady rendering a monologue entitled "Antiques" announced this title with a wave of the hand in the direction of the Chairman and gentlemen at the top table. This was, however, explained to the satisfaction of the gentlemen concerned and the programme allowed to continue. After votes of thanks to the Chairman and the artistes had been proposed by Miss Kay and Miss Cameron a most enjoyable evening was brought to a close by the singing of "Auld Lang Syne" and the usual "three times three."



Mr. E. J. JOHNSON.

Mr. Johnson entered the service of the late National Telephone Co. as an apprentice in June, 1890. After serving two years in this capacity he received successive promotions to Instrument Inspector, Service Inspector, Local Manager, Chief Inspector, Switchroom Manager and Traffic Superintendent, taking up his appointment at Glasgow from Sheffield in February, 1920. He has varied interests in among others, photography, books, gardening and country walks; and he intends that these shall occupy his time to a greater extent now that traffic problems will no longer be his study and concern. He purposes, however, to continue to watch the development of the telephones in which service he has spent so many years. The best wishes of his friends and colleagues go with him and Mrs. Johnson for a long and happy retirement.

We extend a very cordial welcome to Mr. L. G. Allen, from Birmingham, and at the same time we congratulate him upon his promotion to Traffic Superintendent (Class I) in succession to Mr. E. J. Johnson, retired.

Weddings.—Miss R. E. Selkirk, Central Exchange; Miss C. H. B. Agnew, Central Exchange; Miss M. M. Mackie, Ibrox Exchange.

WESTERN DISTRICT NOTES.

Miss C. K. Burridge, Accounts Section, left the Service on Aug. 25 with a view to marriage. She was presented by the staff with a grandmother clock. The presentation was made by Mr. T. A. Beck, District Manager.

The following officers have been transferred to the Western District:—

- Mr. F. Gilmore, from the District Manager's Office, Preston.
- Mr. W. Slater, from the Northern Engineering Dept., Newcastle.

In the Western District Notes for the month of April, 1931, it was recorded that Mr. A. Bennett had retired from the Service and a presentation had been made to him by the Staff. We much regret to have to announce that Mr. Bennett passed away on Aug. 9 last.

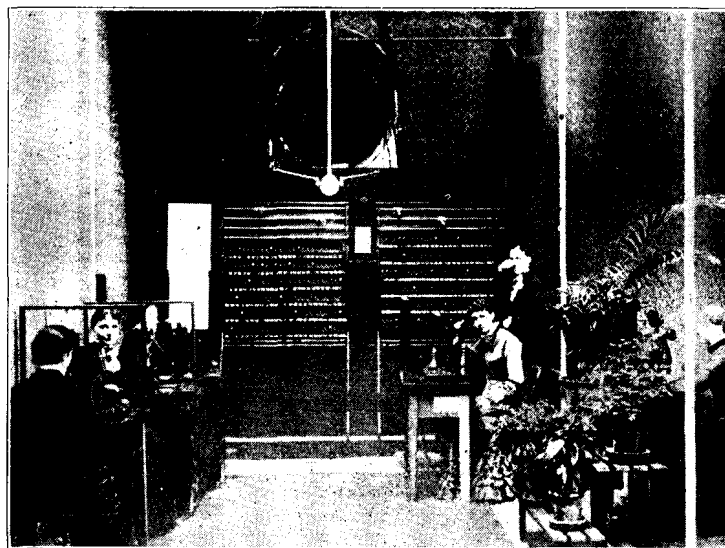
LIVERPOOL NOTES.

AFTER 44 years' service, during which she has seen the Telephone System grow up from its pioneer days to its present world-wide dimensions, Miss M. M. Craig retired from the important position of Chief Supervisor of the Liverpool Trunk Exchange on Aug. 28, 1931.

Miss Craig joined the staff of the Lancashire & Cheshire Co. in 1887 as an operator at the Central Exchange, known then simply as Liverpool, it being the only exchange of any importance in the town. The switchboard was the first multiple type board installed in Liverpool, and one of the earliest in this country. It superseded the switchboard seen in the photograph, which is of interest because one of the ladies seated in a cubicle later became Miss Craig's Chief.

Some little time after Miss Craig commenced her life's career the first trunk line connecting Liverpool with the outer world (Manchester) was joined up, so that she has seen the trunk system grow from its first seedling to a plant with branches extending to all parts of the earth. In 1896 she was transferred to the Post Office when the trunks were taken over by the State and since that time has watched and assisted in the development of the trunk service in all its varying phases.

Miss Craig gave a tea to her staff and other friends, but being of a particularly modest nature, shunned the publicity of anything in the nature of a parting function. Advantage was taken of the opportunity of the tea to present Miss Craig with a number of useful and ornamental tokens of appreciation. Chief amongst which was an autograph book, in which each member of the staff inscribed a contribution, artistic, poetical, and literary, according to the taste of the contributor.



EARLY LIVERPOOL TELEPHONE EXCHANGE, WITH SOME OF THE FIRST LADY OPERATORS EMPLOYED. DATE ABOUT 1884.

That her years of retirement may be many, that they may be happy in the consciousness of work well done and be free from care, is the earnest wish of her many friends and colleagues in the Service, and of those, some of whom were present at the farewell tea, who have given up the responsibilities of office for other walks in life.

Miss Stringer, of the typing section of the District Manager's Office, has given up typing preparatory to taking on the responsibilities of matrimony. She was presented with a dining-room clock and a number of other useful and ornamental presents by her colleagues, with all good wishes for her future happiness.

In last month's issue of the *Journal*, reference was made to the promotions of Messrs. Woodward and Moseley of the Liverpool Traffic Department. On Friday evening, Aug. 29, a small social gathering, in the form of high tea and smoking concert, was arranged at the Stork Hotel, for the purpose of saying farewell to these two gentlemen, and making them each a farewell present. In the absence of the District Manager, the presentations were made by the Traffic Superintendent, and consisted, in the case of Mr. Woodward, of an electric stand reading lamp, and in the case of Mr. Moseley, of a dinner wagon.

Speeches, humorous and otherwise, interspersed with musical numbers—some composed especially for the occasion—by members present, completed a very enjoyable evening. Both Mr. Woodward and Mr. Moseley returned thanks in characteristic speeches, and the evening was concluded by the singing of "Auld Lang Syne."

Two new rural automatic exchanges have been opened in the Liverpool district at Marown and Sulby, in the Isle of Man. The opening in both cases was entirely successful and the subscribers concerned are very satisfied with the new system.

In the second week in September the Manx Grand Prix motor cycle trials took place. As usual the telephone arrangements for dealing with the extra traffic arising therefrom, and for providing communication between the Grand Stand and various points on the course, were provided, and gave satisfaction to all concerned.

CORRESPONDENCE.

TELEPHONE CHARGES: A NEW SUGGESTION.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Sir,—I thank you for publishing my letter in your August journal, and for your editorial reference to it, notwithstanding that your criticism was adverse and trust you can find space for this reply and further suggestion.

Your most interesting articles on long-distance telephones compel admiration for the successful solution of the many intricate and difficult mechanical problems, but at the same time regret that so small a proportion (only 8½%) of subscribers, make use of those trunk lines which have cost so much brain-power, labour and money.

Sir Henry Bunbury referred to the old problem: "Can people be induced to make more use of their telephones, and if so, how?" Surely the solution is to reduce the prohibitive price, which is based on wrong principles and false analogies.

Your critic suggests that telephone charges of 1d. or 1s. are analogous to charges of 1d. and 1s. for a cake, and affirms that because an offer to sell both sizes at 1d., or even 2d., would result in bankruptcy, 1d. telephone calls would ruin the service. From this he infers that all flat rates are fundamentally impossible.

A FALSE ANALOGY.

The answer is that this analogy is fundamentally false.

Telephone charges can only be for services rendered, namely, the exclusive use for a limited period of two or more sections of the telephone organisation. It is, in fact, a letting on hire, not a sale. Nothing is parted with to the user except (by way of loan) the instrument and pair of wires, for which he pays a rental, or the temporary use of a public call office, for which he pays 2d.

If the telephone organisation is of sufficient capacity to accommodate, say, a million users, the cost of construction and maintenance remains the same whether any number, small or great, up to that capacity make use of it, and whether the two users are at a long or short distance from each other.

The sale of cakes is an entirely different proposition. Their price depends not only on quality, and the attractions of competitors' cakes, but also on the amount of cake the purchaser can consume. The telephone has not, and cannot, in its nature, have any competition. The user has no option but to pay the rate imposed. But unless he can reach his correspondent, whatever the distance, the telephone is of no use to him. It is, therefore, not reasonable for the State to charge him for the number of miles. The only reasonable method of charging is for the time occupied when using the telephone.

A FURTHER CRITICISM.

A friendly critic has pointed out that this element of time is a more formidable objection to my scheme than that of your critic. I make you a present of his argument: It is that the number of telephone calls, and therefore of gross receipts, must be limited strictly by time. A three-minute call can hardly occupy less than five minutes, including the time for connexions, &c., therefore 12 calls per hour is the limit for every line, equal to 150 to 180 calls per day at the most, even if continually in operation.

The capacity of the existing organisation (as Sir Henry Bunbury admits by implication) is sufficient for a considerable increase of calls. It is certain that the low percentage of trunk calls arising from high charges proves that many more calls could be made on existing trunk lines.

An Aberdonian visiting London is not likely to pay 6s. 6d. for a business call, or even 3s. 3d. for a call to his home, when a telegram will only cost him a shilling and a letter 1½d. But he might certainly telephone for 2d., and quite likely for a shilling. Those amounts would be clear profit for the G.P.O., but are now lost altogether.

A NEW SUGGESTION.

I can well imagine that if all trunk calls were suddenly reduced to 1d., or even 2d., the lines would be jammed. I suggest, however, starting with three rates, corresponding to the amounts for which the slot machines are now made, viz., for three minute calls:—

1d. for local calls within a radius of, say, 25-50 miles.

6d. for toll calls up to, say, one hundred miles.

1s. for trunk calls over 100 miles.

The charge for all calls might be doubled during business hours; and in each case for every additional three minutes.

This would effect a great simplification in the present scale of innumerable rates, and while restricting an unreasonable use of long distance lines the charges would not be prohibitive.

A further welcome result would be the solution of the problem of inducing people to make more use of the telephone and therefore increasing the revenue. This could be followed by an increasing expansion of the telephone system and a further reduction of charges both for rentals and for long distance calls.

This was actually the result of the adoption of penny postage (which also started gradually), although it was pronounced by the then Secretary of the G.P.O., when first suggested by Sir Rowland Hill in 1833, as "fallacious, preposterous, utterly unsupported by facts, and resting on false assumptions." Lord Lichfield, then Postmaster-General also said "of all the wild and visionary schemes which I have ever heard or read of, it is the most extraordinary." These memories are surely a warning to present-day critics.

It is true that my scheme of Penny Transport for Railways, promulgated in 1913, has not yet secured the approbation of the directors. Having regard to the present disastrous financial condition of the railways, your critic's praise of them as "hard-headed business men" is rather unfortunate!

It is the considered opinion of several well-informed men that "penny transport" is now the only practical remedy for the railway problem.—Yours faithfully,

WHATELY C. ARNOLD.

London, S.W.2. September, 1931.

[We leave our readers to judge whether the comparison which we drew with 1d. and 1s. cakes was sound or not. There is no such constant as a "telephone capacity sufficient to accommodate a million users"; the capacity is determined by the number and type of calls actually made, and variations in these factors entirely alter the capacity of the plant in terms of "users."

Our correspondents "new suggestion" is simply a specially drastic proposal for revision of the scale of trunk charges. Such revision is always considered along with other possible methods of reducing rates, whenever financial considerations permit. *Ed., T. & T. Journal.*

TELEPHONE CHARGES.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Sir,—I have read with interest your leading article in this month's issue and Mr. Arnold's letter.

Does Mr. Arnold remember the "Twopenny Tube"?

There would seem to be little doubt that the case against a uniform charge for telephone calls is even stronger than that against a uniform charge for travelling on tubes and buses in a city like London.—Yours faithfully,

R. H. PARKER.

Bombay Telephone Company Limited.

Bombay, Aug. 28, 1931.

REPLY PAID ADVERTISEMENTS.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Dear Sir,—According to the Brief Chronology of Mr. Harry G. Sellars, *Punch* sent 30,000 reply-paid telegrams advertising a set of caricatures in June, 1914. This incident is certainly worthy of notice in such a chronology, and it would, I think, be of interest if you could amplify the item by means of a short note in some future issue of the *Journal*. I need hardly add that the *Journal* receives wide circulation in this, probably the most distant, part of the Empire. With fraternal greetings, yours sincerely,

M. E. HANKINS.

Head Office, General Post Office,

Wellington, New Zealand.

23rd June, 1931.

[A note by Mr. Sellars on the subject is published in another column.]

LEEDS DISTRICT NOTES.

Leeds Phonogram Room.—The new Phonogram Room De Luxe was duly opened on Aug. 23, 1931, and is described in detail in another column of the *Journal*. With its moving belt conveyors and highly polished equipment, it forms a fitting companion to the model Telegraph Instrument Room.

Leeds Telegraph Messengers' Annual Sports. The Leeds Telegraph Messengers held their annual sports on the Headingley Cricket Ground on Wednesday, Aug. 19, and although the weather was not all that could be desired, there was no lack of enthusiasm on the part of the Messengers for competition in the various events. An outstanding feature this year was a one mile relay race arranged between Leeds and Bradford Post Office employees. This was won by the Leeds team in quite a spectacular race.

The tit-bit of the day was the introduction of a Ladies' Cricket Match between teams representing Leeds Telegraphs and the Telephones, a time limit of 45 minutes being allowed each side to bat. The "Phones" batted first and scored 42 runs for 4 wickets. The "Touch Typers" followed with the policy of applying the "62 per hour standard," and as a result, won practically on time, 9 wickets being down for 44 runs.

The prizes were presented by Lt.-Col. Jayne, D.S.O., O.B.E., M.C., Postmaster Surveyor, whose remarks were both amusing and appropriate to the occasion.



Messenger DEWS.
Winner of 800 yards
G. W. Smith Cup;
400 yards Stock Exchange Cup.

Messenger ATKINSON.
Winner of 100 yards
Leeds Sportsmen's Cup;
200 yards Jos. Pickersgill Cup.

Cricket.—The Final for the Yorkshire Postal Cup took place at Leeds on Sept. 8, the Finalists being Leeds Post Office C.C. and Sheffield Post Office C.C. Sheffield won the toss and elected to bat on a good but slow-paced wicket. A good crowd was present including a number of supporters from Sheffield. By consistent batting Sheffield made 137, the main contributors being Dyson 35, Dickenfield 22, Fraser 21, and Park 20. Gaunt bowled very well for Leeds, taking 4 for 23. Leeds never recovered from an indifferent start and totalled 83. Ellis 27 and Lodge 15 being the chief contributors. Wyatt took bowling honours for Sheffield with 5 for 35. The fielding on both sides was remarkably keen and reached a high standard.

An otherwise enjoyable match was marred from the spectators' standpoint by the cold weather. Sheffield deserved their success as they gave a better all-round display than Leeds.

This is the third year in succession Sheffield have figured in the final round, the previous winners being Leeds and Doncaster respectively, so no one will grudge them their success at the third attempt. Well done, Sheffield.

Interest in this Cup is growing, Hull and Barnsley being newcomers to the competition this year. We welcome them and invite other offices to join.

After the match the teams had tea together in the office dining hall. Present with the party were Lt.-Col. Jayne (Postmaster-Surveyor, W.Y.D.); Mr. J. T. Hubbard (Postmaster-Surveyor, Sheffield); Mr. J. Bownass (Asst. Postmaster, Leeds); and members of the supervising staffs from

the two offices. Lt.-Col. Jayne kindly presented the Cup to the Sheffield Captain and complimented both teams on the sporting spirit displayed. Mr. Hubbard suitably responded and also returned thanks for the splendid repast and the hospitality extended to them.

We are indebted to the *Yorkshire Evening Post* for permission to reproduce the following amusing cartoon by Richardson:—

"THE CALL OF THE WILD."



THE POST OFFICE TELEPHONE AND TELEGRAPH SOCIETY OF LONDON.

SESSIONS 1931-1932.

An interesting and varied programme has been arranged by this Society for the forthcoming session. The opening meeting will be held on Monday, Oct 19, at 5.30 p.m., at the Institute of Electrical Engineers, Victoria Embankment, W.C.2, when Mr. W. H. Gunston (Secretary's Office, General Post Office) will read a paper entitled "Comparative Telephone Statistics." Mr. E. Gomersall (Superintending Engineer, London Engineering District), the Chairman for the Session, will preside. Prior to the meeting, from 5 p.m. to 5.30 p.m., tea and light refreshments will be provided for members and visitors in a convenient room adjoining the Lecture Hall.

Particulars of the other meetings during the session are as follow:—
1931.

Monday, Nov. 16.—"American Influence on British Telegraph Practice." By Mr. G. T. Archibald (Deputy Controller, Central Telegraph Office).

.. Dec. 21.—"Junction Working—Manual to Automatic." By Mr. W. E. Hudson (Engineer-in-Chief's Office, General Post Office).

1932.

Monday, Jan. 18.—"Inland Trunk Service." By Mr. H. Townshend (Secretary's Office, General Post Office).

.. Feb. 15.—"Open Debate—"Telephone Publicity." Discussion will be opened by Mr. W. F. Taylor (London Telephone Service).

.. Mar. 21.—"Broadcasting Developments." By Mr. N. Ashbridge (Chief Engineer, British Broadcasting Corporation).

.. Apr. 18.—"Telephone Exchange Methods from the Viewpoint of a Supervisor." By Miss M. J. Clement (London Telephone Service).

By permission of the governing bodies, members of this Society may attend meetings of the Post Office Institution of Electrical Engineers, and of the London Telephonists' Society.

All members of the staff of the Post Office are eligible for membership on approval by the Committee. The annual subscription, payable in advance, is 1s. 6d. for women and 2s. 6d. for men. Application for membership should be made to the local agent, or to the Hon. Secretary, Mr. A. J. Wadey, Secretary's Office, General Post Office (North), E.C.1. (Central 3600 Extn. 768).

WHOLESALE TELEGRAPHY.

An item in the Chronology which is appearing in the columns of the *Telegraph and Telephone Journal* has formed the subject of a communication from New Zealand and has opened up an interesting train of thought. The correspondent draws attention to the fact that in June, 1914, *Punch* sent 30,000 reply paid telegrams. These messages were the climax to an advertising campaign and offered to registered readers and prospective clients a series of selected caricatures by artists whose works have endowed the pages of the famous periodical with immortal interest.

This mass despatch of telegrams was easily beaten, however, on Dec. 16, 1903, when another famous journal, *The Times*, sent 88,847 telegrams of about 50 words each quoting terms for an edition of the *Encyclopedia Britannica*, and in March, 1912, when a newspaper syndicate despatched 86,000 election messages giving reasons for casting votes in a certain direction.

Reference to a large number of messages naturally brings to mind telegrams of abnormal length, of which there have been numerous examples. On Feb. 15, 1911, a private message of 15,523 words was transmitted from New York to Paris via the British Government's Continental cables. A notable series of transmissions took place about 1913 relative, it was understood, to a lottery. The names of ticket holders were telegraphed from America to the Continental country concerned (not the Irish Free State, mark you) the text being written in ten-letter code groups, and telegrams of four or five thousand words were common, but the final despatch which ran to more than 15,000 groups, constituted a hefty load for the operator. This message was easily outdistanced, however, on a date which unfortunately cannot now be remembered, when a telegram of over 23,000 words was sent from America to Germany. To obviate re-transmission of this message, which contained the full text of a legal document, a special wire was provided between the Cable Room, London, and the town for which it was destined.

Big totals in telegraphic transmissions have also been recorded on behalf of our friends the Press, the most notable perhaps being that of April 8, 1886, on the occasion of a speech on "Home Rule" by W. E. Gladstone when 1,500,000 words were dealt with at the Central Telegraph Office, London. Another busy evening in the same office was that of Nov. 27, 1911, when 1,112,000 words were handled after a speech on the Moroccan crisis by Sir Edward Grey.

The foregoing results were attained, of course, by wire, but radio-telegraphy has not been backward, and on Dec. 14, 1924, about 13,660 words of press were sent from London to Halifax, Nova Scotia, by this comparatively youthful method of overseas communication.

Telegraphy is said to be a dying method of transmission, but the writer is one of that "band of hope" which has faith in the senior craft and is still ready to dispose of an unlimited number of words by means of wire, radio, or facsimile telegraphy.

H. G. S.

LONDON ENGINEERING DISTRICT NOTES.

Official P.A.B.X.

OFFICIAL subscribers have hitherto, in order to obtain ordinary numbers in the London Automatic Area, had to dial "O" and ask the operator to obtain the number. As a very large volume of traffic originating from Official passes to the public system, it was decided to experiment with automatic means of routing this traffic. As a preliminary, three outlets from level 12 of Official were fitted with special repeaters and thence connected direct to three rotary line switches in Metropolitan Exchange. Certain selected extensions were fitted with director type dials and, by dialling 12 followed by the usual director code and number, subscribers were able to gain direct access to the number required.

The experiment having proved successful, steps were taken to extend the scheme to all extensions. Approximately 50 rotary line switches on Metropolitan barred trunk unit were appropriated and connected to repeaters in Official. Level "O" was chosen as the dialling out level for the permanent scheme, the "11" level circuits previously used for enquiries, &c., being increased to carry assistance traffic previously routed over the "O" level. The change-over was effected successfully during a period of light traffic on Sunday morning, Sept. 20. The first two "O" level choices from each unit were busied out and converted to route the traffic to Metropolitan while the changes were being made gradually on the remaining circuits.

L.E.D. Sports Association.

Swimming.—As has been reported often in these columns, the L.E.D. Swimming Club has been the champions of the Civil Service for the past three seasons. Twelve months ago a female clerical staff was introduced into the L.E.D. and a Ladies' Swimming Club was formed immediately. The ladies are evidently not going to let the gentlemen have all the honours, for at a first attempt a Civil Service Championship was won. On Sept. 5, at Walton-on-Thames, Miss Grace Fuller won the Civil Service Mile Championship in the fast time of 13 mins. 8 secs., beating the holder, Miss Laidley,

of the Savings Bank, by 4 seconds. Miss Fuller is also to attempt to win the Civil Service Ladies' Diving Championship at the L.E.D. Gala, on Oct. 5, at the Lambeth Baths. She possesses an excellent chance of capturing this title, as she is an experienced diver, having gained 3rd place in the Surrey County Ladies' Championship last season.

In the Civil Service Gentlemen's Diving Championship Mr. H. F. Crow obtained 3rd place.

Rifle Shooting. Arrangements have been made for the K.E.B. Range to be reserved for the London Engineering District Amateur Sports Association on two evenings each week. Full particulars will be given in the next Sports Bulletin.

Association Football.—In the first round of the Civil Service (Lewis) Cup the L.E.D. are drawn against Customs (away).

L. Pullen (XX), W. Codling (ICT) and J. Casey (XSW) have been selected to represent the Service v. the Royal Navy, at Portsmouth, on Sept. 30.

Chess.—Arrangements have been made to enter a team in the Civil Service League.

All interested are requested to get in touch with the captain, Mr. C. W. Cornwall, Hop 8000, Extension 40.

Particulars of club matches and competitions will be announced later.

Cycling.—The L.E.D. succeeded in retaining the Civil Service 1 mile track cycling championship after a fine race at Herne Hill on Saturday, Sept. 19.

The result was as follows: H. P. Kilb (XSE), London Engineering District, 1; H. A. Franklin, Ministry of Labour, 2; B. Bevan (XCT), London Engineering District, 3. Time, 2 min. 48 $\frac{1}{2}$ sec. $\frac{1}{2}$ length between 1 and 2 and $\frac{1}{2}$ wheel between 2 and 3.

C.T.O. NOTES.

Promotions. Messrs. A. Salisbury, Overseer to Assistant Superintendent, and G. Thompson, Senior Telegraphist to Overseer.

Retirements.—Mr. E. Chilvers, Telegraphist.

Obituary.—We regret to announce the death of Mr. A. J. Jellie, late Superintendent of the C.T.O. Entering TS in 1883 he attained the rank of Superintendent in 1923, retiring in 1928. To Mrs. Jellie and their relatives we extend our deep sympathy.

The news has been most regretfully received of the passing of Mr. F. W. Miles, formerly Chief Superintendent, C.T.O. Mr. Miles entered the service in 1870 and eventually became Chief Superintendent in 1920 and retired in 1922. We express to Mrs. Miles and her daughter the sincere sympathy of ex-colleagues of her late husband.

We regret also to record the death of Miss Curtis. Coming to old TS in 1870 she became Supervisor in 1908 and retired in 1913.

Sport.—It is pleasing to note that Miss T. High, of this office, received favourable comment for her bowling during the Women's Cricket week recently held at Colwall. She succeeded in taking a number of wickets.

Boats.—C.T.O. beat the Ministry of Pensions in the Final of the "Bunbury" Cup by 64 shots to 48.

Swimming.—Mr. H. Megenis, of the Cable Room, put up a good performance in finishing third in the C.S. quarter-mile championship.

Cricket: C.T.O. Championship Cup.—The newly instituted championship knockout competition has undoubtedly given a welcome fillip to divisional cricket, not only from a playing point of view, but also in the interest and enthusiasm that the games evoked throughout the office.

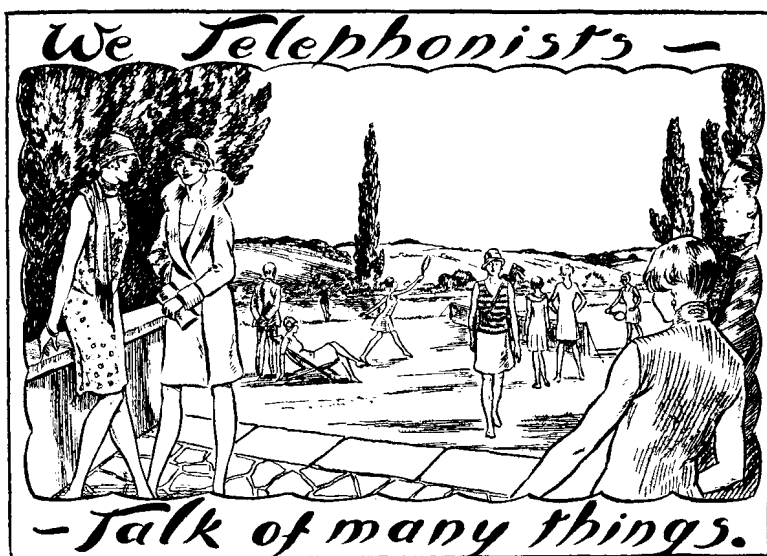
Both the final on Aug. 18 and the replay on Aug. 27 were well attended, the controlling and supervising officers being well represented amongst the spectators.

The final resulted in a draw, Stock and F 138 for 6 (W.C. Smith 70 not), Met. 69 for 9.

In the replay Met. won the toss and elected to bat, and thanks chiefly to an opening stand of 52 (L.W. Jeffery 42, R. A. Day 27), compiled a total of 110. Stock and F started badly losing two wickets for one run but a tenacious stand for the fourth wicket carried the total to 72. Then followed a collapse, the remaining wickets falling for the addition of 20 runs, leaving the Met. winners by 18 runs. The chief bowling honours went to W. T. Cook, Stock and F (7 for 36), and G. Plowman, Met. (6 for 20).

Mr. Archibald, in presenting the cup, stated that he thought the interest and enthusiasm shown well worth his effort in giving the trophy.

I am sure all members would wish to express their thanks to Mr. Archibald for a cup that has so revived interest in office cricket.



Doors.

HAVE you ever stopped to consider what a very large proportion of our life we spend in going through doorways and in opening and shutting doors? No! no, neither have I until this moment. But I am perfectly astounded at the large amount of time I spend thus every day, week, month and year—or, at any rate, I should be astounded if I knew, and I am prepared to be astounded when I do know. When you come to think about it, we are always going through doorways—out of bed, through the bedroom door: through the bathroom door: then reverse: down through the dining-room door: out again through the same door and out through the hall door: in through the carriage door of the train: out again only to go through the office doors. And at the end of the day back through the same chain of doorways to slip over the threshold of sleep. If all the doorways through which we pass in a normal day were put together—quite a stupid sort of thing to do, of course—we should have quite a long corridor with a door at each end, and since both of these doors would invariably be left open, there would be the very deuce of a draught.

Doors themselves—all doors in fact—are full of interest more particularly since, if we think of them at all, we do so from an external standpoint and in terms of what is behind them. You have only to look at some doors to realise instinctively that, if you were bold enough to approach them, you would be regarded either as a hawk or a circular. Other doors smile a welcome and appear to open almost as soon as you near them. Safe doors look upon you with a cold suspicion and prison doors dare you to attempt any interference with the course of the law. Of the inside of prison doors I can say nothing (loud cries of "Why not!"), but I am told by one who knows that the most terrible thing about them is the sense of isolation from the world that arises as, one after another, the doors clang to behind you. Dentists' doors have a sardonic humour of their own and they delight to spring open just as you have decided joyfully that the dentist is out. The most amusing are revolving doors in which people are put into glass compartments like bananas in an automatic fruit machine. With the exercise of a little skill and judgment you can get a deal of fun out of them. Place several of your dearest enemies in one of these machines, give the door a violent push and watch them come out in neat slices. Placing two in one compartment increases the fun but is apt to clog the works. Incidentally it is said that a parasite is a person who goes through a revolving door without pushing.

Some doors are thoroughly unsporting and creak most alarmingly when you come home very late: others open and shut in a mysterious and uncanny way when you sit up late. Then there are the doors that jam at critical moments and those that will never keep shut. Most office doors bear a notice "Shut this door": terse and bad-tempered in tone—or, more politely, "Please shut this door." The notice doesn't seem to make much difference and there are always those hearty creatures who will slam it shut, notice or no notice. Carriage doors on trains never fail to achieve the impossible. They will close no matter how great the excess of humanity crowded into a compartment. Automatic doors on tube trains are very uncertain if in a playful mood. They may merely slice a bowler hat and leave the wearer intact, or bisect the last man either in longitudinal or cross-section. How wise Nature was to dock our tails before automatic doors were invented. Many of you may be cats, but you would prefer, I am sure, to be manxed naturally rather than artificially.

Of all the other varieties of doors I will leave you to weave your own romances. But there is one door to which I must make reference. It is awe-inspiring and is marked "Private." Behind it sits the Editress; I stand before it now with this manuscript in my hand; my heart thumps; I tap timidly and I enter slowly. But who can calculate the speed with which I shall emerge? Ah! well, here goes.

PERCY FLAGE.

Thoughts by the Way.

There are two classes of female employees in the London Telephone Service—girls and women; the telephonists are the girls, and the supervisors are the women. It is not a question of age or length of service; the elevation to higher rank bestows upon its recipients the dignity of womanhood.

Presumably telephonists have not lost hope of being promoted to that highest of all classes—Holy Matrimony; but supervisors, having become married to their work, are accorded the courtesy title of "women."

But with male officers no such distinction prevails; they are not youths until they either master the rudiments of telephony or assume the responsibilities of wedlock; they are men from the beginning of their service to the end. We assert that "The girls will be on duty at 8 a.m."; but do we say "The boys will arrive at 6 p.m.?" Then why this inequality between the sexes?

Time is artificial;—actually there is no such thing—it is a mathematical process for marking off days, years, and seasons; yet, as we watch the Veeder clocks click-click-clicking away the seconds, we realise that our lives are sacrificed on the altar of the thing we call "Time."

Advertising literature comes upon us like a flood. The proud father is informed by telephone that "It's a boy." Fire has no terror for the telephone subscribers; he merely rings up the Fire Brigade and his home is saved. The undignified spectacle of a householder, clad in pyjamas, armed with a poker, defending his family from the nocturnal intruder, is unknown to the telephone user; he sits up in bed, communicates with the police, and, knowing all to be well, falls drowsily back again to continue the interrupted dream.

"Feed the brute"—that most practical of all maxims—is not forgotten; Aladdin's Genie is not more wonderful than this modern device; the wife lifts her receiver, says a few words into it, and behold, the food for her household appears before her.

The husband tells his wife, from the office, that he is unavoidably detained. A visit to the theatre is arranged by telephone. Everything, in fact, that makes life happy in the home is considered.

But potential homemakers—spinsters, bachelors, and engaged couples—are neglected. The telephone can serve a purpose, even to them, if only to advise them by means of an artistic poster:—"No more Breach of Promise cases; use the telephone; one word is as good as another in a Court of Law."

Elocution prizes are offered every year to the telephonists who recites, to the best satisfaction of the judges, such poems as: "Tell me not in mournful numbers," but it does not appear to have occurred to anyone that a medal should be presented to the telephonist who can articulate distinctly, in a minimum amount of time, the latest version of: "The House that Jack built." "This is the dialling tone. You should listen until you hear this tone before you commence to dial. This is the ringing tone. It indicates that the number is being rung. This is the engaged tone. It indicates that the number or the exchange connecting apparatus is engaged. When you hear this tone you should replace the receiver and dial the number again after an interval of not less than two minutes. This is the number unobtainable tone. It may indicate some irregularity in dialling. When you hear this tone you should replace the receiver, verify the number required, and carefully dial it again. If the tone is again received, it probably indicates that the required number is out of use or out of order."

Perhaps some of the other exchanges will tell their thoughts next month.

G. M. T., Croydon Exchange.

Let's Talk of—Hymen.

Telephonists talk of many things and in their talks there has been a general agreement that since the introduction of automatic exchanges, advancement has been slow owing to redundancy. Yet all this may be changed—36-hour telephonists may become 48-hour, 48-hour telephonists may become supervisors class II, class II supervisors may become class I—and so on. The question naturally arises—"How can this miracle occur?" The answer is "Economy Committee." No—they have not recommended fewer telephonists—but one of their proposals may lead to a sudden depletion in staff. Can you guess what it is? They have threatened to abolish the marriage dowry!!!

R. F. H.

Extract from unnumbered Instruction:—

"Will you please note that in future a cake of soap supplied officially is to last two months,"

and what Shakespeare nearly said:—

Methought I heard a voice cry "Wash no more;
The Axe has murdered soap." The clean use soap,
Soap that takes out the daily spots and blots,
The grime of each day's life, the ink that stains
Our work-soiled hands. Thrice-blessed soap;
Chief latherer in the bath. That voice again—
Still it cries "Wash no more" to all the house,
"The Axe has murdered soap" and therefore I
Shall wash no more; you, you shall wash no more. . .

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

The business done by the Contract Branch during the month of August resulted in a net gain of 2,175 stations.

In and around London considerable building is being carried on and new estates are to be found everywhere, consequently, there are always large numbers of people found to be inspecting or otherwise interested in the property being erected. Many of them are of the class to which the telephone is likely to appeal, and in order to attract attention efforts are being made, with some success, to induce estate agents and builders to take some telephone literature for distribution amongst their clients and to exhibit posters advertising the telephone. Also, where there is a furnished "show house" on view, up-to-date instruments are loaned, by arrangement, for advertisement display purposes.

The canvassing force has recently been augmented by the appointment in London and the Provinces of 100 additional Contract Officers of whom 30 have been allocated to London.

Steps are being taken by the District Contract Managers with the co-operation of the Development Section of the Contract Branch, closely to examine those districts which seem to offer the most attractive field for special attention, with a view to obtaining orders. Much can be accomplished by the judicious distribution of the canvassing force, and one reason amongst many others which is a matter for consideration, is the difference in the development achieved in certain classes of property in some localities as compared with others. Such instances of lag seem to afford lucrative ground for propaganda and will be earmarked for concentrated effort. There is also an extensive field consisting of small shopkeepers and businesses who are on the edge of becoming telephone users, and Contract Officers should be able to make considerable inroads into the large army of people with business interests, in addition to householders, not yet on the telephone.

It is hoped that the time and thought given to organising this effort will be productive of good results.

L.T.S. Sports Association.

Social and Concert.—It has been customary in previous years to arrange a social gathering in October, when the Summer Sports' trophies are presented.

The Committee have fixed Monday, Oct. 26, as the date for this year's meeting.

The programme will be:—

5.30 p.m.—Social during which selections will be rendered by a small orchestra.

6.30 p.m.—Distribution of prizes by Mrs. Noel Curtis-Bennett.

7 p.m.—Concert and Social.

The committee extend a hearty invitation to the staff of the L.T.S. to attend.

It is anticipated that the President of the Association, Mr. W. H. U. Napier, will take the Chair for the prize distribution.

The winners of the Inter-Branch Cricket League were the Contracts Branch.

The Agnes Cox Cup this year goes to A.R.1 (Accounts Branch), who beat Ravensbourne at Chiswick on Saturday, Sept. 19.

Miss Wilson of Accounts Branch A.R. 1 (Accounts Section), won the Cup, kindly presented by Mr. and Mrs. Pink. The winner beat Miss Head, also of A.R. 1 (Accounts), 9-7, 8-6.

Other prize winners in summer sports will be announced at the Social.

Table Tennis Tournament.—The fourth annual Table Tennis Tournament will be held this year. The first round will take place towards the end of October. The competition is divided into two classes, ladies and gentlemen. The tournament is open to any members of the London Telephone Service staff, who are cordially invited to enter for this interesting competition. The tournament is run on the "knock out" system, the winner of the best two out of three games qualifying for the next round. Four prizes are awarded, two for each competition. Provided a sufficient number enter for the Tournament, it is hoped this year to make two sections for the Ladies and two sections for the Men, with a prize for the winners of each section. In addition the winners of the Ladies' section will play for a Championship Trophy, to be held for one year, and a similar trophy will be played for by the winners of the Men's sections.

Please do not be afraid to enter because you are not a "star turn," as there are plenty who enter for the love of the game, also you may probably get some very useful hints from more experienced players. In the past this tournament has been a great success both from a playing and social point of view, and all who enter are assured of an enjoyable time. The Table Tennis Club at Cornwall House have again kindly consented to allow their three tables to be used on the evenings fixed for the tournament.

All entrants for the Tournament should forward their full names and reference, together with the entrance fee of 6d. (P.O. uncrossed) to the Hon.

Sec., A. M. Hough, A.B. Section, Cornwall House, not later than Saturday, Oct. 17, 1931. A notification will be forwarded to all entrants advising them when and where they are to play and also the name of their opponent.

It is hoped the staff of the L.T.S. will take full advantage of this opportunity to play the game and meet their colleagues on these enjoyable social evenings.

W. R. BOLD, *President.*

The St. John Ambulance Association: London Post Office Centre (Post Office Ambulance Corps).

Classes are being arranged in connexion with the P.O.A.C. as follows:—

Savings Bank Department, every Tuesday ...	4.30 p.m.	First Aid.
Controller's Office, L.T.S., Cornwall House, S.E.1, every Thursday (starting Oct. 8) ...	4.30 p.m.	.. ..
Clerkenwell Exchange, every Thursday (starting Oct. 15) ...	6.0 p.m.	.. ..
Holborn Exchange, every Monday (starting Oct. 12) ...	6.0 p.m.	.. ..
Battersea Exchange, every Wednesday (starting Oct. 14) ...	6.0 p.m.	Home Nursing.

There will be other classes after Christmas, commencing in January at the G.P.O. South, Money Order and C.T.O.

We are anxious that as many as possible should join.

Further particulars can be obtained from the Local Branch Secretaries or from Miss E. K. M. Meeser.

General Secretary, Women's Section, P.O.A.C.,
Cornwall House, Waterloo Road, S.E.1.

Obituary.

It is with profound regret that we record the passing of Mr. John R. Jacob, Superintendent of Traffic in the London Telephone Service. Mr. Jacob was associated with the London Telephone Service since 1903, and he advanced by successive stages to the position of Superintendent. He was a man of strong personality, a leader and a great friend. He will be remembered for his high sense of duty, his loyalty and his helpfulness to those who consulted him.

For many years Mr. Jacob was a prominent member of the L.T.S. Traffic Officers' Association and for some time its chairman. His wide knowledge and sound judgment were of immense value during his tenure of office.

At the interment on Sept. 4 at Edmonton Cemetery, Messrs. Benham and White represented the London Telephone Service. Representatives from the Music Lodge and the Old Queens Lodge, and numerous other friends and colleagues were also present to pay their last tribute.

We regret to record the death on Aug. 6 at the age of 75 of Mr. J. Burrell after 32 years' continuous service. He was transferred from the ex National Telephone Company as a Supervisor of Call Office Cleaners, and owing to the efficient and conscientious manner in which he performed his duties, his services were retained beyond the normal age for retirement. He was at work until a few days before he died.

Mr. Burrell was ever ready to assist any deserving cause, and for several years was a valuable collector for the Hospital Saturday Fund.

He was held in high esteem by all with whom he came in contact, and his colleagues extend heartfelt sympathy to Mrs. Burrell and family in their bereavement.

Personalia.

Promotions.—Miss L. A. Billiet to Asst. Supervisor, Class II, Trunk Exchange (Continental).

Resignations on Account of Marriage.—

Assistant Supervisor, Class II.

Miss F. Chesterman, of London Wall.

Telephonists.

Miss R. C. Mash, of New Cross.	Miss R. M. Pegrum, of Toll "B."
" D. E. Dadswell, of New Cross.	" I. B. Fossey, of Clerkenwell.
" B. L. Steel, of Gerrard.	" I. Thomas, of Clerkenwell.
" V. M. Payne, of Gerrard.	" D. Stokes, of Clerkenwell.
" F. K. Templeman, of East.	" F. E. Briggs, of Monument.
" M. Russell, of Battersea.	" D. Moran, of Mayfair.
" J. B. M. Wilkes, of Battersea.	" S. E. Gregory, of Mayfair.
" F. M. Miller, of Barnet.	" D. C. Tricker, of Trunks.
" E. M. Keeley, of Pinner.	" L. S. Morton, of Trunks.
" O. Clark, of City.	" B. A. Pembroke, of Trunks.
" W. Alstin, of City.	" D. M. Huckin, of Sydenham.
" A. L. Dowding, of Toll "A."	" S. M. Evans, of Sydenham.
" P. E. Winter, of Toll "A."	" M. Tongeman, of Ilford.
" P. E. M. Eaton, of Toll "A."	" E. F. E. Turner, of
" E. G. Chivers, of Riverside.	Hampstead.
" M. D. Dawe, of Regent.	" M. M. Harkess, of Hop.
" N. D. I. Hosking, of Regent.	" C. Sanger, of Hop.

Miss H. G. Barrowclough, of Regent.	Miss K. I. Hawes, of Hop.
" E. G. G. Packham, of Purley.	" D. A. M. Walder, of Hop.
" W. E. Cox, of London Wall.	" M. A. Mayo, of Metropolitan.
" G. W. Cooper, of London Wall.	" W. A. M. Mitchell, of National.
" D. E. News, of London Wall.	" A. McGuire, of National.
" F. S. Nuthall, of Kingston.	" M. E. Anderson, of Holborn.
" M. P. Cross, of Finchley.	" M. Broomfield, of Popesgrove.
" B. L. Gilbreath, of Ealing.	" V. D. Verrall, of Amherst.
" I. F. Mullett, of Willesden.	" W. T. Dawson, of Central.
" I. A. Evans, of Willesden.	" I. Lucas, of Central.
" W. H. Bailey, of Victoria.	" H. Slade, of Kensington.
" C. M. Williams, of Victoria.	" N. Swaine, of Kensington.
" H. C. Loab, of Victoria.	" E. F. Kinnaird, of Paddington.
" A. E. Ruddick, of Victoria.	" D. L. Good, of Eltham.

NORTH WESTERN DISTRICT NOTES.

Lancashire—The Paradox of the North.—Looking at the development figures for the towns whose life's blood centres around "cotton," and comparing them with actual growth one cannot but be struck with the "lag" which has accumulated; calling rates tell the same tale of woe; on all sides there appears the hand of destiny apparently crushing to slow but inevitable extinction from the world's markets this once prosperous county of Lancashire. Go out into the towns and you will see gaunt buildings, smokeless chimneys, crowds around the labour exchange doors, and feel the general air of pessimism which has settled on all who are feeling the weight of depression. What possible hope can there be for Lancashire? Looking, cursorily, at the picture, the temptation is to say, none; but those who peep below the surface are not so sure. Let us visit the Preston-Blackpool road on Sunday evening, you cannot get across for cars—private cars—two deep for miles, and most *en route* to their homes in Lancashire after a day of pleasure—no lack of money there, apparently. Who is that prosperous looking man, complete with caddie, playing with super-harlequins? you ask. Oh! he owns such and such a mill, you are told—again, apparently, no lack of money. If such men as this are faced with potential disaster, why not retrench? Is it that they can see the silver lining to the cloud of the cotton depression? What does it all mean? Are there forces below the surface engaged in a ruthless war of bloodless revolution? Only those in the know can answer this question, and they are keeping a discreet silence. One cannot help but feel, however, that the significance of the "more looms per man" question, synchronising with the Indian situation, is not fully appreciated, and the artificial situation so created should not be accepted without due caution. It would be injudicious, however, to comment, or even hint, at the rights or wrongs of what would appear to be a case of masterly inactivity, but, from a telephone point of view, the situation should not be accepted at its face value and all given up as lost. Now is the time for all concerned to make preparations for the (in the writer's opinion) inevitable turn of the tide, and be ready to march immediately the forward bugle sounds. The bugle call may be very faintly heard at the outset, but its notes may conceivably reach crescendo very quickly, and woe to him who is caught napping—we want all the business we can get. Let us, then, keep the decks clear for immediate action, for on no account must the wheels of industry be hampered by telephone unpreparedness. No excuse will be accepted by the British public for failure; we must, and will, be ready, and let us hear the bugle call soon.

Preston—District Office.—The return of Miss Lupton (Writing Assistant), who has accepted an offer for training as a Clerical Officer at this office in preference to the Ministry of Labour, terminates our connexion with this Department, with whom we have been remarkably successful; eight having been selected for promotion and a further eight being successful in the open competition, one of whom obtained first place.

Congratulations are offered to Miss Archer (late of Blackpool) and Miss Hoyle on their promotion to Clerical Officer.

After many vicissitudes due to medical difficulties Miss D. Cooper, Girl Probationer, has left for employment as probationary S.C. & T. and was the recipient of good wishes and a tangible reminder of her service at the office.

One of our staff (Miss Salt) is showing considerable prowess as a swimmer, and as a member of the Southport ladies' team has achieved much success.

Preston Traffic.—Mr. V. Page, A.T.S. in training, has now left us for Southampton. Our best wishes go to him in his new sphere of activity.

After the Holidays.—The pleasure with which we viewed the return of one of the members of our staff from his summer holidays was not unmixed with a certain amount of joyful relief, partly no doubt, due to the fact that his project of conquering the Swiss Alps with an Austin Seven was not lacking that spice of adventure which undoubtedly attracts the initiate to motor mountaineering. When, moreover, we had viewed his pictures of the roads over the Alpine passes we were even more astounded at his safe return and the remarkable performance of the baby car.

The following notes of his journey will no doubt be of interest, but we hope they will not inspire other members to go "one better" during next year's vacation.

It is a magnificent tribute to British Engineering skill that with the minimum of attention and of mechanical adjustments a journey of 2,200 miles via Zurich, St. Moritz and the "Dolomites" to Venice, returning across the Italian plain to Lake Garda, Lugano, the St. Gotthard Pass, Lucerne, Interlaken and finally over the beautiful Col du Pillon Pass to Montreux and Lausanne should have been accomplished without a hitch.

The crowning point of the tour might well be considered the Stelvio Summit, the highest pass road in Europe, and we have it on good authority that even at this outpost of the Italian territory the foresight and imagination of the Italian Postal Administration is typified in the quaint little Post Office. It could hardly be considered the fault of the Postmistress when she failed to understand the crude attempts at Italian which chiefly consisted of putting "io" or "o" on the end of all and sundry words. In the end Mr. Cook's man turned up from nowhere and obliged, thus enabling commemorative post cards to leave by the mid-day post.

A mountain postal route exists on all the principal and many of the minor passes and the "Postautomobile" provides during the summer months the means of transport and communication between the villages on the routes. The "Postautomobile" takes the form of a small charabanc, and is provided with a hooter having a distinctive note, and it needs little imagination to realise what a formidable object it becomes on a narrow pass, where it always has a prior right to the mountain side, any other vehicle being forced to take the precipice side or reverse to a place better adapted for crossing. Our informant tells us he would rather meet a G.P.O. motor cycle, or even a Ford postal van!

Fatal accidents occur regularly on the Swiss mountains and it is no doubt for such emergencies that most of the hospices on the routes are served by telephone communication. We are not haukering after the lineman's job, especially during the winter months, when the roads are closed or during the early summer months before the winter's havoc has been repaired ready for the advent of the tourist.

Speaking of maintenance reminds us also of the communications between Venice and the mainland, and we wonder what the emergency faultsman sings whilst he sweeps his gondola along the route to find the disconnexion and where he finds his "earth" for testing when there is so much sea about.

SCOTLAND (WESTERN DISTRICT) NOTES.

Presentation to Mr. D. J. Melville.—On the occasion of his transfer to Guildford Mr. D. J. Melville, Contract Officer, Class 1, was the recipient from his colleagues in Scotland Western District of tokens of their esteem in the form of a handsome umbrella for himself and week-end case for his wife. In the presence of the Contract staff, the presentation was made by Mr. A. S. Brodie, Contract Manager, in the absence of the District Manager (Mr. Thyne) on annual leave. Several happy speeches were made, proving that Mr. Melville was very popular with the staff. His departure is regretted.

Mr. Melville, in his reply, thanked the staff for the gifts and expressed his regret at having to leave the District owing to domestic circumstances. After the presentation, tea, &c., was served and thoroughly enjoyed by all present. Altogether a very enjoyable time was spent.

An Unusual Call.—Paragraph culled from a newspaper in Lanarkshire:—

A quite unusual "call" was made at the telephone kiosk outside the Town Hall one evening recently. An operator on duty at the telephone exchange at the post office was endeavouring to "call" Mr. Brassington, the electrical engineer, but the latter gentleman was not at home. The call was an urgent one, Mr. Brassington's services being required at the electricity works. Chancing to catch a glimpse of the electrical engineer passing the Town Hall, the operator dashed to his instrument and gave a loud call to the Town Hall kiosk, feeling pretty sure that it would attract Mr. Brassington's attention. The operator was quite correct in his surmise. Mr. Brassington, hearing the loud ring and seeing nobody, entered the kiosk and gave the operator a ring to tell him there was surely something wrong when the bell was ringing so loudly and nobody near at hand. The operator was soon able to explain that all was well at the kiosk, it was only Mr. Brassington who was wanted at the works and the easiest way to get him at the moment was to sound the kiosk. The trick certainly worked all right, and the electrical engineer and the operator are to be congratulated on their mutual understanding.

Another event which occurred recently was the resignation, with a view to marriage, of Miss C. A. Macnair. To mark the occasion, she was presented with a handsome travelling case. The presentation was made in felicitous terms, on behalf of the staff, by Mr. Dunn, Staff Officer, in the absence of Mr. Thyne, District Manager, on annual leave. Miss Macnair suitably replied. As she was leaving the precincts of the office, she was given a real hearty send-off.

Qualify for a Technical Post in the G.P.O.

The T.I.G.B. provides Postal Tuition Courses for the following examinations and guarantees training until successful for the one fee:—

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MANCHESTER NOTES.

Supervisor for Toll Exchange.—We are pleased to note that Miss Foster, who has been in charge of the Toll Exchange since its inception, has been promoted to Supervisor of that exchange. During the period it has been opened, she has done much to promote amicable conditions amongst the staff, and smooth and efficient working in the exchange generally. This exchange is growing rapidly, and with the variety of operating methods in force, ability and tact are very necessary, and these qualities are happily combined in Miss Foster.

Sport.—Manchester Chess Success.—We were pleased to note that in the Major Open Chess Tournament, held at Worcester in August, Mr. Broadbent, Assistant Traffic Superintendent, tied for fourth place with E. Znosko Borovski, the Russian chess master. The tournament, which was limited to 12 players, included Miss Vera Menchik, the Woman Champion of the world, D. Leitz, the German Master, E. M. Jackson and H. Jacobs, an ex-British champion.

Golf Success.—Mr. Barnard, Acting Service Inspector, has been successful in carrying off the President's Prize at Alderley Edge Golf Club, the final of which was played on July 22. Mr. Barnard played an excellent game and won easily by 7 and 6. There was a large following.

Annual Sports.—These were held at the Manchester Athletic Club Grounds, Fallowfield, on the evening of Aug. 6. Competitors came from Birmingham, Liverpool, Sheffield, and other centres, and a large attendance watched the various events. Owing to absence on leave Mr. and Mrs. Maddan were unable to be present. The principal officials of the Post Office were well represented, Mr. Moorhouse, Assistant Postmaster, Mr. Whitelaw, District Manager, Mr. Oldcorn, Chief Supt. (Tels.) and Mr. Brooks, Chief Supt. (Postal) all being present. On account of the heavy rain in the morning the events had to be run on the "cinder" track. The whole proceedings went with a swing, and the concluding event, the 5 miles' cycle championship, was finished before dusk. Considering that there were 21 events, credit is due to the stewards for the expeditious way in which they carried out their duties. The Telegraph Branch had two successes, namely, A. E. Baker, who was second in the seniors' race, and Miss Wroe, second in the balloon race. The Telephone Branch did rather better, Messenger Foulkes being first in the 220 and 400 yds. and 3rd in the 120 yds. races. Miss Bell, of the

District Manager's Office, captured first place in the balloon race. The Misses Braddock and Fitzpatrick, Toll Exchange, were second and third respectively, in the 100 yds. ladies' handicap, the former also being second in the ladies' obstacle race. The Misses Burton and Barry, Toll Exchange, and Watson, District Manager's Office, won the first three prizes in the egg and spoon race. The Central Telephone Exchange staff won the relay race, which carries with it the "Fauldens" Challenge Cup. After the finish of the sports the prizes were distributed by Mrs. Moorhouse.

Transfers.—Mr. Walker, Assistant Traffic Superintendent, who came to us from Preston but a few months ago, has returned to his home town, and his place has been filled by Mr. Lloyd, from Scotland West, who received his training in Manchester.

Yet Another Wedding!—Miss Whitelaw, of the Traffic Department, who is the daughter of the District Manager, left us on Aug. 11 to be married. She was the recipient of many beautiful and useful gifts. The wedding took place in Christ Church, Didsbury, on Sept. 10, and was attended by many of her old colleagues. Our best wishes go with Mrs. Jacques, and may she have happiness and prosperity in her married life. She has gone to reside in the beautiful village of Disley, amongst the gorgeous "Peak" scenery.

Oldham. We welcome to our midst Mr. Farrant, Head Postmaster, who has come to the District from Hull, and trust that his sojourn in Lancashire will be all that he would desire.

Resignations of Telephonists due to Marriage.—These have been heavy during August, the particulars being as follows:—

Name.	Exchange.	Name.	Exchange.
Miss V. Davies ...	Central.	Miss L. Fleming ...	City.
" A. Thompson ...	"	" R. Farrell ...	"
" D. Machell ...	"	" A. Livsey ...	Toll.
" E. Hogg ...	City.	" A. Woodward	Altrincham.
" L. Cliff ...	"	" A. Crossley ...	"
" S. Wordley ...	"	" C. O. Skeet ...	Stockport.
" I. Worrall ...	"	" E. Wright ...	Irlam.

SOME C.T.O. PERSONALIA.

MR. F. WADLEY, the late Assistant Controller of the Cable Room, accompanied by Mrs. Wadley, have recently been on a round of visits in London to as many of their old friends and colleagues as could be reached in the limited time at their disposal. Both, one is happy to report, are in excellent health.

Friends of Mr. E. Bradley, a former Superintendent, also of the Cable Room C.T.O., will be glad to learn that he is in good health, and sends his good wishes from Stalheim, Bergen, &c., &c.

As an unfortunate contrast to these last two paragraphs it is most regrettable to learn that the retirement of Mr. D. M. Ford should have been so soon marred, by a personal accident and other domestic troubles demanding medical care and attention.

Congratulations to the following three Octogenarians of the C.T.O. Mr. H. R. Tester, Superintendent, fit and well at Branksome, Dorset—Entered Electric and International Telephone Co. 1867. Was at Euston Station (L.N.W.R.) with "Double Needles" and "Embossor" with heavy armatures. *Reading by sound then strictly prohibited!* To Mr. J. G. Goldsack, Assistant Superintendent, C.T.O., commenced L.B.S.C. Railway, transferred Belfast then to C.T.O. 4 years later; retired 1911. Also to Mr. S. M. James, Assistant Superintendent, C.T.O. Was on Technical side for many years under Sir H. C. Fischer; retired 1911.

Obituaries.—On the 9th ult., after a very painful illness, there departed this life, in Croydon Hospital, Mr. J. Holdsworth, Assistant Superintendent, in his 85th year. Naturally he was not known to the present generation of telegraphists, but he was yet another of the stalwarts of the "old companies" service, and first entered the *Electric and International*; then at the transfer in 1870 was sent to Dorking, thence to Dover Pier in 1873, and to the C.T.O., London, in 1875; retiring in 1907.

Also on Aug. 29, Mr. Arthur F. Reeves, who died suddenly in his 66th year, and who retired from the Telegraph Service in 1925. He entered the Government's Telegraphs in 1882, and for many years was Secretary of the T.S. "Sick Fund," and served on Committees of the "Northampton," "Post Office," and "Wandsworth" Insurance Societies, and delegated on many occasions at the Conferences of these beneficent organisations. He had been a very keen athlete, and in the 'eighties was among the best "mile runners" in the C.T.O. The stalwarts of that period were W. A. Lamb and Major E. Sturman (the latter, late P.M.G. South African Union). Among those who were present at the Streatham cemetery were Messrs. F. Barfield, T. W. Charter, E. M. Diaper, and A. S. Wheeler. Among the floral tributes were noticed one from his old office colleagues and another from his golfing friends, including the two clergymen who were members of the same club and conducted the funeral service.

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No. 200.

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THE POSTMASTER-GENERAL.



[Photograph by Keystone View Co.]

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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WAS IT BLUFF?

THE great "raid on wireless pirates" in the metropolis is now over, and more than 200,000 new licences were issued during its progress. At the time of writing exact figures are not available, but of its success there is not a shadow of doubt. "No possible probable shadow of doubt, no shadow of doubt whatever."

The Press was very generous in its aid and the success was mainly due to its efforts, supported as they were by the B.B.C. and its artistes. On one occasion Clapham and Dwyer abruptly ended their amusing patter in order, so they said, to rush off to the nearest Post Office for a licence. Some journals were not altogether helpful, but no doubt their contributions helped the publicity side. One of them criticised the Post Office unmercifully under the heading "The Latest Outrage"; a Sunday paper with a wide circulation described the campaign as a stupendous bluff; and an echo was heard from the other side of the Channel where the *Matin* said: "*Ces operations ont été la plus magnifique farce qui ait jamais été faite à une nation tout entière.*"

But was it "bluff"? The slang meaning of that word is "a false excuse intended to blindfold or hoodwink"; while the dictionary tells us that "bluff" was first used in the United States amongst poker players to describe "challenging or boastful language or demeanour, not intended to be carried out, but merely tried on with the design of frightening or influencing an opponent who allows himself to be imposed upon by it." In the sense of falsity this campaign was no bluff. The Post Office cars are, in fact, fitted with up-to-date direction finding apparatus which is used with

great success daily throughout the year in dealing with complaints of interference and illicit transmitting. And as to the statements in the Press, can we blame the journalist who enlivens his article by light touches of imagination and romance?

Given the knowledge that there were a large number of "pirates" in the London area, what was the Post Office to do? To call at every house and to prosecute every unlicensed listener was obviously impossible, apart altogether from the ethics of such a proceeding during a time of acute financial depression. A scheme for "combing" only selected districts would have been inconclusive—and the process of selection difficult. What the Post Office decided to do was fair to all. It gave ample warning that all its available cars would be massed in London for a general campaign: that no questions would be asked "how long a set had been used?" of voluntary applicants for licences: and that any persons detected before they took out licences ran a serious risk of prosecution. Many a one who disregarded this warning was detected and will pay the penalty.

The only "bluff" was that the Post Office relied on the essential truth of our national proverb: "Uneasy consciences make cowards of us all," and acted accordingly. The uneasy conscience, and the uncertainty whether one would be amongst the unlucky wights who would be detected, led to a great stampede for licences.

Ten shillings is little enough in all conscience to pay for a year's programmes, including expositions by some of the greatest speakers, singers, and musicians of the era. The man who deliberately dodges such a small payment towards the cost of the programmes is almost as mean as he who is said—we hope it is a fable—to have waited until the baby was asleep and then emptied its money box. The man in the street—honest in all essentials—has no sympathy for such as these and cares not whether their discomfiture is due to the prickings of conscience or to the more prosaic attentions of the police courts.

HIC ET UBIQUE.

MR. EDGAR GRANVILLE, M.P., writing at large to several of the provincial papers on the "Post Office's Unsurpassed Services," points out that there are 44 million telephone-less people in Great Britain and Northern Ireland. This is a new criterion of telephone development, and appears at first blush a telling one from the anti-Post-Office point of view. But is it? By the same novel method of presentation there are 100 million telephone-less people in the United States, 60 million in Germany, and so on. He had better stick to telephones per 100 inhabitants.

Mr. Kloidy, Secretary of the State Commission of Nebraska, in the course of some investigations, ascertains that the company which bills its subscribers twice a year—January and July—has less trouble than those which render monthly rental bills.

Twelve reminders of an expense give the subscriber just six times as many opportunities to kick against the cost as does the system of semi-annual payments. Besides, payment is easier for the rural patron in January and July, as his attitude is more hopeful

at the opening of the year, while in mid-summer he is busy in harvest and realizes more the need of service.

Secretary Kloidy's theory (says *Telephony*, from which we quote) is that the subscriber, looking for something to economise on, is more likely to hit on a monthly bill than on an expense that comes but twice a year. This psychology seems to have points that merit careful consideration.

In the article on Telephone Development of British Towns on page 272 of the September *Journal* a printer's error crept into the population figures for Liverpool. It should be 1,177.7, instead of 1,777.7 thousand.

According to figures recently issued by the Dominion Bureau of Statistics at Ottawa, the various telegraph and cable systems operating in Canada last year received revenues amounting to \$14,264,997, a decrease of \$1,991,444, or 12.2%. Operating expenses declined to \$11,791,291, the total net revenues being \$2,473,706, as compared with \$3,666,077 in 1929. The telegraph and cable companies reported new construction valued at \$2,395,879, in addition to alterations and repair work costing \$1,782,117.

Pole line mileage amounted to 52,824 miles and wire mileage increased by 10,864, to a total of 371,747 miles, at the end of the year.

The number of telegrams transmitted decreased by 2,471,749 to 15,558,224, the total being additional to 1,142,696 cablegrams. Cablegrams received numbered 5,602,524, including 4,709,556 carried to the United States by the Western Union Company at their Canso station.

The number of telegraph offices in Canada decreased by 104 to 4,661, inclusive of 37 Canadian telegraph offices located in the United States and elsewhere. The number of employees decreased by 725 to 7,331, their salaries and wages aggregating \$8,674,453.

In view of the heavy and growing volume of telephone traffic between Great Britain and Denmark, a second direct telephone circuit between London and Copenhagen has now been brought into service.

According to Orders issued by the Mayors of Le Touquet, Paris Plage, Dinard and Biarritz, "owners of electric vacuum cleaners, which are difficult to earth by reason of their mobility, must not use such apparatus, except in the forenoon."

We wonder what happens in free America, where, one understands, both electric vacuum cleaners and wireless sets are to be found in every happy home.

As it is not often that a Caretaker-Operator concerns himself to thank the Travelling Supervisor for her tuition, we print the following letter from a Gloucestershire Caretaker-Operator to his Head Postmaster :—

"Permission is sought to render acknowledgment to Miss —, Travelling Supervisor of the Telephone Staff, for the consideration shown by her during the period of training for the switchboard duties at the — new Exchange.

"Under her tutorship items of importance and details of working were simplified to an appreciable degree, and it is anticipated that, in consequence, the service will be maintained at a high standard of efficiency."

THE LONDON WIRELESS CAMPAIGN.

WHAT would have been thought, say, thirty years ago, of a publicity campaign such as that which has recently been concluded in London? In vivid imagination, one's mind's eye depicts a dignified—and possibly bearded—official, indignantly turning down the proposal and adding as a sop to the offender the kindly rebuke, "My dear boy, do you not yet realise that you are a responsible member of a great and important Department of State and must conduct affairs accordingly?"

With the modern days of hustle, the ponderous dignity of those times has worn a trifle thin: and, as indisputable figures showed the advantage of small campaigns in Glasgow, Liverpool, Manchester, Newcastle, and other large towns, the proposal made in July last for a massed attack on the "nest of pirates" in the Metropolis was immediately approved. It was realised at once that the proposition was a big one and that much depended on the extent of the publicity obtained, and on careful preparation. So a preliminary Headquarters Conference, with representatives of the British Broadcasting Corporation, was called together and the general lines of action were settled. The vast majority of Londoners live in the suburbs and the campaign was therefore extended to the residential districts such as Croydon, Epsom, Richmond, &c. A complete scheme was drawn up by the Engineer-in-Chief of a month's itinerary for each of the five detector vans, and arrangements were made to obtain reports on the following morning of each day's issues of new licences in all the places concerned. By that means it was possible to gauge the effects produced. A preliminary warning was given to the Press on the evening of Sept. 16 and the result was good, as many as 27,000 new licences being issued in Greater London between Sept. 17 and 30. On Oct. 1 the campaign began in earnest: the vans were paraded for Press purposes in the yard of King Edward's Building, and they bore large posters with the words "Warning! Is your wireless set licensed?" Similar posters were affixed to the vans used by the Stores Department and inside all Post Offices. The number of new licences taken out on the first three days was nearly 33,000: and, although this number decreased as the days passed, at the time of writing the daily issue of new licences is still substantially higher than last year. It is estimated that the issue of new licences in London alone during October will exceed 80,000. When the figures of licence issues for the whole country were available, it was found that the number of new licences issued during September was nearly 105,000 (as compared with about 45,000 for the corresponding month last year): and it seems clear that approximately 60,000 new licences were taken out in dormitory towns, &c., largely as a result of the campaign. No doubt an equivalent effect will be noticeable when the October figures for the whole country are available. If we summarise these figures we find that:—

New licences taken out in London and Provinces in Sept.	104,000
New licences taken out in London (October)	80,000
Estimated number of new licences in Provinces—say ...	50,000
	234,000

or £117,000 per annum.

The estimated figure is entirely conjectural, and as the London issues in September were only about a quarter of the number for the whole country, the figure of 50,000 is probably very much under-estimated. These figures include, of course, normal growth which for September and October, 1930, was about 70,000 nett.

We do not propose to disclose the technical details of the apparatus which was fitted in the cars. One of the cars had no ostensible aerial and no poster; and this mystery car was promptly called the "ghost" car, and many were the tales woven round it. This car and the others will continue to carry out their normal work with the apparatus at their disposal. What the

apparatus is and what are its powers must remain a secret: but the Post Office can detect pirates and that is the essential thing. Why should the Post Office add to its difficulties by disclosing its methods? We all know that it is vain for the fowler to spread his snare in the sight of his quarry, or even for a policeman to advertise beforehand his devices for catching the thief. When policing the ether, is the Post Office to disregard the experience of the ages?

To close on a somewhat lighter note, we append hereto a copy of a postcard addressed to the Postmaster-General the day after the first warning was issued.

Darling,

Re WIRELESS LICENCES.

How sweet of you to give us "just one more chance." We giddy young creatures who have already taken the wrong turning cannot be brought back to the fold by such seductive "Tripe," we want something more than that, dear.

While such ghastly stuff as "Jack-the-Pain-producer's Band" and similar monstrosities with vile music and Americanised Howlings are allowed to pollute the air, we have, again, to "Import" our music, for which privilege we don't intend to pay tribute to you, Caesar.

The B.B.C. is dead as mutton and we to-day demand Fresh Meat, so get busy in that direction. Sweetie; don't tell your little Girl Friends you have a search warrant in your dinky little sit-me-down pocket.—Yours sympathetically,

(Sgd.) SYNTHIA.

We do not know whether Synthia's second thoughts were best or whether she fell a victim to the vans: but if she will kindly let us know her address we can assure her that nothing will give us greater pleasure than to settle our doubts (and hers) conclusively and without delay.

MANCHESTER AUTOMATIC SCHEME.

BY E. F. COWLEY (*Assistant Traffic Superintendent*).

PRE-TRANSFER TESTING OF APPARATUS PRIOR TO THE OPENING OF TOLL "B" AND BLACKFRIARS EXCHANGE.

THE transfer of the junction centre from Central Exchange to Toll, has recently been completed and "through" traffic is now routed via the plug-ended "B" suite and the keysender positions.

On account of the large scale of operations, some particulars concerning the mass testing arrangements that were in force may be of interest to readers of the *Journal*.

The testing out of the two suites was completed in April, individual positions being first subjected to an exhaustive test and each suite was then tested as a whole. As the junctions from the various exchanges to the Toll "B" were not completed when testing commenced, two hundred test junctions were provided from the Toll "A" to the keysender and plug-ended "B" positions: and a further group of fifty circuits were provided from the "P.E.B." outgoing junction multiple to calling equipment on the Toll "A" suite.

Thirty-six testing telephones were also connected to the Ardwick, Collyhurst and Moss Side Automatic Exchanges, so that, during the test of the keysender positions, an operator on the Toll "A" suite plugged into one of the special junctions to the seven-digit keysender positions, and passed forward the exchange name and number of one of the testing telephones.

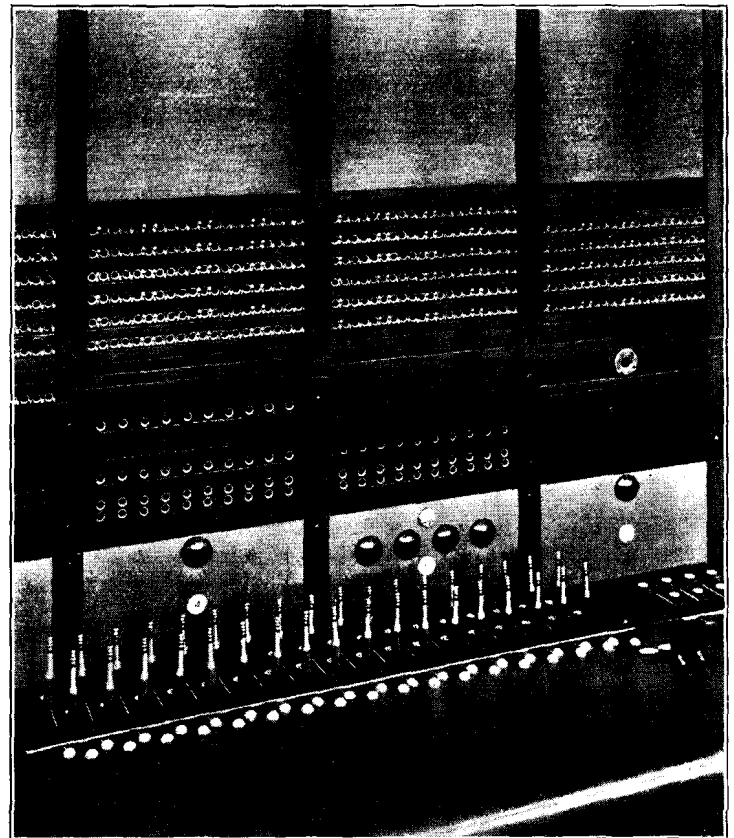
In addition calls were passed from the Toll "A" suite to Trafford Park, Central, City, Didsbury, Chorlton, Radcliffe, East,

and Eccles call display positions. In the case of City and Central, fifty lines were connected from the subscribers' multiples to a special P.B.X. panel. The test operator called for a City or Central number and was thus connected through to the operator at the special panel.

At the remainder of the Call Display Exchanges, which were not opened for "live" traffic, the operator intercepted all calls and announced to the testing operator the number displayed.

The testing of the seven-digit keysender positions extended over a period of one week, and on the final day of testing 17,500 calls were passed through the apparatus.

The plug-ended "B" suite consists of twelve positions, and during the massed test more than 30,000 calls were dealt with.



PLUG-ENDED JUNCTION POSITIONS (TRANSIT POSITION).

The test was conducted by operators on the Toll "A" suite, who plugged into a disengaged junction to the "P.E.B." and passed forward a test junction number. The operator at the position under test then connected the caller to another operator on the Toll "A" suite via one of the special test junctions.

The pre-transfer testing of the Blackfriars apparatus extended over a period of three weeks, during which time more than 200,000 calls were passed through the exchange.

Sixty telephones connected to Blackfriars were provided in the Toll switchroom, and during the massed test, which was conducted each afternoon, calls were passed to these telephones and to numbers connected to a special tone from forty-four exchanges.

A staff of thirty-six operators was employed in Toll Exchange originating and answering calls to and from other exchanges.

The mass testing revealed faults, the majority of which were cleared immediately by the Engineering Department, and when the transfers were effected, little or no trouble was experienced.

COMPARATIVE TELEPHONE STATISTICS.*

THEIR COLLECTION AND APPLICATION.

By W. H. GUNSTON.

I SHOULD approach my subject with more diffidence than I do if I were going to inflict on you a purely statistical paper. There is nothing more repulsive than the contemplation of serried rows of figures column-deep and inch-wide, thrust upon one in table after table and page after page, and rejoicing only the expert who can unerringly pick out their salient items. In telephone statistics and especially in the scanty records of the past you cannot obtain those "figures of tedious and disgusting accuracy" of which Gibbon complains in his "Decline and Fall"—although in a different connexion. The collector of such statistics has often, for reasons which I shall explain later, to ignore his tens and hundreds, and tread warily amongst his thousands. His task often resembles a classical rather than a mathematical one, for he has to supply conjectural emendations and fill in lacunæ with all the patience of the editor of a faulty text. His rule has perforce to be: Take care of the millions and thousands, and the hundreds will take care of themselves.

As to this, I can speak with some experience, as I have been engaged in the collection and summarising of foreign telephone statistics since 1908, and I believe the series of figures which I published in the old *National Telephone Journal* in 1909, and which (with the exception of breaks in 1912 and during the war) have since appeared regularly in service journals, were the first tables of telephone statistics of the world given regularly to the public. Soon afterwards (in 1912, to be precise) the American Telephone and Telegraph Company began the publication of their elaborate and much quoted annual statistics of the world's development, although there is no doubt that they had previously kept records of the progress of the principal foreign administrations and telephone companies. The statistics published by the Bureau International of Berne are, of course, of much older date. They do not, however, profess to give figures for the whole world, but chiefly those of the administrations which are members of the International Telegraph Union, although of late they have included figures for the United States of America.

By common consent the telephone station seems to have become adopted as the unit for gauging telephone development. It was not always so. At one time the subscriber's line was the favourite unit, and in availing oneself of old records, it is difficult to ascertain whether the expression "number of subscribers" means "lines" or "stations," a very important point when you are instituting comparisons. Parliamentary returns and consular reports often favour "miles of wire" as the unit of development, and I have come across an old return called for by Lord Salisbury, whose consular officers, whilst obtaining particulars of lines or stations in most European countries and cities, could apparently only obtain from France information of the number of trunk lines terminating in Paris and some other large cities—not a very enlightening basis of comparison. The National Telephone Company's returns were drawn up in terms of subscribers' lines until 1899, when the Company fell into line with the rest of Europe and America, and began to reckon in stations.

Before I proceed further I should like to make a few short remarks on the following points:—

- (a) The difficulty of collecting statistics and how they are overcome.
- (b) The validity of the statistics so obtained.
- (c) The use of such statistics.

(a) DIFFICULTIES OF COLLECTING.

The telephone service in all the large telephone using countries (except Germany) was inaugurated, and for a considerable period carried on, by private companies. Hence there is no question of turning to any annual official returns, blue books, or the like for records of the progress of the system. We have at first only such published figures of the various companies as might find their way into newspapers. Gradually, in Europe, the systems were acquired by the respective postal administrations, or, if they were not, they were gathered into the hands of one or two licensed companies, and some annual official statistics began to be available. But in America, both North and South, this was not the case, and in the United States and Canada literally thousands of companies were responsible for the conduct of the service, and the collection of statistics was almost an impossibility. Fortunately the great Bell organisations in the United States and Canada began to provide us with precise data of their subsidiary companies, and were able to form fairly reliable estimates of the progress of their rivals. It should be borne in mind, however, that though at present the Bell system, and the independent companies having connexion with that system, now account for nineteen-twentieths of the telephones in the United States of America, and statistics of their total systems are readily available, in the past it was not so. In 1902, for instance, out of 2,300,000 telephones in the States, about 1 million were "independent," of which those "connecting" with the Bell system were perhaps only 100,000. In 1912, out of 8½ million telephones, 3½ million were "independent," but by then about 2½ million had connexion with the Bell trunk system. In the year 1902 the American Government instituted a quinquennial census of electrical

undertakings, so that thenceforward we get every 5 years precise particulars of the total number of telephones in that country, both Bell and independent. The Canadian Government have for many years annually collected the telephone data for the Dominion, and, of course, all European States furnish returns of the telephones worked either by their communications departments or by licensee companies. Government systems prevail in Asia, Africa and Australasia, and the only continent which now offers any difficulty to the collector is South America. Here, fortunately, very reliable data are obtainable from North American sources.

A minor difficulty is the form in which statistics are sometimes furnished and the date to which they apply. Most countries furnish data for Dec. 30, and a few for Mar. 31 the following year. A 3 months' discrepancy in figures in a few cases is perhaps not very serious. Norway and Italy, however, favour June 30, and Russia's year terminates in October. Then again, some countries will omit in one year to include extension lines, although they may have included them in the previous year's report; some will omit the telephones belonging to a small private undertaking in one year's returns and include them in another; and so on. All these discrepancies have to be adjusted before we reach the grand total.

(b) VALIDITY OF STATISTICS OBTAINED.

In view of all these apologetics it may be of interest if I indicate at this stage (Fig. 1) the proportions of last year's total (I mean that for 1929) which are based on precise figures and estimates respectively:—

FIG. 1.
PROPORTION OF OFFICIAL AND ESTIMATED FIGURES, DEC. 31, 1929.

(No. of Telephones in Thousands.)

	Official.	Estimated from Previous Year's Official Figures.	Based on American Estimates.
Europe (practically all official)	9,958		—
Asia	1,092	150	123
Africa	156	68	—
North America—			
U.S.A.	19,957		110
Canada	1,400		—
Mexico, West Indies, Central America			239
South America			542
Australasia, &c.	680		25
Official	33,243	218	1,039
Estimated	1,257		
Total	34,500		

This means that, *inter alia*, the figures for the systems of all the great telephone using countries, U.S.A., Germany, Great Britain, Canada, France, Japan, Sweden, Denmark, Australia, Holland, Belgium, Switzerland, Austria, &c., are official.

It will be seen that out of 34½ million telephones the figures of 33¼ have an official imprimatur. The figures for the other 1¼ million are, moreover, based on a good foundation. A satisfactory feature in the compilation of these annual statistics is their gradual agreement with those published by the American Telephone and Telegraph Company. In 1912 and 1913, when I compared the figures in my annual summary with those then recently compiled by the Bell Company's official statistician, there were discrepancies of 200 thousand and 400 thousand in totals of about 13½ and 14½ million respectively. These were to a large extent due to the fact that the American figures were published a year later than ours, and to the better opportunities enjoyed on the other side for getting data from the Latin American countries. Of late years, however, their totals and ours have closely approximated, and in the statement for 1929 (the last complete one issued) there was a discrepancy of 26,000 only on a total of 34½ million—due again, probably, to the American Telephone and Telegraph Company's better acquaintance with the activities of the various South American companies. It is gratifying to find that the totals of the world's telephone development laboriously gathered together from the most varied sources by two different compilers now only differ by .008%, especially when it is known that even this small difference only affects some of the less important telephone using countries.

(c) THE USE OF STATISTICS.

Statistics have always been the butt of the humorist and cynic, and often with good cause. Much plausible tendentious work can be done with the aid of nicely-cooked statistics, and certainly some of those employed by our critics may be said to be done to a turn. I can, however, conceive of only one kind of statistics which are worth collecting and tabulating, and those are they which are a plain record of fact, and are as accurate as the difficulty of collecting them permits. They are not those which are selected to prove that Government ownership is preferable to private ownership, or *vice versa*, that flat rates are preferable to message rates, and so on. Statistics can only usefully be employed in comparing like with like, a condition existing in the telephone field more rarely than the layman would suppose. Comparisons are said to be odious, but I think the gravamen of the charge lies in the fact that only too frequently comparisons are made where like conditions do not obtain and cannot obtain.

* Paper read before the Telephone and Telegraph Society of London.

The use of statistics and the value of keeping detailed records of our now system is, of course, not questioned. Nor will many question the importance of being well posted in the progress of our contemporaries and of collecting data to that end. But I fancy some may doubt the practical value of delving into the records of the past, and instituting comparisons between the various systems of the past or comparisons of past and present development. Some people, indeed, speak as though such days being dead it is indecent to disturb their ashes. It is, however, worth considering whether we can ever truly understand the present without some knowledge of the past in which our existence has its roots. If some of our critics had more historical and more accurate statistical knowledge they would perhaps spare us some of their less instructive strictures. Even to ourselves the knowledge of the shifting incidence of telephone development in different eras and in different countries provides a corrective, whether we are disposed to expect too great or too sudden changes in the relative positions of the various telephone using countries of the world, or whether, on the other hand, we are apt to look at the present state of things as almost unalterable. In the first case we shall learn from a diagram which I propose to exhibit shortly how little change in the "order of merit," so to speak, of different countries has taken place since the Great War. In the second case, it will be interesting to note from another statement how the United States, after possessing over 90% of the telephones in the world in 1880, had about one-half in 1890, had 70% in 1910, 65% in 1919 and have 57% now. It is also interesting to know that New York, which in 1922, after the stagnation in Europe resulting from the Great War, boasted for a year or two more telephones than the whole of Great Britain, had actually less telephones than Berlin during the period from 1888 to 1898, despite a good 3 years' start; that Paris once had more telephones than Chicago, and Glasgow than Hamburg. Again, when we are informed—correctly, it may be, or not—that Lord Salisbury or some other comparatively modern statesman seldom or never used the telephone, it is useful to remember that there were only 5,500 telephones amongst the 4½ million inhabitants of London at the time of Lord Salisbury's first administration in 1885 and only some 13,000 or 14,000 at the time of his third premiership in 1895. These figures show that though the telephone habit may have been developed in those days amongst city men and the business houses in the West-end, it was little used socially and therefore but infrequently in political circles. A cursory glance at an old London telephone directory for 1895 which I have in my possession has demonstrated better than any theorising that the telephone was then chiefly a convenience of business men. Stockbrokers, manufacturers, agents, wholesale dealers, solicitors, publishers, carriers, clubs, hotels, theatres and such-like, are assembled in force. All the best-known names in the city are probably there; but the West-end is thinly represented. Peers' and baronets' names would hardly fill a couple of pages. There is, indeed, a goodly number of Members of Parliament, but one may suspect that they are mostly those members who were also directors of city companies. Lord Randolph Churchill, and the Duke of Devonshire are the only statesmen I have discovered there; and, indeed, the names of men of note, authors, artists, and even actors, are almost entirely lacking. Sir Arthur Sullivan, and one or two theatrical people seem to be the only representatives of the world of art.

Fig. 2 is an attempt to show in summary form the telephone development of the world during 50 years, and the part played in that development by the principal telephone using countries. It will be seen that during that period the number of telephones has increased from 59,000 to 35½ millions. The annual increase between 1919 and 1929 exceeded an average of 1½ millions each year, a reminder—if one were necessary—of the importance of collecting these statistics as quickly as possible, as otherwise they are hopelessly out of date. The complete figures for 1930 were not to hand at the time of compiling the paper, but the estimate of 35½ millions may be taken as a reliable one, statistics having been received for all the principal telephone using countries except Japan. It is therefore safe to say that the increase for 1930 will not be found to exceed ⅓ of a million.

FIG. II.

FIFTY YEARS' TELEPHONE DEVELOPMENT OF THE WORLD SHOWN QUINQUENNALLY.

	The World.	U.S.A.	Canada.	Great Britain.	Ger.	France.	Sweden.	Europe.
	Telephones (in thousands).							
1880	59	54.3	2	2	-	-	-	-
1885	225	156	9	14	15.6	7.3	5.7	60*
1890	475	233.6	20*	46	59.3	23	16.9	210*
					(1892)			
1895	845	310	38	100	131.7	34*	45	460
1900	2,490	1,356	52	200.2	286.7	69.5	80	890
1905	6,200	4,127	107	427	593.5	137.7	124	1,726
1910	11,270	7,956	284.3	648.8	1,068.8	232.7	187.4	2,966
(1913)	14,600	9,542	499.7	780.5	1,420	330	233	4,012
1915	(War)							
(1919)	19,370	12,668	724	911.9	1,767	399	388.7	—
1920	20,820	13,329	856	986	1,812	473	389.8	5,248
1925	27,700	16,935	1,144	1,391	2,588	740.9	434	7,450
(1929)	34,500	20,068	1,406	1,886	3,182	1,056	509	—
1930	35,250	20,201	1,419	1,996	3,246	1,153	536	10,570

The world's telephones increased between 1890 and 1900 by 2,015,000, or 424%.
" " " " " " " " 1900 " 1910 " 8,780,000, or 352%.
" " " " " " " " 1910 " 1920 " 9,550,000, or 85%.
" " " " " " " " 1920 " 1930 " 14,430,000, or 69%.

* Estimated figures.

The bald figures in the table require some explanation and amplification. They have been collected from the most varied sources, such as newspaper reports, Parliamentary Returns and Blue Books, pamphlets, reports of official visits to foreign countries, reports of Rate Commissions, both at home and abroad, books on telephone history and annual official returns of all kinds. In many cases in the earlier years it has been necessary to estimate the number of stations from the number of lines.

An official American enquiry in 1902 estimated the number of telephones in the U.S.A. in the year 1880 at 57,319. In that year there are said to have been 2,082 telephones in Canada; there were about a thousand subscribers to the United Telephone Company's system in London, and perhaps as many connected with the provincial companies' systems; and, as the telephone system had hardly yet made a start on the Continent of Europe, the total of 59,000 is as accurate a one as can be obtained at the present time.

I should like to draw attention to the enormous start which the U.S.A. had already obtained in 1880 over the European countries. The first public telephone exchange in the world was that opened at New Haven, Connecticut, in January, 1878, and by the end of 1880 nearly 150 telephone systems were working in America. The figure of 54,000 is one which a large country like Rumania has only recently reached and which Jugo-Slavia will probably not reach for some years to come; this figure, indeed, was not reached by Germany until 1890, and by this country until a year or two later. This is not the place to discuss the handicap which the telephone first suffered in Europe, in some cases diffidently handled by the Government, in others turned over to licensees hampered by various restrictions to safeguard as far as possible the telegraphs. Suffice it to say that licensee companies opened exchanges in London, Manchester and other British towns in the autumn of 1879, that a company was formed in Paris in that year but does not seem to have opened a public exchange until 1881, that the first exchanges in Germany and Austria were opened in that year, that although a Bell Company obtained a licence in Stockholm in 1880, little progress was made there until the Allmänna Company got to work in 1883. It is true that Von Stephan, the far-seeing German Postmaster, installed telephones on rural telegraph circuits in 1877 (a sort of phonogram service it would appear), thus giving the first purely public telephone service in the world, and that he planned the opening of a telephone exchange for Berlin in that year. This, however, was turned down by the Police President, and was not actually opened until 1881. It is true, also, that the Swiss Government began active telephone development in 1880, but the fact remains that there were probably not 30,000 telephones in the whole of Europe by the end of 1883, whilst there were 90,000 by that time in the United States. If we look at the figures for 1885 on the table we shall see that the States have still nearly three times as many telephones as Europe.

By 1890 we find that the United States has about half the number of telephones in the world, but another quinquennium shows the preponderance decreasing, America having increased from 233 to 310 thousand and Europe from 210 to 450 thousand. The figures for the United States for 1895 are, however, only approximate. There were 281,000 Bell telephones in that year, plus about 30,000 "independents," who, after the Bell patents expired in 1893, had increased at a great rate, reaching a total of over 1 million by 1902. It will be seen that in the years round about 1895 the number of telephones in Europe exceeded those in the U.S.A. for the only time in history.

It is from 1895 onwards that we begin to note that rapid and extraordinary development of the American telephone system which has given it such a commanding lead in the world. From 1884 to 1894 the Bell system had scarcely doubled its extent, but following on the enormous multiplication of the independent concerns which began in 1893, the number of telephones in the States was quadrupled between 1895 and 1900, and from the year 1902 when a total of 2½ millions was reached, the development of the country proceeded at the rate of three-quarters of a million a year for the next five years, both the Bell and the independent concerns more than doubling their systems in that period. By the time the war put a temporary stop to the activities of the European countries, the United States accounted for 62% of the telephones of the world. The heavy handicap of the war and the ensuing slow rehabilitation of the Old World, which unhappily is still far from complete, has militated strongly, of course, against any efforts to reduce America's great lead. That Europe has made a tangible step forward since the war, however, is evidenced by the fact that in 1920 the U.S.A. has 13.3 million telephones to Europe's 5.2, whereas it now has 20.2 million to Europe's 10.5.

The year 1895 marked the beginning of a considerable spurt in Europe, Great Britain, Germany, France and Sweden all doubling their totals in the ensuing five years, whilst in the quinquennium 1900-1905 most of these countries again increased their systems two-fold, Great Britain and Germany more than quadrupling their total number of telephones in the 10 years.

A stage had been reached in Europe when the use of the telephone had extended beyond the office and the business house and when, although still esteemed a luxury, those who considered they could afford it and those not hostile to new ideas began to introduce it into their homes in rapidly

increasing numbers. Between 1901 and 1911 progress in our own country was very rapid. The entry of the P.O. into the field in London in 1902 gave a fillip to development, and in this decade the number of telephones in the metropolis rose from 226,000 to 701,000.

It would almost appear that telephone development goes forward in three well-marked stages. The first, of course, is that in which the enterprising and far-seeing gradually adopt and further the novel method of communication, until most businesses are unable to do without it. This stage is reached in about 5 to 10 years, according to the receptivity or, shall we say, the temperament of the nation concerned. By this time the cost of connexion will have been somewhat reduced, and special modifications of tariff will have been introduced to appeal to various classes of the community. Then the smaller shopkeeper, the smaller type of office and the private householder join the system and a considerable leap forward in telephone development is recorded. After progress on these lines has gone on for several years aided by a widespread general introduction of message rates and party lines or by the adoption of quarterly or monthly payments, the use of the telephone has become fairly universal. It has become a commonplace of stage technique and pervades our novels and romances; even the telephone-less acquire the habit of ringing up their friends from a call office or from a neighbour's telephone. Hence, by the time the total has reached 2 or 3 millions in a large and populous country and a density of about 5% has been attained (as happened in America in 1905—when there were over 4 million telephones in the U.S.), we have arrived at the stage when everybody who is anybody is on the telephone, and those who are not on the telephone hasten to subscribe and become somebody. In other words, the telephone has become a social necessity and people simply cannot afford not to subscribe. Telephones at that stage, under the flourishing financial conditions of America, began to increase by three-quarters of a million a year for a few years, and in ordinary sound economics conditions may be expected to increase in the order of 300 thousand, 350 thousand and 400 thousand a year, gradually reaching a figure of, perhaps, 800 thousand.

I do not propose to inflict upon you a Gunstonian Law of Telephone Increases. No such law could, of course, be formulated on a scientific basis, unless these like conditions of wealth and social customs obtained everywhere, and there were no wars, no financial crises, and no conservative-minded people to stultify it. Such a law would have to be rudely tampered with to fit in with theory, and would be analogous to the laws governing the cycles of weather experts, who conveniently forget the two shockingly bad summers which occur in the middle of one of their fine-weather cycles. Still, I maintain that some such process as I have indicated is followed in telephone development, although the periods occupied by each stage of development vary a good deal in different countries, and the recent financial troubles of the world are adversely affecting the third stage. Only 2 countries have so far reached the 3 million stage—the United States in 1904, with the extraordinary results I have recounted, and Germany at the beginning of 1929. Germany proceeded to leap forward with an increase of 230,000, in accordance with theory, but the unfortunate financial conditions which supervened afterwards have precluded any idea of progress on an American scale. Great Britain is now well over the 2 million, and is rapidly approaching the 5% standard of telephone density. When that is reached may we hope that some of the present trade depression will have been dispersed, that business will be proceeding full steam ahead, and that with special efforts which are being made up and down the country to encourage "telephone habit" or the "telephone mind," we shall increase not by 120,000 a year, our recent average, but by 300 and 400 thousand a year according to the law of telephone increase above prefired.

What, therefore, stands out from this table (of which you must be rather tired by now) is that the U.S.A. had the useful number of 54,000 telephones in 1880, almost before Europe had made a start, and that in 1890 she had over a million and a quarter, a figure not reached by any European country until 1912. Now it is obvious that, having got this start, it was only necessary to go on increasing at the rate of 10% a year to keep well ahead of Europe. But the U.S.A. did far better than this. She increased at the rate of 480% in the 10 years 1890-1900 and by 480% again in the decade 1900-10, while Europe increased at the rate of 325% and 230% for these same 2 decades. Having in 1913 nearly 10 millions as against Europe's figure of 4 millions, an increase of only 5% would have sufficed to keep her far in front of Europe, even in the face of the most unprecedented development by that continent. But in the ensuing decade, the Great War checked altogether or slowed down development on this side of the Atlantic for 5 years. As you will see from Fig. 3, Europe increased by 101% during the last decade, while America's increase was only 51%, but still her grand total expanded from 13 to 20 million while Europe's only rose from 5½ to 10½.

FIG. 3.

INCREASES AND PERCENTAGE INCREASES BY DECADES.

	U.S.A.			Europe.			Great Britain.		
	No. of Tele- phones. (1,000's.)	In- crease.	%	No. of Tele- phones. (1,000's.)	In- crease.	%	No. of Tele- phones. (1,000's.)	In- crease.	%
1880	54	—	—	2	—	—	2	—	—
1890	233	—	—	210	—	—	46	—	—
1900	1,356	1,123	480	890	680	325	200	154	335
1910	7,956	6,600	480	2,966	2,076	230	648	448	224
1920	13,329	5,373	68	5,248	2,282	77	986	338	52
1930	20,201	6,872	51	10,570	5,322	101	1,996	1,010	102

(To be continued.)

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office system at Aug. 31, 1931, was 2,011,843, representing a net increase of 5,803 on the total at the end of the previous month.

The growth for the month of August is summarised below :—

Telephone Stations—	London.	Provinces.
Total at Aug. 31, 1931	722,053	1,289,790
Net increase	1,117	4,686
Residence Rate Subscribers—		
Total	185,005	288,987
Net increase	462	1,404
Call Office Stations (including Kiosks)—		
Total	7,294	28,655
Net increase	53	138
Kiosks—		
Total	2,538	8,820
Net increase	38	141
Rural Railway Stations connected with Exchange System —		
Total	17	2,002
Net increase	—	3

The total number of inland trunk calls in June, 1931 (the latest statistics available) was 10,873,727, representing an increase of 757,546 (7.5%) on the total for the corresponding month last year. Outgoing international calls in June numbered 51,431 and incoming international calls 55,463, the increases over June, 1930, being 7,355 (16.7%) and 8,306 (17.6%) respectively.

Further progress was made during the month of September with the development of the local exchange system. New exchanges opened included the following :—

PROVINCES—Arrington (Royston), Brock (Preston), Brailles (Banbury), Colaton Raleigh (Sidmouth), Cannings (Devizes), Caston (Attleborough), Elvedon (Thetford), Gotham (Nottingham), Gateforth (Selby), Heckfield (Hartley Wintley), Hurstbourne Tarrant (Andover), Keig (Insch), Kirby Cane (Bungay), Llanarmon-yn-Yale (Ruthin), Marown (Douglas), Piddletrenthide (Dorchester), Pontesbury (Shrewsbury), Park St. (St. Albans), Patching (Durrington), Shilbottle (Alnwick), Southgate (Bishopston), Skipwith (Selby), Sulby (Ramsey), Tewin (Welwyn), Trewern (Welshpool), Taypuilt (Oban), Woodton (Bungay), Woodchurch Ashford (Ashford), Warmingham (Crewe), (all rural automatic); Eastwood (Colchester), Tile Hill (Coventry), Shirley (Southampton), Westcotes (Leicester), Woolston (Southampton) (automatic); Abingdon, Winton;

and among the more important exchanges extended were :—

LONDON—Chislehurst, Sutton, Sidcup, Palmers Green

PROVINCES—Headingley (automatic).

During the month the following additions to the main underground system were completed and brought into use :—

Bournemouth—New Milton,
Inverurie—Huntly,

while 72 new overhead trunk circuits were completed, and 77 additional circuits were provided by means of spare wires in underground cables.

DEVELOPMENTS IN THE MODEL TELEGRAPH OFFICE.

By C. H. MANSELL (*Chief Superintendent, Telegraphs, Leeds*).

THE article entitled "The Coming of the Model Telegraph Office," which appeared in the December, 1930, issue of the *Telegraph and Telephone Journal*, dealt with the change from Morse to Teleprinter working, and the introduction of belt conveyors, with consequent table alterations and rearrangement of the general lay-out. The new lay-out was shown to have effected a very large saving in floor space, and since the publication of the article referred to, the floor area which had been thrown vacant has been utilised to accommodate new Phonogram equipment and the Telegraph Writing Office.

Other changes have also materialised, and among the most important innovations is the substitution of the morse concentrator by a Telephone-Telegram suite with Typewriter equipment, while, concurrently, Typewriter reception is being experimentally tried in the Phonogram Room—three telephonists being trained in touch typing, and three telegraphists in the Phonogram Room working for the purposes of the experiment.

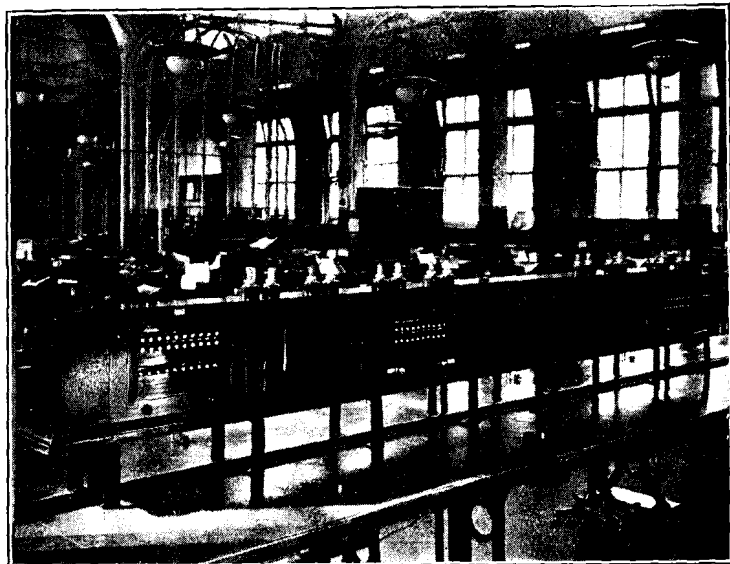


FIG. I.

Figure I shows the new Telephone-Telegram suite which has substituted the Morse Concentrator. It provides four ancillared switch boards, eight operator positions, and one control position.

Each switchboard serves 2 operator positions, the line circuits terminating on strips of jacks with calling lamps. Two supervisory lamps, red and green respectively, are associated with each operator's position, and indicate "Idle" or "Engaged" conditions. In order to secure the operation of this facility, it is necessary that, whenever a position is staffed, the connecting plug must be inserted in the operator's circuit jack on the switchboard. The operator's headgear jacks are under the table edge, and a parallel connexion is provided for supervisory or instructional purposes. Two keys are provided to give the following facilities:—

- Key 1 (Black).—First position (locking) Transmitter "Cut out."
- Central position, Speaking.
- Second position (non-locking).
- Generator ringing, 17 c.p.s.
- Key 2 (Green).—First position (locking) amplifier.
- Central position (non-operating).

The volume of amplification is controlled by a knob associated with Key 2 marked "Increase." Received speech only is amplified.

In connexion with the amplifying facilities, distinctive labelling is employed for the various types of circuit. Black and white marking of the circuit code denotes unamplified Leeds

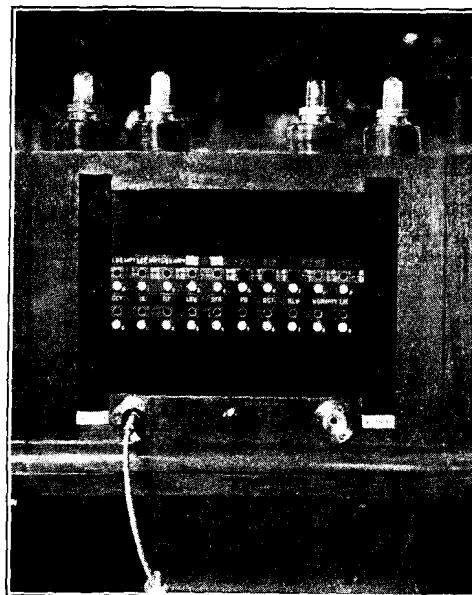


FIG. II.

reception and non-typewriter distant reception. Black and white marking of the code with the addition of "Ampy" denotes amplification necessary at Leeds and non-typewriter distant reception. Red and white marking of the code denotes distant Typewriter reception. Out-stations are called by ringing with Key 1. With two exceptions Leeds is called by distant stations lifting the receiver. In the exceptional cases a key is operated at the distant office. Figure II shows a switchboard and operators' positions. The supervisory lamps will be seen on the top of the

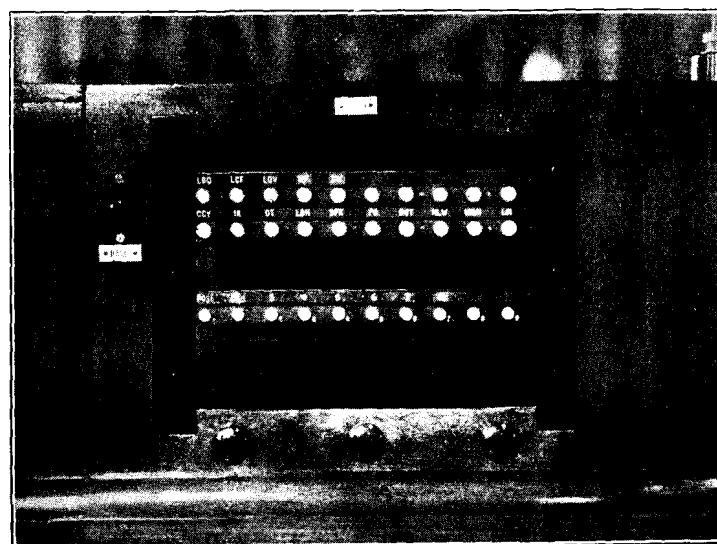


FIG. III.

panel, each pair surmounting the operating position. Figure III shows the control position, which in Figure I is at the extreme left of the picture.

The order of the circuits on the control panel is similar to that on the operating switchboard panel. One press button plunger per line occupies a corresponding position at the top of the control panel to that of the relative line jack on the switchboard panel.

At the bottom of the control panel one lamp per operator's position is provided. There is interaction between the control panel lamps and the supervisory lamps on the switchboard panel, according to the relative positions of the connecting cord and plugs on the switchboard panel and the depression of a plunger button on the control panel. So long as a switchboard position is unstaffed, no connecting plug is inserted in the operator's jack on the switchboard panel, and no glow appears on either supervisory lamp or on the control panel. (It should be noted that plugging into the operator's jack below the table edge, i.e. the headgear connexion, does not affect the lamps.) When the switchboard position is staffed a connecting plug is inserted in the operator's jack on the switchboard panel, and the red supervisory lamp glows above the position, while simultaneously the corresponding position lamp glows on the control panel. The red lamp indicates to the supervisor that the position is staffed but idle. The position lamp on the control panel indicates to the Girl Probationer at that point that the position is open for traffic.

When a circuit connexion is completed by the insertion of the free plug of the connecting cord into a jack, the red lamp over the switchboard position and the position lamp on the control panel darken, while the green lamp over the switchboard position glows. This indicates to the supervisor that the position is staffed and working. Should a telegram arrive at the control position for the circuit which is connected, the Girl Probationer at the control panel presses the plunger button under the code of the wanted circuit and the required numbered position lamp on the control panel glows. (Incidentally the supervisory light over the switchboard changes from green to red momentarily while the plunger button at the control position is depressed. When the plunger button is released the position lamp on the control panel darkens and simultaneously the supervisory light over the switchboard position which momentarily became red is restored to green.) The green supervisory lamp remains glowing so long as the circuit remains connected.

The various indications may be summarised thus:—

Switchboard.	CONTROL PANEL.		Supervisory lamps.
	Normal.	Button pressed.	
Unstaffed	Dark.	Dark.	Dark.
Staffed but idle ...	Lit.	Lit.	Red.
Staffed and working	Dark.	—	Green.
	—	Lit.	Red.

A night bell switching key can be seen on the left of the control panel.

Behind the dummy panel, which is seen between the switchboard panels, are fitted the operators' set relays and a fuse panel. A fuse alarm bell is fitted and replacement fuses are available inside this panel.

The headgear is provided with double ear pieces, one ear-piece is merely a sound excluder. The typewriters are ordinary double space bar Royals.

CIRCULATION TABLE.

In the previous article on the Leeds Instrument Room, the probability was indicated that a more spacious re-arrangement of the circulation, addressing and telephone marking positions might be proposed. Authority was obtained for the experiment which has now materialised as shown in Figure IV. The work necessitated the shortening of the belt conveyor from the circulation position to the Phonogram Room, the construction of two V-belt conveyors along the addressing table, the transfer of the delivery tube terminal, and the fitting of the specially cut table top, while the "T" shaped table used at the telephone marking position has been replaced by a straight oblong projection. This projection now only accommodates the out office telephone number Bizadas, while the local telephone number Bizada, used by the "C" check officer, is accommodated on the new addressing table between the circulation position and the commencement of the "V" belt

slots on the addressing table. The "C" check officer is thus enabled to reach easily both the conveyor belt to the Phonogram Room and the "V" belts on the addressing table. She is also *vis-a-vis* with the Girl Probationer who selects the prepared stencilled registered address envelopes and who stamps and numbers all forms and envelopes for the Head Office delivery. The officer at the out office Bizada telephone marking position has also been placed within easy reach of the conveyor belt to the Phonogram Room. An endeavour (and it is thought a successful one) has been made to secure a progressive continuity in the series of manipulative operations at the circulation and addressing positions, together with less crowding of personnel and impedimenta. The progress of the telegram from the moment it is deposited on the moving belt at the circulation table can be followed in the diagram as shown in Figure IV. The telegrams are passed to the respective Bizadas. The "C"

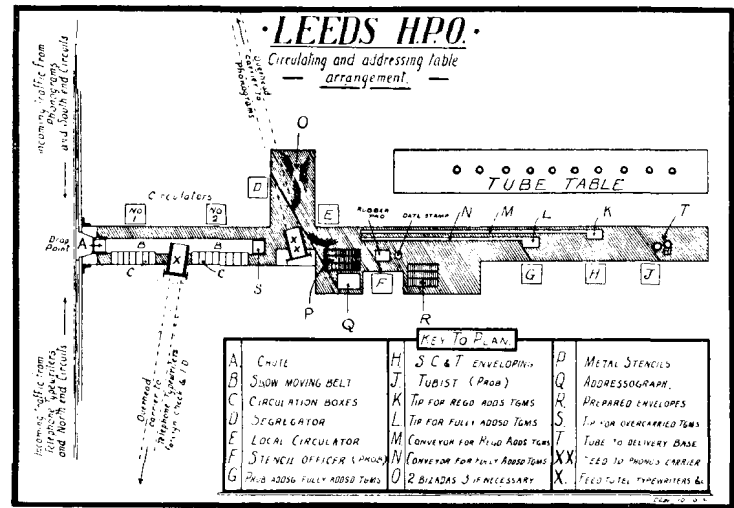


FIG. IV.

check officer passes registered address telegrams to the registered address envelope container close to her left and on the right of the Girl Probationer facing her, while she passes ordinary telegrams direct to the Girl Probationer. When she marks a telegram with a telephone number from the Bizada, she feeds it into the Phonogram Room Conveyor on her right. The Girl Probationer selects a prepared envelope from the container where the registered address telegram has been placed, operates the date stamp and numbering machine in front of her and associates the numbered envelope and form by riding the envelope flap over the top edge of the form and placing them thus associated in the conveyor belt furthest from her. The form with the envelope riding on its top edge is conveyed by the belt conveyor to the S.C. & T. at the enveloping position. When the form has been enveloped, it is passed to the Girl Probationer on her right hand, who despatches it through the tube to the sending out room in the basement. In a container to the left of the Girl Probationer are kept the metal plates used for printing the abbreviated addresses on the telegram covers. In the cases in which no cover is prepared in advance—that is in the case of registrants for whom telegrams are not numerous—the Girl Probationer selects the appropriate plate for insertion in the addressograph machine on her left and prints the address required on the telegram cover. Ordinary telegrams are deposited in the same manner in the near "V" belt and reach a Girl Probationer on the left of the enveloping officer. This Girl Probationer addresses the envelope by hand, passes it to the officer on her right to check and envelope, and in turn passes on for tubing.

The containers for the prepared envelopes and stencils are let into the table. The original idea of a single belt for all telegrams was discarded in favour of the double belt because of the danger of confusion of forms and envelopes on arrival at the enveloping stage in times of pressure. The dual belt prevents an undue accumulation in one receptacle.

APPARATUS RACKS.

The apparatus racks which were the most novel, perhaps, of the innovations described in the first paper, are being extended to include repeater boards. The first set of repeater bays has been erected, and the practice initiated on the ordinary racks and described in the previous article has been followed. It is expected that they will be finally completed shortly, and their successful operation, it is hoped, may lead to the extension of the rack principle to the rest of the sixteen repeater sets in use at Leeds. A further economy of space would accrue from this extension of the rack system, which would, almost certainly, secure the complete accommodation of all the Telegraph and Telephone Head Office activities on one floor.

LETTERS FROM A RETIRED CONTRACT MAN TO HIS SON.

(V.)

MY DEAR TOM,—Your letter gave your mother and me much pleasure. We are very glad that your diggings are so satisfactory and that the cooking is to your liking, even if it falls short of what you were used to at home. Did any man ever get anything that was "just as good as mother made?"

We have been going along very quietly since I wrote you last and I have scarcely left the garden all week. There seems so much to do if it is to be kept as I think a garden should be kept. I am sure you will be pleased at the progress we have made since you were last here, and we shall be glad to give you vegetables of our own growing when you come along shortly. Garden work gives one an opportunity of considering many problems, and here are some of the results of my ruminations as they affect your work.

You ask what I consider a suitable slogan or motto for a Contract Officer. Well now, let me see. How would this do?—"In every way and every day I will be a better salesman." I think if you keep that constantly before you and act up to it you won't go far wrong. Or how would Faith, Hope, and Charity do? A contract officer to be a success must have "faith" in the goods he is selling and in himself, and he must be able to instil that faith into his prospect. He must have "hope" otherwise he will take each rebuff to heart and become of all men the most miserable, and so develop an inferiority complex which is absolutely fatal. Goethe, I think it was, said "He who would achieve anything great must pull himself together," and this is a truth which every contract officer should ponder in his heart and act up to, for by so doing he builds successfully upon the ashes of his failures. The contract officer must also have "charity," for unless he is charitable to the failings and ignorance of telephone matters among those he meets, he is certain to show impatience and probably give offence and so lose business which patience in explaining even the simplest difficulty might have obviated. Talking of ignorance, the local contract officer was telling me the other day of a man who complained of the Department charging 2s. a quarter for the new hand microphone. He said it was a swindle as the instrument could not cost the Post Office more than 5s.!! The contract officer had quite a job to convince him that his estimate was obviously many hundreds per cent. below the true figure.

Talking of hand microphones, I enclose an American Telephone advertisement which a man gave me, as it may be useful to you. You will see that not only do they charge 12s. 6d. a year for this handy instrument, or 64% more than is charged in this country, but also make a small charge (not stated) for making the change. You will find quite a lot of people who believe that no charge is made in America for this type of apparatus, and this information will enable you to answer that argument.

You should make a habit of analysing your failures. I know it is very unpleasant in a game of Bridge to have an inquest held

after each hand, with yourself as the victim, particularly if you know yourself just where you might have done better, but a quiet little private enquiry on your own as to the reasons which led to your losing a trick on an order is another matter altogether, and will help you to avoid making similar errors in the future. Some men don't care; some put the blame on others; but a man who wishes to be thoroughly efficient, as I know you do, must, if he is to succeed, go through a process of self-examination to enable him to weed out his mistakes and prevent their growth into bad habits. It is so easy to fall into slovenly methods of dealing with cases and so difficult to get out of them when a sharp reminder that all is not well is received from your boss. Don't let them grow, root them out at once. Therefore, I repeat: Analyse your failures: it is important.

You will come across people who have been subscribers and for some reason or another have given up the service through a sense of grievance. These are probably the most difficult people to bring back into the fold; fortunately there aren't many of them. Be patient with them and do your utmost to remove that feeling by giving an adequate explanation and offering an apology for any inconvenience which may have been caused. The whole trouble is most likely to be the result of some misunderstanding and you should try your best to clear it up. If the grievance is one of recent date your Chief may be able to get the facts for you which will enable you to deal adequately with the problem. Your motto in this case should be "once a subscriber always a subscriber" at any rate till removal or death cuts the connexion or the financial position of the late subscriber is such as to make it undesirable to have him as a subscriber again.

You must be prepared to meet all sorts of complaints and grievances with reasoned arguments and quite quietly, but with the necessary force to carry conviction, explain the Department's position in the matter. You may not convince your man but you will at least earn his respect which may be helpful to you in the future. Always remember that one man with a grievance in your district is probably not keeping it to himself, and may be doing you considerable harm among your prospective customers, therefore, use your utmost endeavours to satisfy him.

That reminds me of another point of difficulty you are likely to be up against, to wit, the necessity for getting payment in advance in cases of doubtful financial stability. It is a matter which must be approached with considerable tact. There is nothing a man hates more than to have it suggested that he is not to be trusted. You must in these cases, as in all others, weigh up your prospect, remembering that appearances are often deceptive, and if you decide that a year's rental plus deposit must be obtained in advance, you should point out—if the need arises—that the service is essentially a pre-payment one. The Post Office has to spend its money before it can provide the service, and the rental you are asking for is the least it requires to cover interest on capital, maintenance, and so on for the initial term of the agreement, and that the minimum deposit is only sufficient to cover probably a fraction of his calls in the first quarter, and that, as he is unknown to the Department, you think he will agree that there is nothing unreasonable in your request which is an ordinary business precaution. He may offer a banker's reference or some such thing, but your Chief, I am sure, would rather have his cash, as a perfectly good reference to-day may not be worth twopence tomorrow. You will realise that each case of this kind, like so many others, must be treated on its merits. If you have legitimate doubts consult your Chief, who will tell you how to act, but a great deal depends on your impressions and knowledge, as you are the man with most knowledge of the circumstances. Having collected the money dispose of it at once in accordance with your instructions. Some men are careless about such matters, and this has, in cases I have known, led to the payment failing to reach the office before some enquiry has been made, with unfortunate results for the officer concerned. I know that you will not fail to carry out your instructions to the letter, but as I am trying to cover various aspects of your work, I thought it well to mention the matter.

You ask at what point in a canvassing interview should the question of rental and other charges be raised. All things being equal it is wise to make your case first, because if your arguments are sound the question of the cost of the service will not stand in the way. Circumstances may arise, however, which force your hand, and it may be necessary to quote rates prematurely. So much advertising matter is now being distributed containing details of rates that many people are quite well aware of what the charges are, and where this is evident or a direct question is put to you, there is, of course, no harm in discussing terms at an early stage in the interview. If you can avoid doing so until your prospect is convinced of the necessity of telephone service, do so, of course, but I should not care to lay down a hard and fast rule on the matter. A good salesman will know the psychological moment to discuss charges.

I was interested in your admission that there appears to be more in this job of canvassing for telephone service than appears on the surface, for that is just what I have been trying to show you, and the fact that you appreciate the point is half the battle, for you will endeavour fully to train and equip yourself for what is before you. Too many men in the past have thought too lightly of a Contract Officer's job, and have gone out on the road ill-equipped and with no sound ideas of how to go about their work, and have been bowled out by the first ball because they did not know how to wield a straight bat: or have retired hurt at an early stage in the proceedings because they had not taken the trouble to learn the game: or were too high minded to receive instruction, thinking they knew better than those who have been placed over them. If a job is worth having it is worth while to learn all there is to know about it, if you intend to keep it.

In playing the game of business-getting you want to be fair to your fellow contract officers, therefore, don't poach on their preserves. Keep to your own area. Team work is what is required, every man doing his appointed task in his own area with all the power of his body and mind and, while trying to have the top score, never do so at the expense of the next door man. Another man may have a better district than you have, but don't let that affect you: get the most you can out of your own. It is impossible to so arrange matters that all districts are of equal value, but always remember that a good man will always find plenty of opportunity in any district, and it is the poor canvasser who grouches about the poorness of the territory allotted to him, and who says how much better he could do if only he had So-and-so's area. It is a common failing to think the other man's job so much easier than your own. Make a success of the territory given you. Your Chief will not fail you when changes are in the air. Cutting in on motoring is often dangerous, but cutting in to get in front of all the other men in the amount of business obtained is the way to be the star salesman and to promotion.

I have just one other point for you this time, as homœopathic doses are probably best suited to your case, and anyhow, I don't wish you to feel fed up with these "lectures." I was reading some house-agents' advertisements in the paper the other day, and one of them I made a copy of and here are some of the most telling points it contained, all in a matter of a dozen lines or so:—

"A Triumph in Domestic Architecture," "Loveliest property," "Cleverly planned," "Attractively modelled," "Perfectly appointed," "Charmingly decorated," "Beautifully designed," "Spacious," "Elegant staircase," "Latest equipment," "First class condition," "Excellent garage," "Exceptional charm."

The chap who wrote that never repeated himself, you see, and did not leave much to say. It was all correct I have no doubt, but what would be said of any contract officer who, in his opening address to a possible subscriber, made such fulsome references to telephone service. I wonder. The point I wish to make is that exaggeration should be avoided. There are enough telling points in favour of telephone service without extremes of language. Any overstatements will, like chickens, sooner or later come home to roost.

Mother reminds me that it is time I went to roost and so I must make an end, "and so to bed" as Pepys was so fond of saying.

Love from us both, write soon.

Your affectionate father,

THOS. E. L. SERVICE.

P.S.—I enclose a snap of Telly at her one trick of knocking the back door knocker. I don't know how she learned it. Many a time I dash to the door, thinking it is a tradesman, only to find her ladyship wanting in. A fine job I had getting the snap, but it is worth the trouble, and I know that you will be interested. Poor Fony has been off colour for a few days but is pulling himself together now and likes being fussed over.

THE foregoing series of articles have moved a correspondent to send us the following:—

LETTER FROM A CONTRACT OFFICER
TO HIS FATHER, THOS. E. L. SERVICE.

Dear Father,

You have wondered, no doubt, when I would reply to those cheery and instructive epistles of yours on the many subjects of a Contract Officer's life, and which are now proving very beneficial to me.

Well, you are aware that a Contract Officer's job is a full time one, necessitating the whole of his energy and concentration, that is if he is going to keep abreast of his work, and hold his place with the march of commercial enterprise in making his selling of telephone service as productive as the other firm's man.

New business acts like a tonic, and as you remarked, do not forget the extension after obtaining the order for service.

Did I tell you how my course of Telephony at the "Poly" has helped me considerably by imparting that little bit of technical knowledge to my work, especially when dealing with large subs. on the industrial side of my area. P.B.X. working, knowledge of the instrument, why it is not possible to pass a stronger current over the wires when hearing is indistinct, are most helpful when going out to obtain new business, and as you say it creates the right impression upon the subscriber (some think you are the only person in the Telephone Service who can help and advise them in all matters referring to their installation).

The telephone is one of the miracles of engineering skill, but it is infinitely less important than the finer mechanism of human brains which is the selling agency behind it. Ha, ha! I have gone one better with your little brush for the trousers, to the extent that when I am passing my local exchange (especially should it be after lunch) I pop in, wash my hands, run the comb through my hair: just makes that little difference, which is as you remarked the opening of the door to the principal's room.

Money bears little relation to the activities of a Contract Officer; and my "marking time," Father, leaves my salary but barely sufficient to secure that freedom from private financial worries, which is as necessary to good work as keeping the body fit physically, before going out to tackle the bad trade conditions existing now, and the many difficult problems met while on the "road."

I remember your words that money does not command the highest services of mankind, but love and ambition, and although commission making is a great art, it really does not exist in our higher achievements.

I sometimes think that the best work in the world is done for nothing, just sheer love of it, so it does not do to dwell on the disproportion of financial rewards.

Money settles not what the man's services are worth, as standards are capricious.

Your talk to me before I left home is now creating a full impression upon me; steering clear of any stagnation in my work or arguments, I am beginning to feel that the next rung of the ladder is but an easy step, thanks to your advice of sticking to it, and learning my job, and above all, "Playing the Man"; after all, we Contract Officers are the "Telephone Service" to members of the public during the course of our day's work of selling "Telephone Service."

I am upholding those traditions of personal courtesy, and helpfulness which you handed on when embarking upon those leisurely days of your retirement.

Must draw my letter to a close as there is still some work for me to do in connexion with my area (I always prepare it over night), but I will write again before Christmas, telling you some of my experiences of the road, and problems I meet, with perhaps my own constructive criticism of how I push my sales.—Your affectionate Son,

X. TENSION SERVICE.

TELEGRAPHIC MEMORABILIA.

YES, I went to the Faraday Centenary Exhibition at the Albert Hall, London, and would not have missed the wonderful experience for a great deal. One of the features of the exhibition that caused the writer intense pleasure was the facilities given to the boys and girls who visited the exhibition for looking into, and where possible handling portions of apparatus, and for asking questions either of a simple or a complicated nature. Another feature which could not but stir up one's pride in one's old associations was the top-hole display of the British Post Office.

On the 15th of last month, for the first time in the history of the B.B.C., Television was included as part of the normal broadcasting programme, when Jack Payne and his dance band performed for thirty minutes. The performers were seen and heard clearly on a postcard size screen, reports the London *Daily Telegraph*. This latter reliable daily also states that the number of television subscribers in England is already over 8,000. A report from Madeira (1,700 miles distant) states that one of the B.B.C. experimental television broadcasts had been picked up very clearly there. Mr. Sydney A. Moseley in the *Daily Herald* noted on this occasion that "curiously enough, televisors outside Savoy Hill showed better images than the check receiver in the studio adjoining that in which the broadcasting took place."

There is considerable and growing activity in the U.S.A. in the direction of the development of Television, as witness the closing paragraph of this month's Memorabilia. On the other hand, the *T. and T. Age*, quite recently thus describes the:—"First Boxing Exhibition by Television, which was broadcast from the Columbia Television Studios, 485 Madison Square, New York City," and concerning which our contemporary says:—"At times the figures and the action were fairly clear, but at others the fighters seemed to be struggling through a severe blizzard!"

Personal.—Colonel A. S. Angwin has been elected as the new chairman of the Wireless Section of the I.E.E., and the latter august body, in honouring Colonel Angwin, is undoubtedly honoured. He graduated as B.Sc. (Engineering) at London University from East London College, and has had experiences in peace and war of which most of us would be envious.

Mr. S. Upton, Assistant Superintending Engineer, N. Western District P.O. Engineering Department, was recently presented with a mahogany bureau-bookcase and a silver tea-service, by his colleagues, on his retirement after 44 years' Post Office service.

Mr. E. Harper is retiring from the position of Chief Engineer to the Telegraph Department of Ceylon after ten years' service.

Countries.—ARABIA.—If all goes according to plan in less than twelve months from now, most of the fifteen wireless stations announced as contracted for with Marconi's Wireless Telegraph Co., Ltd., by the *Electrician* in January last, should be completed or near their completion. The contract included, it was understood, not only the erection of fixed wireless stations in the towns, but four Marconi sets fitted in lorries to be used as general mobile telegraph stations. These will also serve to enable the King of Hedjaz and Nejd to keep in constant touch with his two capitals (Mecca and Riyadh) during his many journeys in the desert. It has been part of the Marconi Co.'s task to supply a Mahommedan engineer to instal the transmitting and receiving equipment in Mecca itself, "as persons not of the Mahommedan faith are forbidden to enter the Holy City." "A British engineer," the writer is informed, "is supervising the installation of the Arabian stations outside Mecca."

AUSTRALIA.—The Postal Department has leased a large area of land," says the *Electrical Review*, "from the Government of Victoria at Mont Park, and intends to establish an important short-wave receiving post as part of the experimental laboratories to be erected on the spot. The station will be used for the reception

of the B.B.C. and other overseas programmes for re-broadcasting through the "A" class stations of Australia.

AUSTRIA.—It was recently stated at the opening meeting this season of the Ravag Council, that the number of radio subscribers at the commencement of September was over four hundred and fifty thousand. Director-General Czeija also announced that the provision of a new station was more and more becoming necessary, due to the close proximity of high power stations in the neighbourhood and the general tendency throughout Europe to still further increase the power of broadcasting stations.

EGYPT.—The *Electrical Review* gives the very interesting news that the Siwah Oasis in the Western Libian desert has been provided with a radio station. It was opened in the month of September last, and provision has been made for the transmission and reception of both Arabic and other languages. One cannot conceive of a more useful purpose served by wireless communication than that with an oasis in an arid sandy waste of land, or with a lonely island cut off from the rest of mankind by miles upon miles of a watery waste of ocean.

FRANCE.—This is a year of electrical celebrations and commemorations of the illustrious pioneers of science. Coinciding, practically, with the tributes to Faraday and Clerk-Maxwell, it is typical of this same epoch, unique in human history as regards the advance of the science, that the Société Française des Electriciens, in co-operation with the Société des Amis d'Ampère, should have already acquired the house in which Ampère was born. Ampère's birthplace was at Poleymieux in the French Department of the Rhone. The Société des Amis d'Ampère has most suitably co-operated by the collection of a number of the early experimental machines and apparatus of the inventor. These have already found a permanent home, as an Ampère museum, under the roof of the old house in Poleymieux. *A big broadcasting project.* As far back as August last the Commission appointed by the French Government to prepare a broadcast plan for France had made the following suggestions, according to *World-Radio* at that time: (1) Two stations of 100 kw. each situated some distance from Paris—one long wave and the other for the medium broadcasting band. (2) Six Regional stations of from 60 to 80 kw. (Lille, Rennes, Bordeaux, Toulouse, Lyons, and Limoges) and one station of 20 kw. (Grenoble). (3) Relaying stations of small power. Recent allusion has been made by M. Guernier, Minister of P. and T., to a project for the erection of "eleven new Government stations," which apparently points to a complete acceptance of the plan put forward in August last by General Ferrié the chairman of the Commission. To this comes further information from a very reliable source that these stations will be in addition to the two long-distance stations, "the right to which," says the *Electrical Review*, "France obtained at the Prague Conference. It is an open secret that the French wireless industry is in a bad way, and that owing to lengthy discussions on State versus Private control, the scheme has been held back. The French Post Office, however, is in the happy possession of credits amounting to 80 million francs with which to proceed with this scheme, which it is hoped will give a useful fillip to the languid industry as soon as actual authority is given to commence operations. *Dots and dashes to help the telephone!*—The Paris Observatory and the French Post Office have solved the problem of informing telephone subscribers of the time of day by dots and dashes! The new system, which is entirely automatic, will be installed without delay, says my informant. A clock constructed in Strasbourg will answer the old, old question of "What's the time?" The system will be omni-lingual, as no matter who asks the question, whatever may be his or her native tongue, the reply will come promptly and correctly, provided the simple procedure of dialling the Strasbourg clock's number is observed. Any number of persons can dial at the same time without confusion, and all will receive the reply immediately and simultaneously, so the writer is assured. There is one drawback, and that is the enquirer must know the hour, for it is the minutes only that are given. Thus, should the watches and clocks of a household cease to function or the householder wake up in the darkness of the night, it will not suffice that he put out his hand for the

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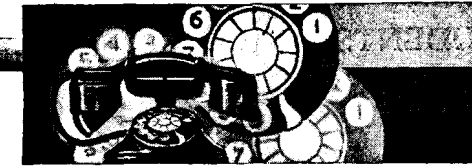
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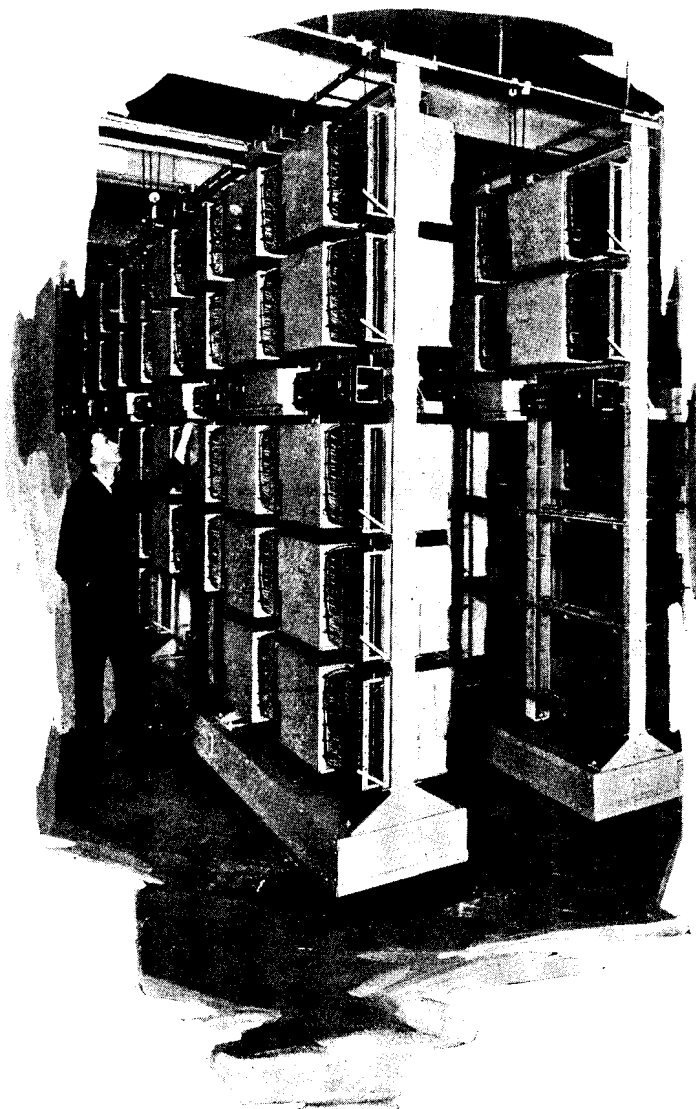


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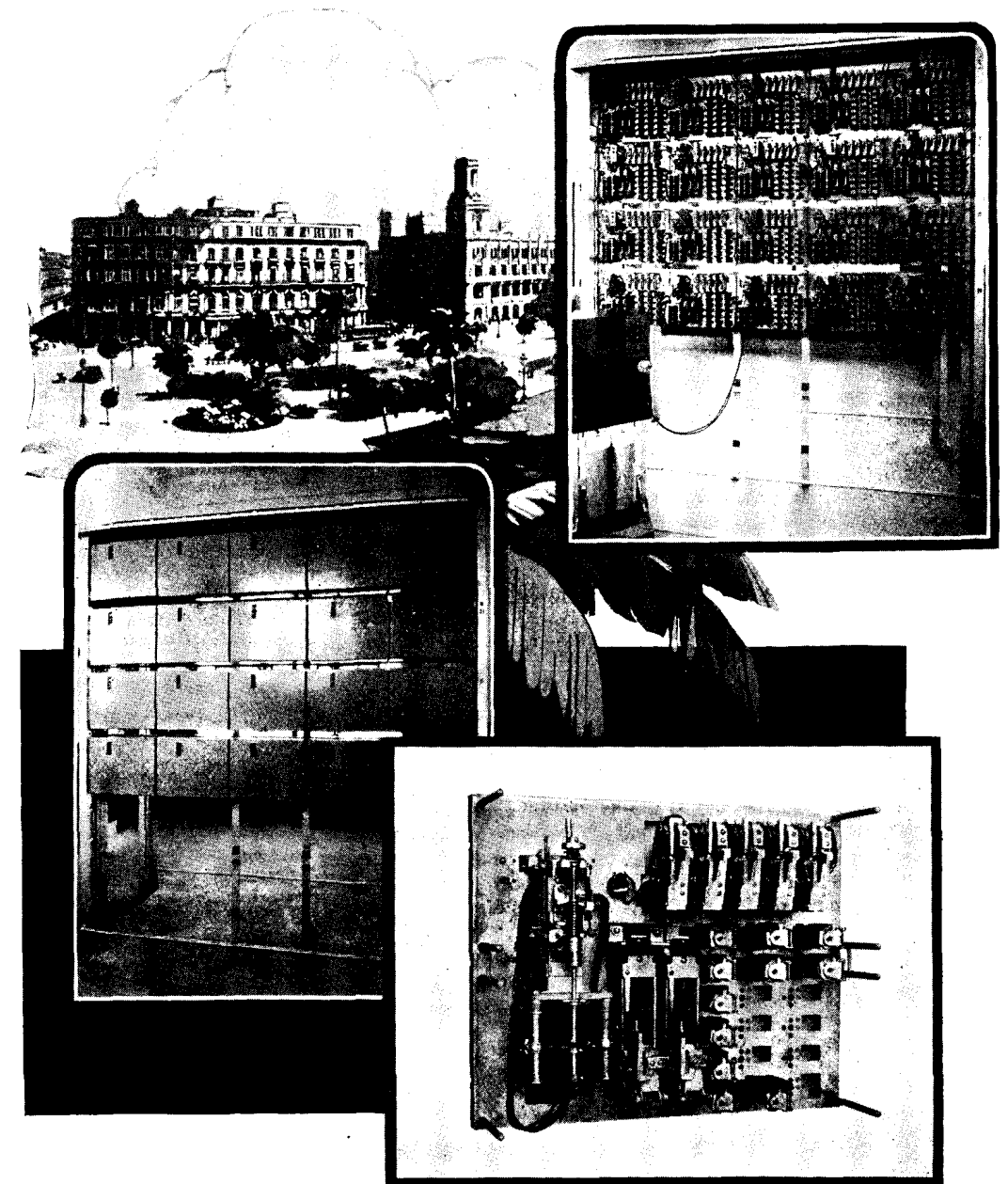


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A BRIEF CHRONOLOGY FOR STUDENTS OF TELEGRAPHS, TELEPHONES AND POSTS.

BY HARRY G. SELLARS.

(Continued from page 280.)

- 1922, June ... G. Bush and C. G. Smith (U.S.A.) devised a form of cold-electrode rectifier for high voltages, in connexion with radio telephone transmitters.
Question of wireless telephony broadcasting in Great Britain referred to the Wireless Sub-Committee of the Imperial Communications Committee.
- 1922, June 29 ... Letter postage rate reduced to three halfpence for one ounce.
- 1922, July 1 ... Direct United States Cable Company's cable purchased by British Government.
Twenty per cent. reduction made in the charges for private telephone installations and call rates reduced from 1½d. to 1¼d. Fees for trunk calls reduced.
Scheme for Imperial Wireless Chain abandoned by British Government.
- 1922, July 8 ... First Anglo-Dutch telephone cable (coil loaded) laid.
- 1922, July 15 ... Relay automatic telephone system opened for service at Fleetwood.
- 1922, July 24 ... London-Cairo-Karachi wireless broadcast commenced.
- 1922, July 25 ... Clifden wireless station destroyed by Irish Republicans.
- 1922, July 31 ... Anglo-Australian telegraph money order service commenced.
- 1922, Aug. 1 ... Anglo-Dutch telephone service opened. Charge, 10s. for three minutes, with reduced night rates.
- 1922, Aug. 2 ... Alexander Graham Bell died at Baddick, Cape Breton Island.
Henri Abraham (France) experimented in duplex wireless telegraphy, utilising three wavelengths.
Chinese Government made wireless apparatus compulsory on ships above a certain tonnage.
Marius Latour developed a frequency multiplier for wireless high frequencies which does not require direct current for saturation.
Bethenod and Chireix (France) improved the speed regulation of high frequency alternators.
Leslie Miller devised a wireless coherer.
- 1922, Sept. 1 ... Wireless telephone service opened in Berlin to supply subscribers with news, prices, &c., from 8 a.m. to 6 p.m.
Weinberger and Amy (U.S.A.) developed the use of Magnetic modulators for short wave radio telephony.
United States Government called a Radio Telephony Conference to formulate regulations for broadcasting.
Wireless telephony experiments carried out between England and Holland with 100-metre wavelength.
Phillips (Holland) produced wireless high power triodes of 100 kw. each.
- 1922, Oct. ... Albania signed agreement for the erection of a wireless station at Tirana.
New Zealand Postmaster-General stated that the Government was in favour of direct wireless communication between New Zealand and Great Britain.
Blakeney, Weinberger and Miller (U.S.A.) modified the Ink Recorder for reception of wireless signals.
Telegraph Money Order system extended to Uganda, Morocco, Australia, Palestine, &c.
- 1922, Nov. ... British Broadcasting Company formed for the wireless transmission of music, speeches, &c.
- 1922, Dec. 15 ... British Broadcasting Company registered.
- 1922, Dec. 16 ... Monument commemorative of the International Telegraph Union inaugurated in Berne.
P.O. telephone surplus for the year £939,000.
270,000 Anglo-Continental telephone calls during the year.
- 1923, Jan. 18 ... British Broadcasting Company received its licence and opened stations in London, Birmingham, Manchester and Newcastle-on-Tyne.
Hughes duplex telegraph tried successfully on London-Berlin wireless installation.
- 1923, Jan. 18 ... Telephone conversation carried on, without repeaters, between Bombay and Nagpur—a distance of 520 miles.
- 1923, Jan. 14 ... Communication maintained for two hours across the Atlantic by wireless telephony, speech passing from Rocky Point, Long Island, to the Western Electric Company's factory at New Southgate.
- 1923, Mar. 5 ... British Government decided to throw open Imperial Wireless communications to private bodies but at the same time to erect a Government station for strategic and other purposes.
British Prime Minister (Stanley Baldwin) said, "It is necessary, in the interests of national security, that there should be a wireless station in this country capable of communicating with the Dominions and owned and operated by the State."
- 1923, Mar. 12 ... Representatives from six countries met in Paris to discuss European Long Distance Telephony.
- 1923, Mar. 31 ... Post Office surplus during previous 12 months, £4,450,245.
- 1923, April ... Postmaster-General appointed a Committee to investigate the possibilities of commercial radio telephony across the Atlantic.
- 1923, May ... Speech transmitted from London to five provincial cities by landline and simultaneously broadcasted from those places.
Pacific Cable Board experimented with wireless telegraphy between Vancouver and Fiji.
Wireless communication opened between London and Poland, Esthonia, Hungary and Czecho-Slovakia.
Holweck thermionic valves used for wireless working at the Eiffel Tower.
H. H. Harrison produced an exhaustive work on "Printing Telegraph Systems and Mechanisms."
- 1923, Sept. ... Telephone cable laid between Dover and La Panne, bringing total number of Anglo-Belgian lines up to eight.
Giovanni Miniotti received first prize at the Turin Exhibition of Inventions for a five-unit telegraph system consisting of a typewriter keyboard, the keys of which, on being depressed, drop steel balls into depressions in a circular steel disc which, in revolving, brings the balls into a position to transmit currents to line.
Chinese Board of Communication opened a Wireless National Research and Testing Laboratory.
- 1923, Oct. ... Imperial Economic Conference affirmed the importance of establishing as quickly as possible an efficient Imperial service of wireless communication.
Marconi announced the successful trials of a short wave directive, or "Beam," system of wireless communication.
John L. Baird commenced experiments in television at Hastings.
- 1923, Nov. ... Direct wireless telegraph communication opened between Poland and U.S.A.
- 1923, Dec. 31 ... Chimes of the clock on the House of Commons ("Big Ben") broadcast for the first time.
"Lightning" telephone calls introduced in Germany.
P.O. telephone surplus for the year £1,597,000.
350,000 Anglo-Continental telephone calls during the year.
- 1924, Jan. ... Hughes printing telegraph tried on the London-Budapest wireless installation.
Direct wireless telegraph communication inaugurated between France and Indo-China, and between London and Vienna.
Direct telegraph cable communication opened between London and Chicago.
- 1924, Mar. 15 ... "Coventry" automatic telephone system brought into use at Dundee and Broughty Ferry.
- 1924, Mar. 31 ... Post Office surplus during previous 12 months, £5,291,022.
Imperial Wireless Telegraphy Committee (Chairman, Robert Donald) reported and recommended that the State should own all wireless stations in "Great Britain" for communication with overseas dominions, colonies, &c.
- 1924, April 24 ... Telegram sent by the King at Wembley, London, round the world (via Pacific cable and Australia) in 1 minute 20 seconds
- 1924, July 1 ... Rates for telephone calls reduced from 1¼d. to 1d. and certain trunk charges reduced by 2%.
Speech transmitted for the first time by wireless telephony between England and Australia.

(To be continued.)

bedside telephone, though the telegraphic dots and dashes be ever so helpful, within the limits of one and sixty minutes. Only an appeal to the exchange Supervisor would provide the hour, and that would cost the subscriber an additional fee! However, an explanation of the system is to be printed in the new French telephone directories, when it is possible that further information will materially assist the wakened sleepers of the darkened hours!

GERMANY.—*Picture Telegraphy*.—Gradually, but steadily, this form of telegraphy appears to be making headway. A service between Frankfurt-on-Main and Munich has recently been added with further extensions to Rome. The latter capital has also a similar service with Copenhagen. A "Picture" service between Great Britain and the Continent has for some time been a daily feature.

GREAT BRITAIN.—From American sources it is heard that the Zenith Radio Corporation of Chicago has decided to open a factory in Great Britain for the manufacture of radio receivers. A site of some thousands of square feet has been obtained within the Greater London area, and it is even said that the factory will commence operations within the next few weeks. British labour is to be employed, and it is even stated that "by the end of the current radio season it will be giving employment to about 2,000 people." *Nous verrons ce que nous verrons.* *The B.B.C. Calibration Charts*.—The *World-Radio Calibration Charts* booklet, issued by the B.B.C., should prove of exceptional value to all wireless enthusiasts, and even to those only moderately interested. It contains among other interesting information a complete list of stations up to date, of long, medium, and short-wave stations, with the average reception strength in Great Britain. *Rail-less bus interference*.—After a friendly discussion between the General Post Office and the London United Tramways Ltd., acting in co-operation with representatives of the B.B.C., certain experiments were carried out to the satisfaction of all parties. As a result the tramway company has agreed to fit "stopper-coils" to the entire fleet of their sixty trolley-omnibuses. *Advertising by telegram*.—Our colleague, H. G. S., has already and without doubt taken note of the recent wholesale telegraphic transmission from Birmingham Post Office of 16,000 telegrams to retail motor traders in Great Britain, directing attention to certain specialities of the Morris motor organisation. *The International Union of Broadcasting*.—The sincerest regret is felt in this country by the well informed press on the failure on the part of Great Britain to obtain some sort of useful revision of the Prague Plan. The *Daily Telegraph* wireless correspondent rightly says:—"This wavelength confusion very seriously threatens listening conditions this winter." It would seem to be an almost unthinkable result of the science of radio-diffusion that instead of bringing better understandings between the nations of the world, and especially between the nations of Europe—the extension of facilities should terminate in an unseemly dog-fight in the ether!

INDIA.—*Wireless Stations for Sale!*—The *Electrical Review* informs us that "The Viceroy's Executive Council, which aims at retrenchment, after considering the interests of firms selling radio equipment and holders of wireless licences, has endorsed the recommendation of the General Purposes Sub-Committee that the two broadcasting stations in Bombay and Calcutta should be closed down and the plant sold." The Government last year lost Rs. 125,000, between nine and ten thousand pounds, on its broadcasting service. What a help to the Indian Broadcasting Service would the capture have been of the 100,000 odd "pirates" already tracked down by the British Post Office in Great Britain, had times been better, and the legal position permitted of a gift of a couple of thousand rupees to the Indian Broadcasting Administration in its early struggles!

ITALY.—It is understood that the Vatican City's private wireless station in Rome has been made available for public use. The charges are to be the same as those made for ordinary telegrams. It is anticipated that picture telegraphy will be available and that the Pope's photograph will be radioed to the Eiffel Tower.

IRISH FREE STATE.—*Vacancies for Telegraph Engineers*.—The *Electrician* informs us that there are vacancies for three probationary assistant engineers in the Irish Free State Posts and Telegraphs Department. Application forms are obtainable from the Civil Service Commission, Dublin.

KENYA (EAST AFRICA).—*Two days' telegraph interruption*.—This was the lengthiest interruption which had occurred between Nairobi and Mombasa for some long time. It was not due to the climatic conditions, for neither heavy rain or hurricane had visited the colony for weeks. Linesmen went out after the fault, but did not discover the direct cause of the trouble until they had travelled some considerable distance, well away from the capital. Upon reaching this particular district it was noticed that the dusky ladies and gentlemen of the villages round about had bedecked themselves with bracelets and anklets made from the bright copper wire of the overhead telegraph line!

MALAYA.—*The carrier telephone-telegraph*.—The inauguration of the first link in the interconnection by telephone of Singapore with the rest of the Federated States was recently carried out by the afore-mentioned carrier system installed by Standard Telephones and Cables Ltd.

NIGERIA.—Annual colonial reports from certain parts of the Empire naturally come to hand in what might appear to be an over-belated condition. However, there is matter in this report which must not be permitted to slip into the pigeon-holes of "Records," until it has been duly noted in the pages of the *T. and T. Journal*, for example, that the Nigerian Telegraph Traffic increased slightly during the year 1930, and that facilities were provided at two additional post offices, and traffic was accelerated by the extension of quadruplex operation on main-line circuits. Other interesting items are:—The reconstruction of the Lagos-Oshogbo and Port Harcourt-Ensign main telegraph lines was completed, as were also the railway signal line on the Ifo-Idogo branch and a telephone traffic control circuit between Port Harcourt and Enugu. A telephone traffic control circuit, Apapa and Ibadan, was under construction. Two new telephone exchanges were also opened, one at Aba and the other at Bukuru. The interesting feature about the last-named exchange is the evident signs of close co-operation between the Telephone and Telegraph, for it is specially mentioned that "the Bukuru exchange affords telegraph facilities to a wide area of the tin mines field." *Wireless developments*.—A wireless telegraph service between Badagry and Lagos was brought into public use, being the first wireless channel opened for commercial purposes in Nigeria. Traffic on this, however, was disappointingly small.

RUSSIA.—The large new broadcasting station at Novosibirsk, which is intended for long-distance reception by crystal sets, is expected to be opened by the time these lines are seen by our readers. According to the the Soviet press, says Reuter's Agency, "its many new features will enable listeners in India and Persia to 'hear the voice of Moscow.'"

SOUTH AFRICA.—Somewhat contradictory information comes to hand from South Africa as between private and state broadcasting. Two paragraphs are before me, both published by a periodical of the highest reliability. One paragraph reads:—"Business houses in various parts of the country lately applied for permission to erect stations of their own and were informed that the Government viewed the applications favourably, but they have now been notified that the Government thinks their requirements could probably be met by means of the existing service." It also appears that a licence issued to a Cape Town music dealer to erect a transmitter over his premises has not yet been withdrawn, although the attitude of the powers that be has decidedly changed since permission to erect the transmitter was given. The second paragraph reads thus:—"An American firm is about to erect a broadcasting station at Cape Town with the object of broadcasting chiefly advertising matter." Application was made last year and permission to erect such a station was granted subject to the usual provision of non-interference being complied. It is

further stated that, "It will operate when the Cape Town station of the African Broadcasting Company is not 'on the air.' Transmission will be on a wavelength of 343 metres, &c., &c."

U.S.A.—*Telegraphy, a new agreement not an amalgamation.*—An elaborate scheme of co-operation, says the New York representative of Reuter's Agency, has been arranged between the Western Union Telegraph Company and the Radio Corporation of America (Communications) Inc. for the co-ordination of their cable, telegraph and wireless services. Under the agreement, which is not amalgamation, the Union has obtained the wireless services of the Corporation to supplement its cables to foreign countries. The Corporation in return has the use of the Union's station facilities for the collection and distribution of wireless messages and the use of its land wires and the office and delivery services. This agreement replaces the proposed merger of the R.C.A., the International T. & T. Co. and the Postal Telegraph Co., which was abandoned because it conflicted with the Federal Anti-Trust Laws. *American Police Radio.*—New York's police chief, Mr. E. P. Mulrooney, has asked for £20,000 to equip a number of police cars, boats and aeroplanes with short-wave radio sets, and to establish three police transmitters. "The use of short-wave radio communication has been shown to be a success in more than twenty-five American cities," was the report of Mulrooney. "It will be possible to have the receiving sets permanently tuned and locked to pick up only the wavelength of the new police sending stations. 'Scrambling' can be resorted to when confidentials are transmitted," states the report. *The Valve Actions settled.*—The action for damages brought against the R.C.A. three and more months ago by over twenty valve manufacturers on various grounds, including, says the *Electrical Review*, "alleged violation of the Anti-Trust Law," have been settled by private arrangements. The total claims against the Corporation was \$23,350,000. This does not mean to say that this was the actual amount paid out. *Official returns of Wireless sets.*—The Electrical Equipment Division of the Department of Commerce in Washington, estimates from recently compiled figures that there are no less than 10,500,000 receiving sets in the U.S.A. The total in the North American Continent is stated to be 10,927,888, of which, adds the report, "Canada holds 284,580." *Television Developments.*—The *T. and T. Age* states that the experimental television station W3XAD of the R.C.A. Victor Co. of Camden, N.J., received a licence on July 21 to cover a construction permit. The station will use 2,000 watts power and operate on frequencies of 43,000 to 46,000 kcs., 48,500 to 50,300 kcs., and 60,000 to 80,000 kcs. The station may have unlimited time "on the air," subject to time division among similar stations.

"A mathematician, given sufficient data, could predict every ripple and every line of foam on a beach; but the splash of a fish, the ripples of a boat, would put his calculations out."—*Sir Oliver Lodge.* J. J. T.

SOME STATISTICS OF BROADCAST RECEPTION.

(From the figures issued by the Union Internationale de Radiodiffusion.)

NUMBER OF LICENCES.	
Austria	448,211 (end of July).
Belgium	163,602 (middle of August, of which 2,250 free).
Denmark	452,400 (end of August, of which 14,800 free).
Germany	3,719,594 (end of June).
Great Britain	3,810,099 (end of July, of which 24,923 free).
Hungary	317,599 (end of July).
Italy	203,133 (end of July).
Norway	94,874 (end of August, of which 80,584 in district of Oslo).
Sweden	532,628 (end of July).
Switzerland	120,976 (end of July).
Yugoslavia	30,377 (end of July).
Commonwealth of	
Australia	331,369 (end of June).
Morocco	3,000 (end of July).
Japan	830,806 (end of June, 1931).

THE TELEPHONE IN BUSINESS.

By F. J. LANE.

ORDINARY mortals (and it is no insult to say that this embraces most Contract Officers) do not possess the hypnotic powers of the so-called born salesman, which are required to sell refrigerators to Eskimos in December, or woollen pull-overs to Iraqis in July, and are therefore forced to depend for success upon hard work and the presentation of their case by intrinsically sound argument. This is perhaps just as well in the case of telephones, as unlike the articles mentioned above, it is necessary for the telephone service to take root permanently, and this is more likely to happen if the customer takes the service because he has been truthfully taught its real value.

The arguments in favour of telephone service in the home are now thoroughly established, and every officer confidently uses them with variations to suit himself and his prospect. It is true that they do not always bear immediate fruit, but there is generally a feeling left that good seed, which will one day germinate, has been sown. For that reason a Contract Officer can view a number of telephoneless houses with something approaching equanimity: but on the other hand, the sight of business premises and shops without telephones is looked upon as something like a personal affront.

The fact is that the essentialness of the telephone in commerce seems obvious and like all obvious things not worth arguing about. This is true enough of the large manufacturing concern or the professional man in practice, and in these cases we have only to concentrate on endeavouring to get these classes to see the value of extending their service. But we make a mistake if we lump together the stockbroker, the manufacturer, and the doctor with the small shopkeeper and treat them all as business men to be approached in more or less the same fashion. It seems worth while, then, to consider a few cases of potential business subscribers who, just for example, do not understand the process of "cutting one's losses on a falling market."

Take first the small butcher, grocer, or greengrocer. They are often not rich men who will straightway take service just to be in the fashion or on chance that it might bring an adequate return.

They will not, of course, deny that people do order goods by telephone, but the stock argument or objection is, that orders so given entail more trouble than they're worth. Customers, they say, come to the shop with their orders or give them to the man who calls on them, and then later ring up for some triviality they've forgotten which necessitates a supplementary delivery usually (this is the work of the devil) to some distant place. "In any case," it will be frequently said, "very few of my customers are on the telephone."

Now both these objections are fundamentally unsound and ill-considered, but so superficially attractive are they, that it behoves every Contract Officer to study how to consider them.

With regard to the forgetful customer, it is usually policy to sympathize with the tradesman (he deserves it!) and then carefully lead him to appreciate the fact that the forgotten article, though small, was probably essential to the housewife, and it is almost certain that possessed of the means (the telephone) of quickly obtaining it, she will get it. If he (the prospect) is not accessible by telephone, someone else will have the trouble, and that someone else will stand an excellent chance of getting the bulk orders in the future: the distressed lady will feel annoyed

with the telephoneless tradesman (though, of course, she should blame herself) and under an obligation to the other. No one can afford to lose customers like that. Those who sometimes forget are not freaks, but just any kind or all kinds of people. If the butcher or grocer seems at all an ambitious man, the argument might be further developed by suggesting that the big stores and multiple shop concerns built up their businesses by allowing (even inviting) people to make a nuisance of themselves. You do not, of course, approve of giving these services, but there it is: the world is like that, and in business one has to take the world as one finds it.

Very short work can be made of the objection that "my customers are not on the telephone." Of course they're not; but a very large number of *potential* customers are, and presumably they intend to make use of the service. Did the butcher think that these people pay telephone rentals for the pleasure of walking to his shop on every occasion? Of course, no one would put it so ironically and bluntly as that, but it is not difficult to show that there exists a vast army of possible customers to whom he is denying the facilities for buying from him. Besides, what will happen when some of his present customers do rent a telephone? A few local statistics showing how the Post Office is rapidly securing new subscribers may turn the scale; if he has any enterprise at all, he will realise that the business man has to be first in this field.

It might now be said that butchers, grocers, and greengrocers are comparatively "easy game": the goods they sell are, to a varying degree, perishable and, being used everyday, fresh supplies must be constantly ordered either by telephone or personal call. But what of other trades which are more sparsely distributed and perform occasional services or deliver goods in less general demand, things which cannot be accurately described by telephone. Take, for examples, a bootmaker (that is a boot repairer) or a repairing tailor, or a small cabinet maker.

These tradesmen are easily approachable, just as ready to listen and quite as enterprising as butchers and bakers, and therefore quite as prepared to take telephone service if they can foresee anything approaching an adequate return for the rentals to be paid. They argue, though, with good reason, that few orders can in the first instance be given to them by telephone, as more often than not the subject of the work has to be brought to them in order to show clearly what is required.

In these cases it is clearly best to try and lead the prospect away from any attempt to calculate the possible advantages of the service in terms of hard cash. Instead of doing this it is better to put up suppositious cases:—Mr. So-and-so wants to make certain minor alterations to his original order, or wants to expedite delivery (be careful here, for it is dangerous ground!) or, on the other hand, to say that circumstances have modified the urgency expressed, and so on. Better still, an unknown person having seen some good work done for a friend, may ring up to enquire if a similar service can be done for him by a certain date—this surely means another customer secured. Telephone subscribers are becoming more numerous and are tending to use telephones more every day and proportionally neglecting other means of expressing their wants, and so naturally they deal with tradesmen who are on the telephone. No one in any kind of business can afford to let these obvious opportunities slip by whilst he is vainly endeavouring to reduce them to terms of cash return.

In all small businesses, particularly the non-distributing trades, something can be made of the advertising potentialities of the telephone. Classified directories are being published. The telephone number appearing on a delivery van gives a hint of enterprise, and this is a virtue which everyone feels automatically bound to encourage. Again the use of cards announcing to customers the installation of the telephone should be encouraged.

In conclusion, it is worth learning briefly the "mechanism" of various trades. A Contract Officer should, of course, know his own job—he will also find it much easier to build up his case if he has some acquaintance with the ways of his prospects!

An officer who brings his prospect to the point of "giving it a trial for a year" by showing him by intelligent and honest argument where the value of the service lies, and by giving him sound advice in making the best use of it, will be getting more to do the same, while the "born salesman" is dealing with a handful of green cards!

QUESTIONS ON TELEGRAPHY, TELEPHONY, ELECTRICITY AND MAGNETISM.

X.

SKETCH and describe an inset transmitter suitable for use in a local battery telephone.

The number of answers to the questions set continues to be disappointing. The prize is awarded to Mr. G. S. Edwards whose answer is reproduced below.

A prize of a book will be awarded for the best answer which should reach the Editor by Nov. 30. The correct solution will appear in the January issue.

SOLUTION OF QUESTION VIII.

The magneto cell is used in telephony to attract the attention of a subscriber to his telephone.

It consists of a square metal frame, to the top member of which are screwed two electro-magnets. Between these, a C-shaped permanent magnet is screwed with its north pole at the bottom. Thus terrestrial magnetism tends to augment instead of decreasing the permanent magnetism.

The armature is mounted freely on pivots attached to the bottom of the frame. Combined with the axle is a soft iron bar, which, coming into contact with the poles of the electromagnet, limits the vibration of the armature. This may be altered by means of adjusting screws at the bottom of the frame. The hammer strikes oxidised bell gongs which are mounted eccentrically on pillars, being secured by ornamental nuts. Fixing screws are provided for fixing the bell in a bell set or telephone.

The magnet coils are each of 500 ohms resistance, and are connected in series for C.B. and C.B.S. No. 2 working and in parallel for C.B.S. No. 1 giving resistances of 1,000 ohms. and 250 ohms respectively.

The action is as follows:—The permanent magnet N-pole, being near the armature under its mid-point, induces consequent poles, giving the armature north polarity at each extremity.

Ring current consists of alternating current at 16½ cycles per second. The coils of the magnets are so wired that they are equivalent to a horse-shoe magnet. Thus during one-half cycle one pole is S and the other N-polarity. On reversal of the current, this condition is reversed. But the armature, having consequent poles, is attracted by one pole and repelled by the other at opposite ends. This causes it to tilt. On the reverse of the current it immediately swings over in the other direction, and will continue to vibrate in obedience to the current alternations. By virtue of their eccentricity, the gongs may be adjusted so that the bell-hammer strikes them as required.

A good bell should work steadily with 30,000 ohms in series or 50 ohms non-inductive shunt connected.

In automatic areas some modification is necessary, as where No. 8 dials are fitted an annoying tinkle is set up during dialling. This is overcome by a bias spring between a hook on the armature and an adjusting screw on the frame. Since this is not very satisfactory in practice, a No. 10 dial is used in modern instruments and short circuits the bell during dialling.

INDUSTRIAL EXHIBITION AT ROYAL AGRICULTURAL HALL.

ISLINGTON CIVIC WEEK.

MUCH interest was aroused when it was known that the Postmaster-General had agreed that the Post Office should be represented at the Industrial Exhibition at the Royal Agricultural Hall organised in connexion with the Islington Civic Week, June 8 to 13, 1931. A stand 16 feet long by 10 feet wide was rented and a free hand given to the officers of the Contract and Engineering Departments concerned in the arrangement of the stand and in the selection and provision of exhibits. The decision to bring together under the sole control of the Post Office a representative collection of telephone apparatus and plant as an advertising medium being in the nature of an innovation, it was considered desirable to take full advantage of the opportunity offered. At the outset it was decided to display apparatus in present-day use, and therefore, apart from a model of a Graham Bell telephone, all the apparatus displayed was of modern type. The following is a list of the items exhibited, and a few words in respect of certain of these may be of interest, not only to the general reader, but to those who may be concerned with similar exhibitions in the future:—

$\frac{10 \pm 50}{60}$ floor type switchboard.

$\frac{2 \pm 4}{6}$ C.B. cordless switchboard.

4 hand micro-telephones (London automatic type).

3 Pedestal common battery telephones.

5 hand micro-telephones, C.B. and automatic type (various colours).

2 final selectors operated by means of automatic telephones.

Multi-coin box telephone with glass front to exhibit mechanism, with open bottom and tray for receiving coins.

Set of 4 keys associated with loudspeaker and necessary apparatus for demonstrating the four standard tones: "dialling," "ringing," "busy" and "number unobtainable."

Strip of lamp jacks with lamps illustrating operation of the C.B. calling signals.

6 examples of various sizes of underground telephone cables.

1 amplifier (Repeater No. 9A) connected to the switchboard.

1 Rugby valve.

1 ordinary valve.

1 Graham Bell telephone.



P.O. TELEPHONES EXHIBIT AT INDUSTRIAL EXHIBITION.

The photographs accompanying this article illustrate the general arrangement of the stand. The kiosk No. 2 at the back of the stand is a model made up in wood and paper, illuminated from within by a flashing lamp. A silhouetted figure pasted on the inside of the window of the cabinet shows up

when the lamp is alight. The "growth blocks" arranged on each side of the kiosk were provided with a ground glass top on which was painted the number of telephones in successive ten-year periods. These tops were illuminated from behind in succession, starting from the lowest, each one remaining alight until 1930 was reached, when all were extinguished, the control being effected by a sequence flashing switch. The small model kiosk standing on the right-hand counter was specially made to illustrate the latest method of controlling the electric light in a kiosk. This model, which was provided by the Radio-visor Parent Co., Ltd., comprises among other items of apparatus a selenium cell, the action of light on which causes a switch to operate and control the lamp. As soon as daylight fails, or in foggy weather, the lamp in the kiosk is lighted, and *vice versa*. The card of instruction accompanying this model, which can be seen standing on top of the little kiosk, invites visitors to interpose an opaque object between the source of light fitted above the model and the model itself and to observe when this is done that the lamp within the kiosk is lighted. Several kiosks in the London Telephone Area are already fitted with this device.



P.O. TELEPHONES STAND: ANOTHER VIEW.

Other attractive features of the stand were a table on which reposed examples of each of the coloured telephones now authorised and a large album containing photographs of telephone exchange buildings, exchange equipments, manual and automatic switchrooms, &c. In addition to the apparatus and the electrical features a large amount of attractive literature, including the maps to be seen at the back of the stand, was provided, and the outside of the counter all round the stand was panelled with the large new coloured posters in frames.

The Post Office stand, which compared very favourably with the most attractive stands in the exhibition, excited considerable interest, and was visited by a large number of persons during the exhibition week.

The Exhibition was opened by H.R.H. Prince George, who, after having performed the opening ceremony, made a tour of the Exhibition. The Postmaster-General was also present, and made a detailed inspection of the Post Office stand, expressing himself much interested in the collection of items shown.

At the inaugural luncheon the Postmaster-General, who was the principal guest, proposed the toast of "The Islington Civic Week, 1931." In the course of his speech he referred to the importance of civic spirit in these days. He said it was time every town and borough took itself very seriously. It used to be said that London had no civic pride—that was because it was so large that there is no need to talk about it. He welcomed the indication of civic consciousness as evidenced by the present effort, and congratulated Islington on its enterprise. He expressed the hope that all present would make a point of inspecting the exhibits, and in particular those shown by the Post Office, and after having done so he hoped that those who were not already "on the telephone" would remedy the omission that day.

That similar opportunities for bringing the Telephone Service before the public are likely to occur more frequently in future is possible, having regard to the interesting announcement in a recent Post Office Circular to the effect that the Postmaster-General has appointed a committee to advise him with regard to advertising the Telephone Service.

A. WRIGHT,

London Engineering District.

REVIEW.

"International Communication—The American Attitude." By Keith Clark. (P. S. King & Son. 15s. net.)

In this book the writer traces the history of the Universal Postal Union and the International Telegraph Union. He gives an account of the numerous postal, telegraph and radiotelegraph conferences held since 1863, and of the International Conventions and Regulations which resulted from them. He also describes the American attitude on the main issues and gives lists of the American delegates to the conferences.

International Conferences are an acquired taste. Normal persons do not "follow" them as they do, say, international tennis tournaments or football matches. Mr. Clark's book will not, therefore, appeal to a wide audience; and his readers will be found in America rather than in Great Britain. References to British policy are not numerous; but in a chapter dealing with submarine cables two remarkable quotations are given which are worth mentioning. Referring to a discussion at the Peace Conference, it is stated "In the Council of Ten, May 1, 1919, Lord Balfour declared that the British cable owners had been "forced to give the transatlantic cables up by 'freeze out,' by discrimination in land rates on the part of the American telegraph companies." The writer goes on, "In a letter to President Wilson, Mr. Rogers, technical adviser on communications, declared, 'the American Cable Companies could not live a day except for the arrangement with the British Government telegraph system for the interchange of business.'"

The book is well written and well produced.

FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

Australia.—Melbourne, Postmaster-General's Department, Dec. 1. Supply of condensers for Post and Telegraph Service. Also, same Department, Jan. 4, 1932. Paper and varnished cambric insulated, lead-covered steel wire armoured cable (Ref. A. X. 11127).

India.—New Delhi, Nov. 16. Copper conductors (Ref. G.X. 10826. Jan. 7, 1932, Indian Stores Department. A.C. and D.C. ceiling fans.

New Zealand. Wellington, Post and Telegraphs Department, Dec. 8. 2,000 carbon diaphragms (A.11131). Also same date. 200 head receivers (A.11131). Nov. 10. 5,650 condensers (A.X. 11101) and 2,300 lamp caps (A.X. 11102). Same Department, Nov. 11. Supply of 12 time-limit relays (A.X. 11103). Also, Nov. 17. Resistance spools (A.X. 11104); also 20 700-ohm resistance spools (A.X. 11114). Also Nov. 21. Dial cords (A. 11121). Also Nov. 24. 500 telephone mouthpieces (A.X. 11115). Also Nov. 30. Moulded telephone cases (A. 11119). New Zealand Railways, Nov. 19. Intercall system between Christchurch and Invercargill (A11060). Also Dec. 18. Armoured cables and junction boxes (A.X. 11122). Also Jan. 18, 1932. Railway overhead equipment (G.X. 10792) and Feb. 29, 1932. Three automatic railway sub-stations (A.X. 11105).

Siam.—Nov. 14. Posts and Telegraphs. Supply telephone terminal boxes and accessories for use with the new underground network. (A.X. 11,088.)

South Africa.—Benoni, Municipal Council, Nov. 9. Electrically operated automatic traffic control signals.

The American Vice-Consul at La Guaira states that, with the removal of restrictions, the Venezuelan market has shown rapid development recently. The makes of sets now on the market are of British, American, Dutch and Canadian origin, but a serious handicap at the moment is the lack of skilled service men for repairing sets and the inability to secure spare parts at reasonable prices. In order to get the best results in Venezuela, a receiver capable of receiving both long and short waves is required.

Uruguayan Custom Duties.—After considerable confusion, not in the least due to H.M. Representative in Uruguay, it may now be definitely stated that "a Decree has now been passed by the Uruguayan authorities limiting the increase of duty in the case of goods from the United Kingdom and certain other countries to 25%, and providing for a refund of duties paid in excess of that amount." Last month the figure of 50% was mentioned!

J. J. T.

CORRESPONDENCE.

THE TELEGRAPH SERVICE.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Dear Sir,—In his note on the "Mechanisation of the Telegraphs" in the September issue of the Journal your esteemed correspondent, "J. J. T.," pays a graceful and well-merited tribute to the genius of our friend and colleague, Mr. A. H. Johnson. In the period of transition through which we are passing, when misunderstandings are apt to multiply and tempers are easily frayed, when in the stress and strain inseparable from the "re-mechanisation" (to borrow J. J. T.'s term) of the service situations of great difficulty and even of potential danger not infrequently arise, it is impossible to appreciate too highly the psychological value of our friend's gentle and healing humour. Someone has well said that a lively sense of humour is that gift which more than any other enables a man to sustain with fortitude the trials and vicissitudes of life. This is true and to "A. H. J.," who has shown us how to smile at our difficulties and disappointments, we owe no small debt of gratitude.

With the Telephone Service in mind J. J. T. very wisely warns us that it is futile in these days of ceaseless and bewildering change to "revile one another or to minimise the value of one another's services to the community." It is indeed worse than futile, it is blind folly amounting to stupidity to deny or to seek to minimise the value of the service which the telephone renders to the people of this country.

Nevertheless, when your correspondent tells us that "if telegraphy has its rival in telephony, so to-day, has gas that of electricity, the railway that of the motor-bus and motor-lorry. Each has to find its place in the economy of things as they are to be." One feels instinctively that the analogies are unfortunate. Obviously no such free and unfettered competition exists—or, indeed, can exist—between the telegraph and telephone services as obtains between the gas and electric undertakings or as between the rival systems of transport.

No one who approaches the subject with an open mind can fail to be struck by the energy, enterprise and efficiency which characterise the management of our gas and electric undertakings. Twenty years ago there were not wanting those who prophesied that with the advent of electricity the gas industry would be overwhelmed within the space of a quarter of a century, to-day, under bold and enterprising management, the popularity of gas is more firmly established than ever before. There are not wanting good judges to affirm that under a management equally wise and enterprising the railways will once again come into their own. In all four undertakings efficient and economical working has been brought to a very high level of perfection, there has been ceaseless effort to provide the public with what it requires at the lowest possible price, rates are continually under review and are being constantly varied, almost always in a downward direction; new sources of revenue have been tapped, services are modified, amended, extended to meet changing needs and conditions, while the "desirability" and "reliability" of the goods and services supplied are assiduously recommended to the notice of actual and potential customers.

It is far otherwise when we turn to the Telegraph Service. Here rates are timidly pegged at the pre-war level, while every suggestion hitherto made for an amended form of service is met with a complete *non-possumus*. Far be it from me to suggest that the telegraph administration is deficient in energy and imagination. Nevertheless, the fact that there are several millions of people in this country who are not now, and who are not likely soon to become, telephone subscribers, constitutes a challenge which many of us feel has not yet been seriously taken up. It might well be that these potential customers could be educated and encouraged to appreciate and to use a means of communication at once speedy, accurate and *cheap*.

Speed and accuracy, if not provided, are at least in the way of being provided, but with rates 100% above pre-war the third and most important desideratum is unfortunately still far to seek.

It is, perhaps, too soon to prophecy what the result of existing policy is likely to be, but while it is happily possible to point to great and far-reaching economies effected during the past few years it may yet be open to question whether, with traffic steadily declining, and likely to decline, any adequate return upon the heavy capital expenditure now being incurred is ever likely to be forthcoming.

Amid the conflict of opinions three things seem reasonably sure:—

- (1) The British Telegraph Service is slowly dying from lack of that which is its very life-blood—traffic.
- (2) The potential users of the telegraph may nevertheless be numbered by the million.
- (3) We have not yet reached, nor are we yet within measurable distance of, the limit of economy in the Telegraph Service.

With these considerations in mind, may it not be true that a bolder and more enterprising policy would have secured for the telegraphs, as it has done for the gas and electric undertakings, a more spacious and comforting place in the "Economy of things as they are to be."?

MENSANO.

C.T.O., Oct. 12. 1931.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

THE number of call office kiosks working in the London Area at the end of September was 2,585, and there were Advice Notes outstanding for 75 more; the increase since Jan. 1 has been 423.

The demand for hand microphone instruments continues. During September the number of instruments ordered was 4,586, increasing the total number to 64,675. This figure compares with 13,428 at Jan. 1, 1931, an increase this year of 51,247.

The extension of the police box system to include the Sutton district will result in 23 additional boxes being provided.

The removal of the headquarters of the British Broadcasting Corporation to Broadcasting House, Langham Place, involves the provision of an installation of 30 exchange lines and 309 extensions. For the new town hall at Wimbledon, opened recently, an order was obtained for 5 exchange lines and 41 extensions.

In connexion with the Wireless Exhibition, held at Olympia, 139 telephones were provided in respect of 200 exhibitors.

At the Shipping and Engineering Exhibition the number of exhibitors was 300 and 111 telephones were provided.

A Contract Officer on his canvassing duties in a Western London suburb called at a house, announcing himself to the lady who opened the door as a representative of the Post Office. The good lady became very red and agitated, and in a very stammering voice immediately replied, "I am so sorry, but we are taking out our licence to-morrow."

An interesting and busy three weeks for the Contract Branch in connexion with the training of the 100 temporary Contract Officers concluded on Sept. 23.

After a fortnight in the Districts the men, who came from all parts of the country, concentrated at Cornwall House on Sept. 3 and commenced their training with talks on various aspects of Contract work. This was followed by an outline of the work of the Accounts Branch. An Engineering Officer then took up the training. Finally the Traffic Branch took charge for three days, the training including visits to the automatic and manual schools and to exchanges, and a review of the overseas services. Later the men were temporarily attached to the four District Contract Offices and each accompanied one of the experienced canvassers for a period of ten days for practical experience in Contract work. They were given an hour's lecture daily on salesmanship by Mr. Harold Whitehead and staff. The men were then arranged into groups of 10 and, under the leadership of a Contract Officer specially selected from the London staff, the lectures were supplemented by a general discussion on the subjects dealt with.

An interesting function was held on the evening of Sept. 22, when a dinner was given in the Refreshment Room at Cornwall House; between 60 and 70 people attended, the guests of the evening being Mr. W. F. Taylor, of the Contract Branch, and Mr. Harold Whitehead, of Messrs. Harold Whitehead and Staff, Business Consultants. After the Royal Toast had been given, Mr. Tweedle, Belfast, one of the organisers of the dinner, proposed the toast of the London Telephone Service, to which Mr. Taylor, in replying, said that it was a great pleasure for him to be present and to welcome the new men to the Contract Branch. He said that the training programme had been very carefully drawn up in the best interests of the service and the task of carrying it out had been made lighter by the enthusiasm and co-operation displayed by all concerned. He wished them every success in their new duties.

The toast of Mr. Whitehead and Staff was proposed by Mr. Hope, Macclesfield, in which thanks were expressed for the efforts made in arranging the lectures on salesmanship. Mr. Whitehead, in reply, addressed the gathering as "fellow salesmen" and in a humorous speech showed what an important part in life salesmanship takes.

A concert followed the dinner in which the talent of many of the men in other directions was demonstrated.

London Telephonists' Society.

A large audience assembled for the first meeting of the new session of the London Telephonists' Society, which was held on Oct. 2, at the City Y.M.C.A., Aldersgate Street.

As is usual on these occasions, the retiring President, Mr. F. B. Nichols, was in the chair, and introduced the new President, Miss B. Redmond. The subject Miss Redmond chose for her Presidential Address was "Woman's Sphere," and though quite brief in length her paper gave a very interesting and thoughtful survey of woman's activities in the past and present, and was full of provocative ideas. So much so was this that many of the audience were eager to join in the debate immediately she had finished, and a very lively discussion followed. The male members of the audience, though a small minority, were not at all crushed and put up a vigorous defence, Mr. Nichols winding up the debate with a plaint that woman had left nothing to man which he could call his own, as having adopted his shirt, collar, tie, trousers, waistcoat and pyjamas she had now taken his crowning glory, the bowler hat!

The next meeting of the Society will be held on Nov. 6, when Mr. Horace Dive will give a paper on "Speech." A crowded and lively meeting is expected.

On Dec. 4 a Mystery Debate is promised.

Members of the Society regret that home responsibilities necessitate the loss of the services of Miss E. McAllister, who has ably carried out the duties of Secretary for the past five years, but extend a hearty welcome to the new Secretary, Mr. T. M. Oldham, of the Headquarters Observation Section.



[Photograph by Graphic Photo Union.]

HAROLD COOPER. EVELEEN BRERETON. FREDK. CROSSBY.
PHYLIS LEE. CHAS. MARLAND.

"Stamford Dramatic Society."

"The Thirteenth Chair," presented by the Society at the Cripplegate Institute on Tuesday, Sept. 29, is a play that provides a severe test of the capacity of an amateur dramatic society, inasmuch as its success depends very largely on the ability of the players to create an atmosphere of awe and intensity in which each succeeding thrill makes the heart beat faster.

That the members of the caste on the 29th sustained the interest and grip of the play throughout its performance is evidence of their individual and corporate skill and it is pleasing to be able to record that the Society continues to justify so well its existence and the encouraging support that is extended to it by its patrons.

With a caste numbering 17 it is obviously difficult to mention the merits of each player individually, but reference must be made to the convincing presentation of the part of Madame Rosalie La Grange (Miss Eveleen Brereton), the central feminine character. Inspector Donohue (Harold Cooper), too, undoubtedly held his stage, whilst Doolan (Reginald Barrett) chewed his gum very naturally.

One noted with pleasure that the caste included a number of members who were making their initial appearance, as well as several old favourites who have given the Society really splendid support.

Congratulations once again to Mr. Andrews O. Buck, the producer.

NOTE.—The Stamford Dramatic Society are holding a dance in the Cornwall House Dining Room on Tuesday, Nov. 3, at 7.30 p.m. Tickets, price 2s. 6d. inclusive of refreshments, can be obtained from Miss Dorothy Coleman, Telephone School, Ironmonger Row, E.C.1.

The St. John Ambulance Association.

The annual competitions of the Post Office Ambulance Centre for the London Postal Ambulance Challenge Shield and the Women's Trophy will be held on Tuesday, Nov. 24, 1931, at 7.30 p.m., in the King George Hall, Caroline Street, Great Russell Street, W.C.1. Admission will be by programme, 3d. each, and a limited number of seats will be reserved at 1s. each.

It is hoped that as many as possible will attend these competitions and so give encouragement to the members who carry on this very necessary and important work.

Further particulars can be obtained from: Miss E. K. M. Meeser, Controller's Office, London Telephone Service, Cornwall House, Waterloo Road, S.E.1, or Mr. F. W. King, Inland Section, Mount Pleasant, E.C.1.

Personalia.

Resignations on Account of Marriage.

Assistant Supervisor, Class II.

Miss H. E. Blake, of Hop.

Telephonists.

Miss I. E. Whanslaw, of Park.	Miss May Smith, of Clerkenwell.
.. V. Bean, of Park.	.. V. Wilson, of Clerkenwell.
.. I. G. E. Green, of Toll "A."	.. E. McKee, of Clerkenwell.
.. I. Abbott, of Sloane.	.. L. Townsend, of Kensington.
.. H. L. M. Fuller, of North.	.. W. E. Lines, of Mountview.
.. G. I. E. Shed, of Erith.	.. M. A. Vears, of Clissold.
.. L. A. Padgen, of Gerrard.	.. W. J. Waimes, of Clissold.
.. G. E. Steers, of Gerrard.	.. I. M. Baines, of Clissold.
.. D. M. A. Smith, of Brixton.	.. E. A. Wilson, of Temple Bar.
.. Elsie C. White, of Flaxman.	.. T. K. Helm, of Temple Bar.
.. D. Hall, of Putney.	.. M. I. E. Capon, of Bishopsgate.
.. V. D. Palmer, of Metropolitan.	.. M. J. Sambridge, of Bishopsgate.
.. C. E. Beveridge, of Hounslow.	
.. F. M. Reynolds, of London Wall.	.. I. Purvis, of Mayfair.
.. F. M. Lindus, of London Wall.	.. E. E. L. Mitchell, of Mayfair.
.. E. Wenham, of Willesden.	.. D. L. C. Keene, of Museum.
.. V. M. Blunt, of National.	.. M. P. Summers, of Museum.
.. E. A. Glover, of Trunk.	.. W. A. Relie, of Museum.
.. R. E. Langford, of Trunk.	.. M. E. Lewis, of Museum.
.. M. E. Housden, of Trunk.	.. P. E. Sleeman, of Finchley.
.. K. Day, of Trunk.	.. G. N. Willetts, of Finchley.
.. F. Armes, of Terminus.	.. M. K. Emm, of Western.
.. E. F. Waters, of Tandem.	.. E. L. Fobbs, of Western.
.. L. E. H. Thetford, of Tandem.	.. G. I. Samphier, of Western.
.. N. E. O. Meteyard, of Toll "B"	.. I. A. Knife, of Central.
.. B. A. E. Baker, of East.	.. D. I. Nickelson, of Central.
.. K. G. Horsley, of Battersea.	.. E. Cant, of Central.
.. E. N. Shier, of Holborn.	.. K. R. Dale, of Central.
.. O. M. Legg, of Avenue.	.. D. Cole, of Central.
.. E. C. Cottle, of Victoria.	.. B. L. Chambers, of Royal.
.. A. J. Smith, of Victoria.	.. H. E. Hustwitt, of Royal.
.. I. E. Lott, of Victoria.	.. E. E. Hammond, of Royal.

BIRMINGHAM NOTES.

Birmingham Telephones Society.—The first of the series of Lectures arranged in connexion with the above for the ensuing season was held on Wednesday, Oct 14 last, when a paper on "Future Developments in the Birmingham Automatic Scheme" was given by Mr. C. A. Atkinson, Assistant Traffic Superintendent.

Mr. Atkinson gave an interesting account, which he illustrated with lantern slides, of the proposals for the development of the automatic scheme in Birmingham and District, and it was evident from the large audience and the interest displayed that these meetings will be as popular as they were last year.

The District Manager (Mr. J. L. Parry), who presided, prefaced his remarks upon the subject of the paper by a full explanation of the new staff salesmanship scheme. He emphasised the urgent necessity for all members of the staff to interest themselves in the scheme and pleaded for a wholehearted response.

Sport.—*Hockey.* Winter sport with the telephone and telegraph staffs in the form of hockey is progressing very satisfactorily. Sufficient members are available to form two teams and the matches that have been played indicate that a very good first XI is available.

Results to date : Oct. 3—Civil Service A Team 13 goals, Larkins Nil ; Oct. 16—Civil Service B Team 3 goals, Larkins 3 goals ; Oct. 17—Civil Service A Team 8 goals, Bell Athletic Nil.

Swimming.—Miss Nora Wall, a wonderfully good swimmer, has recently become a telephonist at the Central Exchange and during the past season has brought considerable credit to the Civil Service Sports in the Birmingham area, and to the telephonists in particular. She has won the Creedy Cup 100 yds. Civil Service Championship by 4 yds. On Oct 16 she became back stroke champion in the 100 yds. Civil Service Championship. In the 100 yds. Civil Service Championship, Breast Stroke, Miss Wall finished second to Miss House, of the London Telephone Service.



The Gold Standard.

LET us be thoroughly miserable : let us lift up our voice and grouse : let us snap and snarl : let us gloom and glower : and let us tell each other dismally that everything is going to be much worse than anything has been up to the present. And having done all that let us remember with a grim satisfaction that the pleasure we have derived from our mournful mood is the only sort of amusement that is not subject to an increased entertainment tax. It is undoubtedly rather annoying to have to acknowledge even this suspicion of a silver lining to our cloud, because at the moment we positively decline to be comforted. Just look at things—a wet summer, a dreary autumn and the prospect of an unpleasant winter : a bit off the bonus in September (and who knows what in March) and a retrospective lump on the income tax : last year's hats and frocks beyond the wit of woman to modernise : a famine in lipstick : an increased charge for tobacco and more tax on the cuddley seats in the cinema : calling rates going to pot : the bottom falling out of traffic and—the marriage gratuity which May or may not be.

While I have been writing this lament Bindle the Hound has been stretched at my feet, nose on paws, regarding me with unblinking brown eyes. "As for you," I say, "you'll have to eat less biscuits," whereat he just rolled over on his back, waved his legs, grinned and replied "Sez you ! Why, you know you'd share your last crust with me : what you want is a walk." "Meaning," I said, "that you want one." "Guvnor," he said, "sometimes you are almost intelligent," and he came and placed his nose on my knee and wagged his tail gently, thus adding silent appeal to flattery.

The path through the woods—no longer the green-lit aisle of summer, with the sun spilling through the beeches—lay thick with fallen leaves. They rustled as we walked and I remembered again the sound of water lapping over shingle. Bright green grass poked out of the crisp red and brown carpet. A robin poured out a shaft of rich song and a squirrel scampered up a trunk to the baring branches stretched above. The setting sun glowed gold behind the wood and the low cloud on the horizon flamed with changing hues. In the silence the pop of a falling acorn, the stealthy scurry of a mouse, the creak of a bough. I sat on a log. Bindle ceased his search for the invisible : he sat beside me and nosed my hand for a caress. In the quiet one could forget the things that were for the things that are. There is still a gold standard—in the colours of an autumn day : in the heart of a dog : in the song of a bird. The sun sets to rise : the leaves die to live. The acorn will become an oak.

PERCY FLAGE.

A New Feature.

In view of the shortage (a temporary one, we hope) of Supervisors who are willing to be interviewed and photographed for our delectation and uplift we have decided to introduce a new biographical series, illustrated where possible and advisable, of Uncelebrated Nonentities. To this end, we have engaged, at no small personal risk and at considerable expense, inconvenience and discomfort, the services of Miss Birdie Twilfit. Miss Twilfit is well-known at court and may often be seen mingling with the crowds at such geometrical rendezvous as Oxford Circus, Trafalgar Square, The Oval, Inner Circle, The Ring and Charing Cross. We feel that we need do no more than introduce her to you briefly and then allow her to speak for herself (usually there is no other course open). Her first Service Cameo will appear next month. Whether we shall publish a second cameo and subsequent ones depends upon how the Uncelebrated Nonentities take their cameos—but, like Major Bagstock, Birdie is Tough.

The Traffic Officer's Lament.

Tune: The Lost Chord.

I was sitting one day in my office, weary and lonesome and sad,
And my fingers wandered idly, over a writing pad.
I knew not what I was writing, I'll never be able to tell,
For I heard one chord of music—'twas the sound of a telephone bell.

I gazed at the telephone sadly, hoping without any hope,
"I bet it's an irate subscriber—but still its no use if I mope."
I hardly knew what I was saying; a receiver I found on my ear,
And I shuddered and found myself praying that I should have nothing to fear.

I was right, 'twas an irate subscriber—irate as irate could be,
As I listened I found he was blaming all of his troubles on me.
He told me the joys of wrong numbers, the pleasures of numbers engaged;
He continued—a true prince of grumblers, I gathered that he was enraged.

He wanted a number on Royal—at least so it seemed from his moan.
Telephonist murmured Mayfair—but he was connected to Sloane.
So he asked for another on Barnet, got his number on Holborn instead.
Here he spluttered and fiercely said "Darn it—when you got up, your brains
stayed in bed."

"So sorry that you have been troubled—I'll do something drastic right now,
I'll have all your cables repaired, sir—replace all the staff, I avow.
Perhaps you would like a new number, or a call every morning at eight."
As I spoke he crashed down the receiver—I'd delivered my speech just too late.

Once again I was there in my office—wary and lonesome and sad,
My breath was coming quickly—the fellow had made me mad.
I can't repeat what I was thinking, I'm much too polite, you can tell.
Ah—I hear one chord of "music," Oh, Gee! it's the telephone bell!!

(With profuse apologies to the exchanges named above.)

R. F. H.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

NORTH WESTERN DISTRICT NOTES.

Thrills from the Prosaic.

WHAT a feast for the imagination is afforded by a glimpse of the statement of Anglo-American and Australian Services furnished periodically to the Accountant-General's Department. Last month our return shows that calls practically encircling the globe were made; Sydney, Los Angeles, New York, Ohio and Philadelphia being spoken with. Moreover, we moved amongst the highest circles holding converse with no less than the President of the United States of America and incidentally we were not prepared to accept any one of his minions. This call alone brought over £30 into the coffers—and, we have no doubt, it was well worth the money. Looking at the statement the mind instantly conjures up visions of the White House in Washington, Sydney's magnificent harbour, the Metro-Goldwyn studios—with Greta Garbo in the foreground; the Statue of Liberty with attendant skyscrapers, and Philadelphia—in the morning. Marvellous; and it feels like only yesterday that we "mothered" a call to Paris like a long-lost child, and spoke of it with bated breath.

Blackpool.

The Illuminations.—At a time when most seaside resorts have put up their shutters and closed down for the winter, the enterprising Blackpool Corporation has once more staged its wonderful illuminations, covering the period from the third week in September to the third week in October, and by this means has attracted crowds of visitors from all parts of the country, particularly at the week-ends, which have rivalled in numbers those of the busy weeks in August. This huge influx of visitors during the illumination period has caused the telephone traffic in the Blackpool exchange to be maintained at the season level, and has rendered necessary the retention of practically the whole of the season force of telephonists. Uncertain and fluctuating in its incidence as the telephone traffic has been, at times causing considerable pressure, all demands upon the staff have met with a cheerful and ready response, and the work has been disposed of to the satisfaction of all concerned.

Retirement of Miss F. E. Bennet.

On Tuesday, Sept. 29, Miss F. E. Bennet retired after 45 years' service in the Telegraph Department. When she "signed off" duty for the last time, a hearty cheer was given by members of the staff. Mr. A. Cattle, Superintendent (in the absence of Mr. Campbell, the Head Postmaster), and on behalf of the staff, wished her the best of health and happiness in her well-earned rest.

He paid a tribute to her work and the service she had rendered to her Department. Miss Bennet, in her reply, said her term of service had been exceedingly enjoyable.

Several useful and beautiful gifts from the various staffs were presented to her as a token of their regard.

Preston - Engineers.

Retirement of Mr. S. Upton, M.I.E.E. The retirement on Aug. 31, 1931, of Mr. S. Upton, M.I.E.E., Assistant Superintending Engineer, North Western District, after 44 years of service in the Post Office, removed a well-known and very popular figure from the "active" list.



MR. S. UPTON.

Commencing as a telegraphist at Grimsby in 1887, Mr. Upton was transferred to the Engineering Department, where he advanced rapidly to Engineer rank, in which capacity he acquired wide experience in telegraph and telephone practice in London and the Provinces, as well as Ireland. Returning to Lancashire in 1911 after nine years of absence, he was the engineer directly responsible for two of the earliest transfers to automatic working in the country, viz., Accrington in 1914 and Blackburn in 1916.

The Superintending Engineer of the District, Mr. J. M. Shackleton, M.I.E.E., in presenting Mr. Upton with a bureau-bookcase and silver tea service on behalf of colleagues in the Department, and old friends in other Departments, paid graceful tribute to the life-long zeal and efficiency which had characterised Mr. Upton's career and which allied to his unflinching tact, geniality and fine old-fashioned courtesy, had made of Mr. Upton a model public servant, acceptable to the many business men and public officials throughout West Lancashire who had met Mr. Upton in the discharge of his duties.

We wish him a long and full life in his retirement, and much happiness in the now full-time pursuit of those practical, social and kindred aims to which hitherto he could only give his scanty leisure.

SCOTLAND (WESTERN DISTRICT) NOTES.

The following is an excerpt from a letter received from a subscriber in the Scotland Western District. Would that recognition such as this were more frequent.

"I enclose cancellation of notice. The fact that I have cancelled my notice is a great tribute to the courtesy and persistent but kindly business capacity of your officer who has persuaded me against my will and judgment to continue the installation.

"I dislike telephones extremely and am more than anxious to dispense with nuisance and expense, but I must repay courtesy with courtesy and say "keep it on." I respect business efficiency. I could only wish the affairs of the country were in as capable hands as the Telephone Service seems to be. If so we should not be in our present plight as a nation."

It is with pleasure we welcome Mr. W. H. Groves, promoted from Manchester, to fill the vacancy for a Contract Officer, Class I, vice Mr. J. D. Melville, now of Guildford. Mr. Groves is rather unique in that being a Scotsman who travelled south in search of the Golden Fleece, he now retraces his steps and finds it in his own country.

LEEDS DISTRICT NOTES.

We are indebted to the Engineering Department and the L.T.S. Traffic Department for the remarkable success which attended a demonstration call set up from Leeds to Buenos Aires on Oct. 15. The occasion was the inaugural meeting for the session of the Leeds Women's Luncheon Club at the Queen's Hall, when approximately 200 members, after an enjoyable luncheon, listened to a talk on "The Post Office and the Public," by Lt.-Col. Jayne, D.S.O., O.B.E., M.C. (Postmaster-Surveyor). As he finished his address with the words "and now, if the 'atmospherics' are kind, I hope to show you an example of our telephone service to South America," there



THE LADY MAYORESS OF LEEDS CONVERSES WITH BUENOS AIRES.

Reproduced by courtesy of the
"Yorkshire Evening News."

was a long-drawn-out swis-s-sh, which someone said was the Atlantic, in the loudspeaker and then, with perfect clarity, everyone heard the voice of Mr. Tetley, the General Manager of the Union Telephone Company, opening the conversation from Buenos Aires. The Lady Mayoress of Leeds, who was in the Chair, responded with a message of goodwill from Leeds to Buenos Aires, and finally there was a good-humoured and spirited discussion between Councillor Blanche Leigh (the secretary of the Luncheon Club) and Mr. Tetley on a suggestion that a similar club should be started in Buenos Aires. The call took place at the somewhat risky hour of 1.45 p.m., but either the "atmospherics" were kind, or else they had been mysteriously smoothed out by the watchful engineers, for the transmission left nothing to be desired.

Once again the Leeds Instrument Room and the new Phonogram Room have been the cynosure of all eyes. This time it was somewhat of an invasion, and the soft accents of the West Country, and sibilant phrases from Wales, mingled with the accents of Edinburgh, Glasgow, London and Birmingham as the 120 delegates to the U.P.W. Conference held at Leeds on Oct. 15 and 16 moved here and there in interested and critical parties examining belt conveyors, teleprinters and phonogram equipment.

As a preliminary to the more arduous duties of Conference the delegates attended a most enjoyable smoking concert, organised by the Leeds Branch officials, at the Queen's Hotel on Oct. 4. Among the guests were Col. Jayne (Postmaster-Surveyor), Mr. J. W. Atkinson (Superintending Engineer), Mr. J. Bownass (Assistant Postmaster) and Mr. J. F. Murray (District Manager).

Col. Jayne, in extending an official welcome to the delegates, expressed the hope that the arrangements which had been made for their comfort during their stay in Leeds would be to their entire satisfaction.

Col. Jayne, Mr. Atkinson, and the other Supervising Officers also attended for a short time the opening session of the Conference. On the invitation of the Chairman, Col. Jayne addressed the delegates and took the opportunity to review the departmental aspect of the various problems which the Conference was about to discuss.

Mr. J. G. Hemming, Higher Clerical Officer in charge of the combined clerical office for the Leeds and the West Yorks (Internal) Sections, retired on superannuation on Oct. 2, 1931, having reached the official age limit, after a service of some 44 years. Mr. Hemming commenced his career as a Sorting Clerk and Telegraphist in October, 1887, at Colchester, being transferred to Liverpool in a similar capacity in September, 1897. In January, 1902, he was appointed clerk in the P.O. Engineering Department, serving at Liverpool and Shrewsbury, and was promoted to Leeds in 1919 as a Second-Class Clerk, later becoming a Higher Clerical Officer. At an informal

gathering in Telephone Building, Mr. Hemming was presented with a Grammy Clock as a token of the regard in which he was held. The chair was taken by Mr. W. D. Scutt (Executive Engineer), who was supported by Messrs. J. W. Atkinson (Superintending Engineer), J. Shea (Asst. Superintending Engineer), Capt. J. E. Fletcher and Mr. W. B. Crompton (Executive Engineers) and Mr. J. C. Denton (Staff Officer). The Chairman and several speakers testified to the character and good qualities of Mr. Hemming, one and all wishing him the best of health during his period of retirement. The presentation was made by Capt. Fletcher, after which Mr. Hemming suitably expressed his thanks for the gift and good wishes.

A hearty welcome is extended to Mr. F. M. Evered, Higher Clerical Officer, Sectional Engineer's office, Blackburn, on his transfer to a similar position at Leeds. Prior to going to Blackburn a few years ago, Mr. Evered was a member of the Superintending Engineer's staff at Leeds.

NEWCASTLE-ON-TYNE & DISTRICT NOTES.

Swimming.

The fourth annual swimming gala was held on Sept. 25 and a splendid evening's sport was provided. The occasion was unique in that it was the first gala of the Post Office Swimming Club as a mixed organisation since its development from the Telephonists' (Ladies) Club.

An enthusiastic gathering of spectators representative of all departments assembled to spur on the competitors, and every event was keenly contested, while it was quickly evident that despite the heavy losses that the district has recently suffered through transfer of staff there is no lack of aquatic talent remaining.

With no previous experience of the capabilities of the men to work upon, the handicappers were faced with a difficult task but several close finishes were seen, especially in the mixed relay race, which was in doubt until the touch. The ladies, if not quite so fast, were in no way behind the men in grace and style, and in the plunging event the winning lady actually eclipsed the effort of the winning gentleman by 10 ft.

The trophies were presented to the winners during the evening by the District Manager, Mr. J. D. W. Stewart, who is also the Club President, and the remaining prizes are to be presented at a dance to be held on Oct. 22.

The results of the various events were as follows:—

Mixed Handicap.—(1) W. Twizell, (2) A. T. Brown, (3) Miss D. H. Wilkinson.

Ladies' Championship.—(1) Miss V. McEvoy, (2) Miss P. Nash, (3) Miss M. Wilkes.

Men's Championship.—(1) W. Sword, (2) F. E. Mallett, (3) D. B. Lamb.

Ladies' Graceful Diving.—(1) Miss Nash, (2) Miss McEvoy.

Men's Handicap.—(1) A. T. Brown, (2) F. Hill, (3) W. Twizell.

Ladies' Handicap. (1) Miss D. H. Wilkinson, (2) Miss G. Coates, (3) Miss V. McNab.

Ladies' Graceful Swimming.—(1) Miss E. Wilson, (2) Miss M. Wilkes, (3) Miss P. Nash.

Men's Graceful Diving.—(1) W. Sword, (2) F. E. Mallett.

Men's Team Race.—(1) Engineering Department (W. Sword, A. T. Brown, F. Hill, T. Taylor).

Ladies' Plunging.—(1) Miss E. Wilson, (2) Miss G. Coates.

Mixed Relay Race.—(1) Miss McEvoy, Miss Wilkinson, W. Sword, T. S. Mensley.

Men's Plunging.—(1) D. B. Lamb, (2) W. Twizell.

Pyjama Race.—(1) Miss V. McEvoy, (2) Miss M. A. Sanderson, (3) Miss E. Wilson.

The secretary and officials of the club are to be congratulated on the smoothness with which the programme was carried out.

T. S. M.

Mr. C. W. O. Rochs, of Imperial and International Communications Limited, is due to retire on Nov. 4 next, after 42 years' service with telegraph companies. When secretary to the Halifax and Bermudas Cable and the Direct West India Cable Companies and traffic manager of Marconi's Wireless Telegraph Company, he came into close contact with many officials of the General Post Office. We learn that Mr. Rochs, who is a regular reader of the *Journal*, has the most pleasant and agreeable recollections of his relations with the General Post Office. Those officers who had dealings with Mr. Rochs have equally pleasant recollections of these relations.

LONDON ENGINEERING DISTRICT NOTES.

Whitehall Automatic Exchange.

The new Whitehall Automatic Exchange was successfully opened on Oct. 3, at 1.30 p.m., the following lines being transferred to the new equipment:—

1,429	from the hypothetical exchange on Gerrard.
408	.. Regent.
428	.. Gerrard.
23	.. Victoria.

A total of 1868 junctions and order wires was also transferred.

The equipment, which is of the standard "Director" type installed by Messrs. Siemens Bros. & Co., Ltd., has an initial capacity of 7,920 lines, with an ultimate of 9,500 lines. The main items of equipment provided initially are as follow: 1,080 first code selectors, 137 "A" digit selectors, 191 directors and 1,924 P.B.X. final selectors, there being no ordinary final selectors; there are 29 "A" positions and 18 keysender "B" positions in the switch room.

The battery manufactured by the Hart Accumulator Co., Ltd., has an initial and ultimate capacity of 9,700 ampere-hours. Further additions will be made to the number of lines working on the exchange in April, 1932, when the majority of the large Government Office installations in the area will be cut over to automatic working.

Introduction of Trunk Demand Working to Birmingham.

The installation of additional multiple on the fifth floor record positions in G.P.O. (S) by the Controller, together with the provision of apparatus to cater for incoming circuits from London automatic exchanges, is proceeding rapidly. With the completion of this work it is anticipated that trunk demand working to Birmingham will be introduced towards the end of November. Concurrently with the contractor's work the Department is equipping two plug-ended straightforward junction positions, known as tandem positions, in the Trunk Exchange; circuits on a S.F.J. basis from the fifth floor multiple to these tandem positions will enable delayed calls to be reverted to manual exchange subscribers via the trunk exchange outgoing junction multiple.

The contractor has just commenced the installation of the demand and delay positions on the fourth floor G.P.O. (S). These positions are wired for 50-volt working, and it is hoped to transfer the demand service thereto in March, 1932, thus releasing fifth floor positions for modifications to 50-volt working and consequent use for the further development of the demand services.

L.E.D. Sports Association.

Oct 5 was gala night for the swimming Section of the London Engineering District Amateur Sports Association, and Mr. Gomersall and a large number of his staff were present at the Lambeth Baths for the occasion.

The swimming gala is always an outstanding event in the London District's year and many look forward to it as an opportunity for meeting friends and their wives in the genial atmosphere of good sportsmanship. This year was no exception to the rule and everybody enjoyed an evening's excellent sport. The District succeeded in retaining the Gresham shield for the Post Office Team Championship of the United Kingdom after one of the most exciting races imaginable, W. F. Hunter making a wonderful effort for the club in the last length. Miss Fuller made a valiant attempt to capture for the London District the Ladies' Diving Championship of the Civil Service, but after tying for second place, was beaten in the "dive off."

The Club Championship for the McIlroy Cup and the Inter-Section Team Championship also provided thrilling races. The usual club events, a first-class exhibition of diving by members of the Amateur Diving Association, a very graceful display of fancy floating by the Beckenham Ladies and the polo match with the L.C.C., all helped to make the evening a great success.

Association Football.—Civil Service (Lewis) Cup—First Round.—L.E.D. 5, Customs and Excise 3.

The L.E.D., after a hard match, managed to win their first round tie against the Customs.

The first goal was scored by G. H. Smith in the first 10 minutes; 5 minutes from half-time Customs equalised. In the second half Customs scored two quick goals, and led 3-1. Pulling then scored twice. Extra time was played, and kicking uphill L.E.D. scored again through Pulling, and the same player added another 5 minutes from time.

L.E.D. team: McGrath (XNW), Lever (XSW), Collins (ISW), Smith (XCT), Maris (ICY), Brocklesby (ISW), Harris (Sth Power), Kinch (XSE), Pulling (XX), Codling (XCT) and Jordan (ICT).

A match with a strong Brentford team has been arranged to take place at Griffin Park on Nov. 4—kick-off 3 p.m.

The team for this match will probably be: Donegan (XW), Level (XSW), Finall (INE), Toloman (INE), Maris (ICY), Collins (ISW), Harris (Sth Power), Smith (XCT), Pulling (XX), Brocklesby (ISW) and CODLING (XCT).

Rifle Shooting.—The L.E.D. have obtained the G.P.O. North range for practice on Mondays of each week for the season. The first shoot took place on Oct. 12. An excellent attendance was gained and in spite of difficulties as regards strange rifles and territory, excellent scores were registered, and there appears to be every chance of forming a really strong side in the L.E.D. The highest scores were registered by Clarke (XSE), Bunney (C. Power) and De Carle (Hdqtrs.), each of whom obtained 95 and over.

Social.—The first dance of the season will be held at Princes Hall (near Lambeth North Tube Station) on Nov. 6. Ernest Rutterford and his Band (from the Palladium, &c.) has been engaged. Tickets, 2s. 6d. each, may be obtained from the Hon. Sec., A. W. Kelly, Denman Street, S.E.1.

WESTERN DISTRICT NOTES.

The accompanying photograph is of the Sennen (Cornwall) Post Office, which is the first and last post office and telephone exchange in England. A short distance beyond is the Lands End, the extreme point of England. It seems to have a peculiar fascination for visitors, as during the holiday



FIRST AND LAST EXCHANGE IN ENGLAND:
SENNEN, LAND'S END.

season there are as many as 3,000 visitors per day who seem to like to stand on the extreme edge of the cliffs, and looking across the Atlantic Ocean, realise the next place beyond the horizon is New York. A short distance away inland is the Lands End Wireless Station.

The spirit of courtesy in an establishment is one sure sign of good management.

Miss Hodge, writing assistant, in the Traffic Section, resigned the Service on Sept. 27 with a view to marriage. She was presented on leaving with a case of fish knives and forks and a case of fruit spoons. Prior to entering the Traffic Office Miss Hodge had been for some time Supervising Telephonist at Penzance Exchange.

Friends of Mr. H. Pollard, Assistant Traffic Superintendent, will be sorry to hear that on Sept. 30, whilst travelling in his car on official business, he had the misfortune to skid on the greasy surface of the road, about three miles from Exeter, with the result that the car was overturned and almost completely wrecked, he himself was beneath, but managed to extricate himself. After two or three days in bed he is back at his duties none the worse for his experience.

Miss D. Snow, Clerical Officer, in the Accounts Section, left the Service on Oct. 10 to be married. She was presented by the staff with a case of cutlery in honour of the occasion and as a memento of her happy associations with her colleagues.

F. J. F.

LIVERPOOL NOTES.

We have to announce the promotion of Miss H. M. Harvey to the position of Supervisor at the Liverpool Trunk Exchange.

Miss Harvey has for some years been second in command of the Trunk Exchange, and has now stepped into the place vacated by Miss Craig, who retired in September. Miss Harvey has had an extended experience of long-distance trunk working and has also had experience in a supervising capacity on the local side.

We also have to announce the promotion of Miss E. M. Mathews from Assistant Supervisor, Class II, to Assistant Supervisor, Class I, also in the Trunk Exchange. Miss Mathews has been employed in the Trunk Exchange for many years and has a ripe experience of long-distance trunk working.

Two further promotions have taken place, Miss A. M. C. Howland, for many years associated with the Anfield Exchange, and Miss E. S. Cochrane, recently Officer-in-Charge of the Mossley Hill Exchange, have been promoted from telephonists to Assistant Supervisors, Class II; Miss Howland to a vacancy in the Central Exchange, and Miss Cochrane to the Trunk Exchange.

We offer our hearty congratulations to these ladies on their several promotions.

Many a happy married man in the Post Office service has chosen his helpmate from the ranks of that charming band of the opposite sex which comprises the women workers of the Post Office.

Yet another happy pair in the persons of Mr. J. Pinnington, of the District Office, and Miss F. Kenny, of the Bank Exchange, have decided that less than what is enough for two ones, single, may be enough for one two, married, and have entered into that state and condition.

Mr. Pinnington's colleagues presented him with an electric radio, Miss Kenny's many friends with a number of handsome and useful gifts.

Best wishes and long life and happiness to Mr. and Mrs. Pinnington.

Mr. WILLIAM MILLER CROWE, the Chairman and Managing Director of Ericsson Telephones Limited, is retiring as from Oct. 1, although he will still retain a seat on the Board of Directors.

Mr. Crowe has been with the British Ericsson Company from its inception 33 years ago and for 21 years has been Chairman and Managing Director.

In 1898 he was appointed Manager in London for Messrs. Ericsson, of Stockholm, the well-known telephone manufacturers, whose business in this country at that time was chiefly with the National Telephone Co.

In 1903 a private company was formed to take over the factory at Beeston, Notts, owned by the National Telephone Co.—the latter retaining one-half interest.

In 1911 the Post Office took over the National Telephone Co., and then a public company was formed by Ericssons to take over the complete factory.

CIVIL SERVICE ARTS BALL.

THE Civil Service Arts Council, under whose auspices the Annual Civil Service Arts Ball is held, have made arrangements for the forthcoming one to take place at the Royal Opera House, Covent Garden, on Friday, Nov. 27. Dancing will begin at eight and continue until two in the morning. A late service of motor coaches will be provided to places within the London telephone area. The price of the tickets remains the same as before, 3s. 6d. each, and refreshments will be obtainable at the usual prices.

It is hoped that the majority of those attending will come in fancy dress. In order to encourage the wearing of it, prizes are offered for the most effective and the most original costumes. A special feature will be the Challenge Trophy, which Sir Malcolm Campbell has generously given for annual award to the best tableau shown by a Civil Service society or club. The number of participants in the tableau must not be fewer than six. Capt. Guy Dollman has promised to give two pictures, one to each of the best pair. To add to the general amusement, the organising committee will provide novelties of different kinds and lucky spot prizes.

Altogether, everything points to a very enjoyable and happy evening and, in view of the great demand for tickets last year, early application is most desirable on the present occasion if disappointment is to be avoided. Tickets may be obtained from the Civil Service Sports Council (Room 208, Treasury Chambers, S.W.1), or from any member of the organising committee. Chairman, Dr. G. F. Herbert Smith (Natural History Museum, S.W.7) Mr. J. A. Allan (Pension Issue Office, W.3), Capt. J. G. Dollman (Natural History Museum, S.W.7), Mr. H. W. Fenn (3, Victoria Street, S.W.1), Miss G. Fowler (Public Trustee's Office, W.C.2), Mr. E. Jacob (London Telephone Service, Cornwall House, S.E.1), Mr. O. C. J. Klagge (Government Actuary's Department, S.W.1), Mr. Cyril Leigh (G.P.O. North, E.C.1), and Miss W. Reeder (Money Order Department, N.7). A remittance in full payment must accompany the application.

PEREGRINATIONS THROUGH THE BROADCASTING WORLD.

By J. J. T.

SINCE scribbling my last peregrinative notes, circumstances have led me rather into the fields of Interference. To the writer there are two types of this little plague. There is the interference of wireless itself in the shape of misusing loudspeakers to the annoyance of neighbours, and secondly, that other interference with radio reception due to mal-adjusted electrical apparatus in the same neighbourhood.

On the whole, men and women do not deliberately annoy their fellow citizens, and in the first case, mentioned above, it is more often than not a forgetfulness of "how the other fellow feels" rather than maliciousness. There is, of course, the childish, impish delight of certain folks in observing the reactions of their neighbours to certain degrees of loudness and type of programme!

It is for such individuals that strict restrictive laws must be made. There was a case brought before Magistrate Simpson in the Tombs Court, New York City, some little while ago, where one Joe Sullivan was fined \$30 for "operating a loudspeaker in front of his own store," on the strength of a new city ordinance against the use of loudspeakers in public thoroughfares. This ordinance was apparently brought about by the Anti-Noise Commission, which, however, by all accounts, has not up to the present been equally successful in reducing the noise occasioned by other causes. Nearer home, here in London (Lambeth), the landlord of a certain tenant brought the latter before a county court judge for making himself a nuisance with a loudspeaker. In this case "an order was made for the defendant to shut off the loudspeaker at 10 p.m. each night." Evidently, in this case, the crime was in the time at which the offence was committed, rather than that the programme was objectionable in itself.

Ten p.m. seems to be the "witching hour" as regards the use of loudspeakers, for in the Swiss Canton of Vaud, the municipal authorities have forbidden not only loudspeakers but gramophones after the hour just mentioned, and not only in public establishments but in private houses.

There are other local councils at home here, however, whose by-laws do not fix any particular time for such prohibition, but base their laws upon the general principle of "causing public annoyance," as for example, the Essex County and the Holborn (London) Municipal Councils.

At the beginning of the present year, when there was also considerable commotion in Paris on account of the growing noisiness of that city, and the Prefecture of Police drew up a report on the hundred and one noises due to modern conditions which, it was alleged, were making life unbearable for its inhabitants. Loudspeakers were not in this case, also, the only instruments which caused annoyance to the public, for in the same category were specially mentioned "milk cans, dust-bins, and motor-horns"! However, it was very definitely stated in the report in question that loudspeakers should only be tolerated "when they cannot be heard outside the house in which they are used." There was a further admonitory declaration to the effect that, "Loudspeakers will not be permitted to interfere with the peace of their owners' neighbours." The aim of this law is thus particularly clear that, not only the neighbours *outside* one's house is to be considered, but that those neighbours in the same building the *étage* above, below or the adjacent apartments are also to be protected. There will, therefore, be no need for the question of "Who is my neighbour?" to come before high legal authorities.

So much for the protection of one's neighbour and the general public from annoyance due to radio diffusion of the loud type. Now for the protection of radio reception from this same public, as at times happens! Here in Great Britain, although it is to the Postmaster-General that one pays the annual broadcasting licence fee, yet this same official "has no statutory powers under which he could compel the owner of any electrical plant causing interference with wireless reception to remove the cause of such interference." The procedure is, therefore, to proceed against such offenders for "causing a nuisance" by ordinary summons. It should be said, however, that now that the cause of such disturbance in this country is generally well known to most users of electrically-driven machinery, and naturally to the makers, there is very little difficulty in obtaining the application of remedial measures without recourse to legal aid, once the actual source of the trouble has been located.

Manufacturers are becoming more and more alive to the need of this form of protection. Quite recently, in a West-End shop window the guarantee was given regarding an electrical refrigerating machine that there was "no interference with radio reception." A London daily newspaper recently cited the case of a large block of flats where the tenants complained that the electric lifts interfered with the various wireless sets in the building, but only when the lift went up. It appeared that the landlord accepted the responsibility for this particular fault which was soon remedied. By the way, the reason for no effect during the *descent* of the lift is not likely to puzzle our average readers.

In Belgium, local legislation deals with these matters, also. For example, Dinant is the third recent Belgian town to take up this matter of interference and to pass legislation "to compel every user of electrical apparatus to take whatever steps may be necessary to prevent interference with the reception of wireless sets in the neighbourhood."

In the case of Jugo-Slavia, the Government of that country has placed a special clause in their new penal code regarding all kinds and types of interference. There is no mistake concerning what is meant, for thus speaks the vital paragraph: "whoever, voluntarily or negligently, prevents or interferes with the functioning of a radio installation by means of electrical installations, or who interferes with, or misappropriates, the current necessary to the working of a radio installation," is made liable to one year's imprisonment or a fine of 10,000 (ten thousand) dinars, about £400!

German legal courts have laid it down very definitely that listeners are perfectly entitled to enjoy their wireless programmes, *free from disturbances due to electrical apparatus installed in the neighbourhood*. During the H.T. Conference in Paris, Herr Brock, the Austrian representative, declared that interference must be remedied, and rather emphasised cases of where electrically-driven sewing machines and medical apparatus were the cause, presumably in his native land. At this same conference it was remarked that "disturbances of radio diffusion by high tension networks were relatively small compared with those caused by tramways."

That the matter has been under serious consideration by the world's experts for some time is without doubt. More than twelve months ago—at the World Power Conference, in Berlin—the repercussion of radio communication upon questions between telephone interests and power interests was dealt with, and one of the conclusions arrived at was that "the suppression of the higher harmonics in power systems, and devices for making radio sets less sensitive to their influence, have yet a lot of ground to cover."

Before this august assembly, a legal precedent was quoted as laid down by the French Law Courts, which gave an injunction against the owner of a defective vacuum cleaner proved to have interfered with a private wireless receiver in a neighbouring flat.

Just as these few words were coming to their finish, a reminder is in front of the writer, posing the following question, "To which apparatus would you give preference. An electrically driven gramophone or a wireless speaker?" A Doctor Vidal, of Bapaume, discovered that his wireless set was not working at all satisfactorily.

As a scientific man he made careful observations and discovered the peculiar coincidence that the disturbance in his radio receiver always occurred when the new gramophone of a lady tenant of the same house was playing a tune. When the gramophone stopped the doctor could hear distinctly song and lecture floating in distinctly from his set, but as soon as the lady's gramophone commenced to chime in with song or dance music, &c., chaos ensued on the wireless. Judicious enquiries were made by the doctor, who discovered that the gramophone was electrically driven, hence the trouble. The last act of the comedy was the decision of the French Court of Appeal (reports a most reputable daily paper) which compelled the lady to wind up her gramophone by hand for the future and to abandon the more modern method of propulsion. By the way, should any of my readers have doubts as to the various kinds of interference which can mar radio reception, the Basle Wireless Club has recorded examples of the various types of electrical interference on gramophone record Odeon A 208053b.

(To be continued.)

LONDON TELEPHONE SERVICE: LEAGUE OF NATIONS UNION.

A STIMULATING meeting of Supervisors and other representatives of the exchanges and the Executive Committee of the Head Office was held at Cornwall House on Oct. 7.

Mr. Pink took the Chair, and in his opening remarks asked for support and publicity to be accorded to the "Rally" which is to be held on Dec. 9 next at the Memorial Hall, Farringdon Street. He also appealed to each Supervisor to draw the attention of the engineers to the activities of the L.T.S. Branch of the League of Nations Union.

The speaker, Capt. W. S. Sanders, M.P., held the undivided attention of his audience during his address on the Aims and Objects of the League of Nations and of the League of Nations Union as a supporting body. He pointed out not only the good the League had done in preventing numerous wars, but also its social and economic activities and possibilities, which in present times are of even more value.

C.T.O. (RETIRED) PERSONALIA.

YET another octogenarian, still as vigorous as ever, celebrated the four-score event on the 7th ult., in the person of Mr. B. G. Askew, who commenced his telegraph service in the Electric Telegraphs at London Bridge Station in the old South-Eastern Railway Company in 1866. On entering T.S. he was attached to the old Parliamentary Staff, and after passing reaching the various grades in 1886, 1895 and 1903 retired a much respected officer as First Class Asst. Superintendent in 1910. Mr. Askew, it is not generally known, was one of the very early motorists, even before motoring became a recognised means of transport! News up to date is also recorded of Mr. James Bouly, Harry Trollope and George Hickman, of all of whom Mr. Charles Keen is able to give excellent health reports, not excepting the last-mentioned of the above trio, who has made a wonderful recovery from the resultant damage of his unfortunate accident. Mr. Alec McEwan is reported upon as A 1 by those who have seen him and spoken with him since he returned from his native heath, Scotland (not Belgium) has received the favour of his presence in this particular year of grace.

J. J. T.

LONDON POSTAL SERVICE (COUNTER AND TELEGRAPH) RETIRED COLLEAGUES' SOCIETY.

The First Summer gathering of this society took place on Aug. 19, at Hampton Court. Fortunately, judged by the standard of 1931 summers, the weather was in a reasonable mood, and there was thus little to mar the enjoyment of the beautiful grounds of the Palace. The party numbered 35 ladies and gentlemen, which for a beginning and considering the abnormally unsettled condition of the ZM, was excellent. That all those present thoroughly enjoyed the outing, not forgetting the happily-laid tea in the Tilt Yard, will no doubt increase the attendance at the next event. Those present included Mr. C. W. Bishop (Chairman) and Mrs. C. W. Bishop, Mr. John Lincoln, the 82 years *doyen* of the party, and formerly Postmaster of the House of Commons, Mr. Barnard, Mr. Barkaway, Miss Bower, Miss M. Bray, Miss Byers, Miss Cork, Mr. C. J. Crowfoot, Mr. W. Davis, M.B.E. (the Hon. Sec.), and Mrs. W. Davis, Mr. F. E. Durrant, of the P.O. Sanatorium, Mr. and Mrs. S. Eaton, Mr. and Mrs. W. Ford, Miss Gill, Miss Hall, Miss E. J. Heasman, Mr. F. D. Holland, Mr. W. Insole, Miss Lacey, Mrs. Marshall, Mr. H. Paul, Miss Porter, Mr. and Mrs. Rowley, Mr. and Mrs. E. K. Scarfe, Mr. Tilley, Mr. and Mrs. Vail and Mr. W. F. West. Mr. C. S. Keen the active hon. sec. of the C.T.O. Retired Officers' *Reunions* was also present, loaned, it is understood, for the occasion by the latter organisation!

J. J. T.

THE Telegraph and Telephone Journal.

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All correspondence relating to advertisements should be addressed to MESSRS. SELLS, LTD., 168, Fleet Street, London, E.C.4.

TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCH.

MR. A. L. E. BERLYN.

THE present Postmaster of Plymouth has a double claim to be included in any gallery of Telegraph and Telephone men. Like many another who has made his mark he entered the Post Office Service as a Telegraphist in the Central Telegraph Office. After 10 years he graduated to the Secretary's Office, and on the formation of the Post Office London Telephone Service, he became Mr. Preston's senior assistant with the rank of Chief Clerk, and at later stages Principal Clerk and Assistant Controller. He had much work to do in those days to found this new department on traditional Post Office lines, and having seen the merger of the Post Office and The National Telephone Company's London services, he, in 1916, for reasons of health, sought a less confined, if no less responsible, sphere of activity



in the Provinces, and was appointed Postmaster of Stoke-on-Trent. Here he showed that his keenness and energy were more than sufficient to guide departmental matters, and he was to be found taking an active share in the life of the town. Naturally enough an "A.B." was bound to gravitate sooner or later to Portsmouth and there Mr. Berlyn went as Postmaster in 1922 to pass on to its Devonshire brother town Plymouth in 1926. Here his interest in those amongst whom he came to live quickly showed itself, and he is Chairman of the Plymouth Central Hospital, a Rotarian, and on the Council of the Chamber of Commerce. He is also the elected representative of the 5 western counties on the National Savings Committee. One might imagine in such circumstances that he would have no time to spare for lighter hobbies, but he confesses to golf, bowls, gardening, and reading, but with what order of preference who shall say, or who shall place a limit to his activities when he retires, which he is due to do next year?

The
Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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DECEMBER, 1931.

No. 201.

PRESS CAMPAIGNS—AND ONE OF THEIR RESULTS.

A LONDON evening paper has invited readers to record their experiences, and is devoting about three-quarters of a column a day to instances of "delay" and "wasted time." Telephone delays "are not decreasing," they tell us in fat black type, though, of course, by this they merely mean that their correspondence grows larger as more readers enter into the fray, for they have not any means of checking the proportion of failures or delays in the total number of calls handled from one day to another.

Surprising as it may seem to the sophisticated, these press campaigns invariably make an appeal to the British sense of fairplay, and evoke a large number of expressions of satisfaction from the telephone-using public, not unmixed with strictures on newspaper correspondences. We have before us, as we write, a batch of some 60 current letters, originating in the London district alone, conveying the thanks of subscribers for promptness of service, for special attention given to cases of emergency, for installations quickly completed and for removals promptly carried out. The words "unfailing courtesy and attention" occur in several of them, and even the much-criticised night operator receives his meed of praise. A number of letters single out rapid trunk service for encomium, others the overseas service—indeed, two of the correspondents are Americans who assert that they have nowhere received more excellent service. The fact is that the public at large maintain a better sense of perspective in these matters than our campaigners would seem to attribute to them.

THE GENTLE ART OF SUPPRESSION.

A RECENT article on "Post Office Reform" by Lord Wolmer in a contemporary contains some interesting examples of the way in which, without any actual mis-statement, a recital of facts can be made to convey an erroneous impression.

Here is one of them. Lord Wolmer says:—"Since the Post Office took over the (telephone) service in 1912 the charges to the public have been greatly increased on account of post-war costs, but nevertheless, after allowing for interest on borrowed capital, the Post Office has made an aggregate net loss of £1,430,180 up to March, 1930, which is now being slowly reduced by small annual surpluses." He adds that it is only fair to state that when the Post Office took over the telephones in 1912, they were in a very unsatisfactory position, and that the intervention of the war delayed the task of improvement: but he says that after the lapse of 19 years, and the expenditure of immense sums of money, these difficulties ought by now to have been overcome.

The above quotation contains no mis-statement of fact, yet Lord Wolmer has not "thought it fair" to add that the detailed profits and losses year by year were as follows:—

Year ending Mar. 31,		Surpluses.	Deficits.
		£	£
1913	...	303,343	---
" 1914	...	239,111	---
" 1915	...	—	111,018
" 1916	...	—	118,177
" 1917	...	201,729	---
" 1918	...	355,468	---
" 1919	...	—	36,261
" 1920	...	—	1,961,710
" 1921	...	—	4,721,970
" 1922	...	—	559,132
" 1923	...	939,009	---
" 1924	...	1,596,917	---
" 1925	...	463,006	---
" 1926	...	550,830	---
" 1927	...	283,375	---
" 1928	...	107,391	---
" 1929	...	524,695	---
" 1930	...	513,214	---
Totals	...	£6,078,088	£7,508,268
Net deficit	...		£1,430,180

Quotation of these figures would have made it clear that the loss was incurred entirely in the two first years of the War, and the years immediately succeeding the War, and that the great bulk of it was in the year 1920-21: and the most superficial investigation would have elicited the fact that those losses were due to reluctance to increase charges to subscribers until the need was clearly proved, and in particular to deferment in 1920, by the Government of the day, of the Postmaster-General's proposals to increase post-war

telephone charges until they had been considered by a Select Committee of the House of Commons. The new charges, when actually introduced on April 1, 1921, represented an average increase of only about 80% over the pre-war tariff, at a time when the general cost of living was 169% above the pre-war figure, when municipal rates were in most cases more than double the pre-war rate, and when railway freight rates had increased by 100% and passenger fares by 75%.

Lord Wolmer has further not "thought it fair" to point out that the "small annual surpluses" which are now being earned have been earned in every year since 1922-3: and that as soon as they have ever shown signs of becoming more than small, the charges to the public have been reduced under one or more headings. It is estimated that if the telephone rates and charges which were in force in 1921 were still in force unaltered, the net profit for the last financial year would have been over six millions in excess of what it actually was.

A cause whose protagonist has to make such vital suppressions in the presentation of his argument is surely suspect. There are few important businesses in this country which would emerge more satisfactorily than the Post Office from a frank examination of their finances during the past 19 years.

OPERATORS' INITIATIVE.

MANY dramatic incidents must happen on the telephone which pass unrecorded. This is inevitable in a means of communication which now plays almost as large a part in our social as in our business life. Many a mood of happiness or unhappiness must depend upon the ring of the telephone bell, many a weighty decision is taken, many an intolerable situation is eased, many a comforting message concerning the safety or health of a beloved one passes through this familiar channel. The novelist and dramatist may envisage them and bring them vividly before us; but, as we have said, the actual incidents in the main must necessarily pass unrecorded. We are, therefore, the more pleased to be able to relate one such event. Late one evening at the end of last October, a night operator at the Chiswick Exchange received a calling signal from one of his subscribers, and, on entering the circuit with the usual "Number, please?" he heard sounds as of a person gasping for breath. No number was asked for, and, with prompt decision, the operator advised the Police. An officer was at once sent to the subscriber's house, and on gaining admittance, found there an elderly lady all alone and seriously ill. The police officer lost no time in calling in a doctor and advising her relations.

This commendable initiative on the part of the operator followed hard upon another case where, in the East End of London, a telephonist on entering the circuit in response to the "emergency signal" from a Call Office was met by a request to send Doctor ——— and a nurse. The particular doctor could not be traced from the information given and, as the caller was apparently in a state of collapse, the exchange operator reported the case to the Police

and had the satisfaction of knowing that the patient had been removed to a hospital near by.

Even as we go to press details of another case, this time in the South-West, reach us, and go with those quoted to show that these examples of resourcefulness and exercise of imagination in the best sense of the term are not as rare as some might suppose.

HIC ET UBIQUE.

WE propose to resume the series of portraits and biographical sketches of chief supervisors and assistant supervising officers formerly published under the heading "Our Portrait Gallery," in the column entitled "We Telephonists." It was never the intention that this column should appeal to the London Telephone Staff exclusively, and the EDITOR will be glad to receive from local correspondents portraits and notes of suitable exchange officers.

On Sept. 1 the State Telephone Department celebrated the 50th anniversary of the opening of the public service in Sweden, although the manufacture of instruments began in Sweden as long ago as 1877. Count H. A. Hamilton, director-general of the Swedish Telephone and Telegraph Department, states that there are at present about 534,000 telephones, or roughly one per eleven inhabitants, and over 4,000 exchanges in Sweden. The total length of lines is about 966,000 kilometres, and the capital invested amounts to 300 million kronor (£16,666,667). During the past year 791 million calls, or about 131 calls per inhabitant, were registered. Technical development continues, especially as regards automatic exchanges, which have almost replaced manually-operated types in Stockholm and many other towns. The ultimate aim is to install automatic exchanges throughout the entire Swedish system.

According to the *Electrical Review*, a report from Budapest refers to the possibility of a monopoly being granted for the Hungarian telephone system. The name of the International Telephone and Telegraph Corporation is mentioned in this connexion as one of the aspirants, while the principal of an English electrical company is said to be at present in Budapest for the same purpose.

From the same paper we learn that all the Polish telephones are to be converted from manual to automatic operation, at a cost of £500,000. The contract has been secured by the Telephone & General Trust Co., Ltd. This company is associated with the Automatic Telephone Manufacturing Co., Ltd., which is making all the new switchboards, instruments, and other requisite apparatus.

The area of the London Telephone Service will be extended, early in 1932, to include a number of exchanges at present outside its boundaries. The names of the subscribers on these exchanges will in future appear in the London Telephone Directory, and after the change has been made the Controller of the London Telephone Service will be responsible for the efficiency of their service and will render their accounts. The rental and call charges at present in operation will be undisturbed by the change.

Amongst the exchanges to be transferred to the London area are Caterham, Farnborough, Leatherhead, and Orpington (from

Brighton) : Dartford and Gravesend (from Canterbury) : Chertsey, Sunbury, Walton, and Weybridge (from Guildford) : Staines and Uxbridge (from Reading) : and Hatfield, Rickmansworth, St. Albans, Watford and Welwyn (from St. Albans).

We refer above to the invitation of a London evening newspaper to its readers to send particulars of their telephone experiences. The following letter from Mr. J. W. Bowen (of which we give an extract) was, we learn from our contemporary, *The Post*, not published :—

Your own explanation of faults is the simple one—that we need commercial management and private enterprise. This would be more convincing if we had not experience in every direction of precisely similar complaints against private enterprise.

We had our own privately-owned telephones, and the State had to take them over because of widespread dissatisfaction. Sir Austen Chamberlain (then Mr. Chamberlain) stated in 1905 that "it had been proved that competition did not secure a cheap and efficient service." Sir W. Mitchell-Thomson, Postmaster-General in the last Conservative Government, admitted in a speech on Mar. 11, 1929, that the State took over "with universal consent after many and long complaints." The complaints were, he said, "due to the chief commercial centres having the best attention. Places that did not pay were left out or neglected by the National Telephone Company."

In U.S.A. the private telephones are as much the subject of complaints as are our own State telephones. An English visitor to New York, writing in the *Daily Express* three years ago, described the privately-owned telephone service there as being "the last word in antiquity and inconvenience." (*Daily Express*, Sept. 26, 1928.)

Much is made of the greater telephone density in the U.S.A. But is this really convincing proof of inefficiency on the part of our system of management? If so, what of the fact that England is eighth in the list of motor-users in proportion to population, and that U.S.A. has in proportion more than six times as many cars as ourselves? Are our motor manufacturers inefficient?

Can it be maintained that our privately operated mines, railways, and electricity concerns are models of efficiency. You have yourself had occasion to charge British industrialists with "apathy in this tremendously important matter of electricity" and to allege that the "electric supply undertakers themselves are partly responsible," their prices in many cases being "ridiculously high." (June 11, 1931.)

Are we not, therefore, entitled to disbelieve in the efficacy of the remedy you propose, and to think that real improvement in efficiency must be sought in other directions?

AN EVENING WITH THE TELEGRAPHS.

Mr. G. T. ARCHIBALD, Deputy Controller, C.T.O., read a very pithy paper at the Institution of Electrical Engineers on Nov. 16, under the auspices of the Post Office T. and T. Society, on "American Influence on British Telegraph Practice." The paper in effect was actually a succinct account of the report of the Simon Committee's visit to the United States, as it is about to effect the future Telegraph organisation of the British Post Office. Mr. Archibald left ample time for debate and thus was made immune from the complaint against a former paper of this gentleman, concerning which the demur of the audience was that he had treated his subject so exhaustively as to almost preclude the possibility of any discussion. Certainly on this occasion the membership showered questions and comments for over an hour only to find that there was really no time for the lecturer to reply. Especially good points were made by Lt.-Col. Booth, who pointed out that America had first to learn from this country, and that it was largely due to the war and administrative difficulties that this country had lagged behind. Miss Herring made some valuable observations and suggestions regarding the staffing of the phonogram room and other matters, more especially from a woman's point of view, and certainly it would appear from the viewpoint of efficiency.

After one had listened to the evidence of the super-efficiency of the American Telegraphs, it was a relief to hear from the C.T.O. Controller (Mr. Stuart-Jones) that there were actually weaknesses in the giant's armour. The ordinary man in the street somehow or the other does not appear to have quite so good a chance as the "big business." That in efficient America a telegram should take twelve hours to reach its destination not half-a-dozen miles away, convinced one that the service, after all, is not infallible but human!

J. J. T.

[We hope to print Mr. Archibald's paper in next month's issue.—Ed., T. & T. J.]

STAFF SALESMANSHIP SCHEME.

It is pleasing to record that this Scheme is being taken up with enthusiasm by the staff. It is clear that many people are determined to do their best to widen the scope of telephone service and to counteract the tendency of some members of the public to feel that, in times of financial stringency, telephone service must be one of the first things to be discarded.

The assistance given by the enthusiasts is appreciated very highly, but there is room for many more to enter into the spirit of the scheme and to work with the fixed determination that the telephone station losses which have been experienced in other countries shall not be repeated here. Every order gained improves the standing of the Telephone Service and helps to build up the confidence in our own country which is so essential for the stabilisation of our financial position.

Some may think that it is a difficult or irksome job to obtain orders from the public. It may be a help to them if I quote the comments of some of the enthusiasts who see the value of the scheme and are getting most satisfactory results.

Mr. A. F. Perry of the London Wall Exchange says :—

"To obtain orders to-day one has to look round and see where waste of staff's time occurs and delays on exchange lines caused by going to fetch the wanted person; then it is time to step in and advise additional extensions, exchange lines or other alterations and above all, endeavour to see the head of a firm and ask him if he is satisfied with service. This question invariably leads up to new business in some shape or form."

Mr. R. J. Jeffrey of New Cross says :—

"It is not possible to state any special circumstances which led up to the sending in of A and B forms. Such circumstances only arise in the course of conversation and must naturally differ according to the prospect's requirements which are apparent to a practical man.

"Since Oct. 6, 1931, the following are orders obtained by me and sent to your office :—

- 2 Exchange Lines,
- 2 External Extensions,
- 3 Internal "
- 15 Hand-microtelephones,

and additional items and more in view."

Mr. F. C. Tight, of the North Traffic Office, is working hard in the Department's interests, and in connexion with one of the orders obtained by him, he says modestly :—

"I think that he was already aware that I am an officer of the L.T.S. and just came to me for advice as to procedure, cost, &c."

Another experience of his illustrates how the possibility of a telephone order may mature from quite a casual association. His description is as follows :—

"A man asked me to direct him to a certain address whilst we were travelling in the tube train—he continued the conversation mentioning that he had 'better see about a jolly old telephone.' I had therefore no difficulty in completing the matter for him."

Mr. Skelton, of the Harrow Installation Office, affords another illustration of how a conversation with a subscriber on one aspect of telephone service can be led into a channel which will secure an order for further service :—

He says : "Curiously enough, subscribers approach me in the first instance—usually with an enquiry regarding the completion of a new line—or, perhaps, with a complaint about the existing service—or the delay in fitting new apparatus. It is then that I explain to them the advantages of the additional facilities offered.

"If they have a complaint to make, I endeavour to pacify them—if it is delay—explaining that there are legitimate reasons, or if about the existing service—pass it on to the officer concerned. Several days later, when it is known that the difficulties have been overcome, I ring the subscriber and ask if they are now satisfied—then, also, I seize the opportunity of pressing additional facilities—especially hand-microphones."

Mr. C. F. Ougden, of the Engineering Staff, describes how a customer in a shop in which he was carrying out telephone repairs got into conversation about telephone service and when the customer mentioned that he was shortly opening a business, Mr. Ougden was able to explain what an asset the telephone was to any business. He got the man interested and by means of the use of card "A" a Contract Officer called and obtained an order.

Another engineering representative—Mr. R. J. Butfield—mentions that on one occasion he heard quite by chance that a person was interested in telephone service. A call and a short conversation led to an agreement on his part to sign a contract for service. In another case a subscriber wanted to move his main bell, but it was explained that an extension bell would be more efficient and an order was duly obtained.

All these cases illustrate that opportunities must be occurring to many to press the Post Office Telephone Service and to widen its sphere of influence and usefulness.

I think it is probable that the Editor of the *Journal* would be glad to publish in a future number some further experiences of Staff Salesmen and Saleswomen which would be a help and encouragement to their colleagues in furthering the scheme which we all have so much at heart.

LONDON ENGINEERING DISTRICT SPORTS ASSOCIATION.

Association Football. Splendid Cup Victory. The L.E.D. successfully negotiated the stiff K.E.B. hurdle in the 2nd round of the Civil Service (Lewis) Cup, winning by 3 goals to 1. The L.E.D. played splendid football. The team showed excellent team-spirit and the combination of the whole team was beyond reproach. Smith, at inside-right, being especially outstanding.

K.E.B. opened the score after 15 minutes, Hogger heading a centre from the left into goal—the goalkeeper being unsighted. Trimmer at outside-left finished off a brilliant combined movement by netting after 30 minutes, and the teams crossed over after a fairly even 1st half with the score 1-1.

In the second half L.E.D. hemmed their opponents in their own half and Kinch quickly scored two goals. Light was very bad towards the finish but the game was able to be finished. L.E.D. have a splendid, well-balanced, team and should make a bold bid this year for the cup.

Team: Donegan; Lever, Finall; Toleman, Maris, Maguire; Harris, Smith, Kinch, Brocklesby and Trimmer.

Table Tennis.—The flourishing club at Museum are putting up a fine show in the Civil Service League, having defeated War Office "C" 17-8, A.G.D. "B" 17-8, Ministry of Health 15-10 and losing only to "Labex" 12-13. These results are highly satisfactory and Mr. Tassell is to be congratulated on his team's fine performance in their first year.

Rifle Club.—Our optimism in the formation of a Rifle Club has proved to have been well founded. After the weeks since inception we can now boast a membership of over 40, and the number is steadily increasing. Teams have been entered in the A.S.C.R.C. and L.B.H.A.S.A. Leagues, and although our chances of winning any of the trophies are somewhat small, we can nevertheless congratulate ourselves upon the satisfactory manner in which our scoring power is increasing. A glance at the following results will show how we are overcoming our inexperience:—

Teams of six, possible score 600.

L.E.D.	535 c.	G.P.O.N.	547.
"	547 c.	Bevan's "C"	565.
"	550 c.	B'd of E.	*
"	564 c.	H.M.O.W.	*

* Results not known.

ACCELERATING ADVICE NOTE PROCEDURE.

READERS of this *Journal* will be familiar with the oft-repeated complaint in the Press and elsewhere that the Post Office Telephone Service is slow and that delays of weeks and even months are usual from the time of signing an agreement for service until the telephone is connected to the exchange and available for use. Statistics could be produced to prove these complaints unjustified in the great majority of cases. At the same time, there has always been recognition of the fact that it is to the advantage of the department, as well as to would-be subscribers, that installations should be completed at the earliest moment after an agreement for service has been secured and that any possible steps directed toward rapid completion of subscribers' orders ought to be taken.

With this object in view there has recently been introduced in London a scheme whereby orders for new installations, urgent removals, extensions, &c., taken personally by Contract Officers, or received by post or otherwise at the District Contract Offices or Headquarters are immediately telephoned to the Installation Section of the Accounts Branch of the London Telephone Service. Advice notes in respect of such telephoned orders are prepared forthwith and special steps are taken to forward them to the relative engineer's fitting office without delay. Some details of the scheme will perhaps be of interest, and can best be indicated by following an imaginary case.

Mr. Gettit, a Contract Officer, has just secured the signature of a new subscriber to an agreement for the installation of the telephone, and proceeds at once to the nearest call office, or other convenient telephone, and calls up Hop 3444. This number is allotted to a switchboard in the Installation Section of the Accounts Branch accommodating 10 incoming exchange lines. The Contract Officer is at once brought into touch with the operator at the board to whom he calls over full particulars of the order taken. The information thus telephoned is taken down on a special order form (in duplicate) and verified by the operator calling back the particulars to the Contract Officer and quoting the serial number of the relative order form.

As soon as the call is terminated the completed order form is despatched by pneumatic tube (seen in the centre of the photograph below) to the typing office located within a short distance of the



THE SWITCHBOARD IN THE INSTALLATION SECTION OF THE ACCOUNTS BRANCH, LONDON TELEPHONE SERVICE.

switchboard room and the particulars typed on to an advice note. To facilitate the typing of the advice note the order form has been prepared to follow closely the form of advice note. The completed advice note and the relative order form are then passed back to the Installation Section for check and special despatch of the

advice note to the Engineer's fitting office. In the case of fitting offices situated within a short distance of the London Telephone Service headquarters at Cornwall House, the advice notes in respect of telephoned orders received up to, approximately, mid-day are forwarded by hand, thus reaching the Engineer in time for treatment the same afternoon. It is intended to extend as far as possible this method of despatch to fitting offices, but where hand deliveries are not practicable the Express Delivery Service is being utilised for the mid-day transmission of the advice notes. Advice notes prepared in respect of other telephoned orders or of agreements, &c., received in the Installation Section in ordinary course during the day are despatched by the night post to reach the fitting office by the first delivery next morning.

The agreements in respect of the telephoned orders are subsequently forwarded in ordinary course through the normal channels and on receipt in the Installation Section are examined and the particulars checked up against the relative advice notes issued from the information on the order form.

Records which have been taken show that, on the average, the particulars of a new agreement taken by a Contract Officer can be transmitted to the Installation Section and entered on the order form within so short a time as two minutes; the actual average telephoning time for all telephoned orders is 3.25 minutes.

The new arrangement is found to work well and recent statistics show that considerable expedition in the completion of new subscribers' lines, &c., has already resulted. The following extract from a table compiled from an examination of completed advice notes received back in the Installation Section of the Accounts Branch of the London Telephone Service will suffice as an example:—

	March, 1930.	September, 1931.
Percentage of new exchange lines completed		
within <i>three</i> days of the date of issue of the advice note	1.4%	11.6%
within <i>five</i> days	8.0%	23.2%
within <i>ten</i> days	41.9%	53.5%

With the extension of the arrangements it is confidently anticipated that these figures will be considerably improved upon.

R. T.

ROUND THE FARMERS.

BY EDWARD DUNNILL.

ARMED with a brand new pouch and filled with the enthusiasm given by five weeks intensive training, I—like another ninety-nine—sallied forth to do battle with the great Public.

Waiting for the bus, I felt like Christopher Columbus. Lindbergh, Epstein and Horatio Bottomley rolled into one. My eyes scanned the roofs of the houses, picking out white insulators and pairs of taut wires. "Not a lot about," I mused. "Plenty of scope yet." Time tempers all things and experience moulds enthusiasm.

"You go to Slocombe?" I asked the conductor in a careless but important way.

"Sez so on the front," was the laconic reply.

Apparently the crest on my new pouch had not been seen.

As I jolted along in the bus I thought out brilliant openings and forceful arguments. Facts and figures chased round and round in my mind. Seven times in one mile I made successful sales—mentally. There was one small fly in the ointment. Those few

opening words, announcing one's position and object, seemed to have so many variations. One contract officer I had accompanied used to knock at the door and when it opened he would announce in cheerful tones: "Telephones!" The first time I heard him I had an almost irresistible impulse to shout, "Milk!" "Coal!" Another contract officer, of a more sober nature, greeted his prospect with a deep and dignified, "Good morning. Post Office Telephones." But, let it be whispered, one matey sort of chap has been known to greet people with, "How do, old cock. I'm the telephone wallah!" I shuddered at the thought.

Farmers were my first foes—I mean prospects. I would like to draw a veil over the first interview.

"Mr. Brown is in the cow-shed," said his daughter, grudgingly.

Across the farm-yard I slithered, suddenly realising why contract officers rarely wear spats and affect stout brown boots with blue lounge suits.

"Good morning," said I, to the most respectable-looking of the two men who were milking. "I'm from the Post Office Telephones——"

The answer was a nod in the direction of the other man. As I crossed the floor a cow swished me neatly across the face with its tail. Not a very clean tail, either. Curiously, my lectures had never dealt with a situation like this, but I remembered a phrase, "Keep your poise." With difficulty I did, for crossing a cow-shed floor is a tricky business.

"Good morning," I said. "I'm from the Post Office Telephones."

"You-don't-want-to-see-me-then-I'm-not-on-the-phone . . ."

I smiled brightly and dodged another swing from a cow's tail. "That's why I want to see you. When are you coming on the telephone, Mr. Brown?"

But he wouldn't stand still. He walked about with a pail, blew his nose, gave instructions to his man, chased two chickens across the yard and then stuck out his hand, shook mine and said, "Righto, then. Good morning."

About four o'clock I trudged into a farmyard, weary but hopeful, muddy but undaunted and ten miles from home. He was attentive—he was a prospect—I got him. The last call on the first day out. As I pushed the agreement across for him to sign, I despised Napoleon, Alexander the Great and Gene Tunney.

Later, at a prosperous-looking farm, I interviewed a farmer's wife. My portion of the interview was, I think, five sentences. The good lady had just been cleaning the flu and she brandished a pair of black hands vigorously. I said "Yes," and "No," and smiled hopefully. Once or twice she clapped her hands, which made the soot fly into my eyes. She covered pigs, Parliaments, "vets," butchers, Free Trade, woman's work, brussel sprouts, and telegraph poles in less than five minutes. Even as I walked down the road, fifty yards from the farm, I could hear her. She was trouncing the village blacksmith.

But the job is a man's work. I would willingly canvas every farmer in England. Between the breezy talks there is the sound of the wind in the trees, the weird cry of the wheeling plovers and the carol of the robin in the thicket. I have barged into country vicarages and talked to genial old souls who shiver at the word "Socialism." One bearded cleric decided he would take service but "not until the Election is over." One day I found a famous county cricketer repairing the roof of a farmhouse. Talking to the landlord of a village inn, I sat on the table in the bar. He had had £200 offered for it, but refused. It came from a monastery. At one imposing villa I had the door slammed in my face as soon as I said "Post Office——." At times the rain has trickled down my neck into my boots, but I've enjoyed it all except . . . the blank look of the column headed, "Orders Obtained."

COMPARATIVE TELEPHONE STATISTICS.

THEIR COLLECTION AND APPLICATION.

By W. H. GUNSTON.

(Continued from page 27.)

I do not, of course, intend to suggest by the foregoing remarks that American telephones grow of their own accord like fruit, nor do I desire in any way to withhold credit from the well-known enterprise and high efficiency of the great American telephone companies, without whose unremitting efforts these huge percentage increases would not have materialised.

But I think, perhaps, these tables which I have shown will serve to demonstrate that America's remarkable preponderance apart altogether from questions of Government or private administration—receptiveness to new ideas and partial lack of other communication services, &c. apart, too, from the important fact of America's great material prosperity—is due in some measure to her useful 2 years' start and still more to the commanding position she obtained from the extraordinary development which took place in the States in the first decade of this century. In other words, the roots of her superiority were well fixed in the past, and those who seize the significance of the figures I have shown will understand that Europe will not now easily catch up with America even by the heroic process of doubling her rate of growth, as some of our critics seem fondly to suppose. Europe (and with it Great Britain) is reducing that lead steadily, and with the hoped-for improvement in economic conditions over here, will, we may hope, make great strides forward in the years immediately before us.

Fig. 4 shows in more detail the progress during the last 10 years of the 16 principal telephone using countries of the world, their telephone density at the end of 1920, 1925 and 1930, and their percentage increases for the last 5 and 10 years. This is a complete list of all countries with over 100,000 telephones and a density of at least 2 per hundred inhabitants. Of the countries above the line, representing those with at least 4 telephones per hundred population, or at least 1 telephone to every 25 inhabitants, Great Britain and Australia are the only countries which have doubled their total number of telephones in the 10 years. The only country with a better percentage increase than Great Britain in the last 10 years is Australia, and the only country with a better percentage increase during the last five years is Switzerland. Below the line it will be seen that Belgium, whose telephone service was considerably deranged during the war, has increased by 363%, whilst Finland, newly released from Russian domination, has increased by 190%. France, whose development outside Paris was formerly backward, has gone forward with an increase of 144%. The last figures for Finland and the Argentine refer to the year 1929, and their percentage development has been based on comparison with 1919 and 1924.

FIG. 4.

PROGRESS OF THE PRINCIPAL TELEPHONE USING COUNTRIES DURING THE LAST TEN YEARS.

	1920.		1925.		1930.		Percentage Increase.	
	Tele-phones per 100 (1,000's.)	Popula-tion. (1,000's.)	Tele-phones per 100 (1,000's.)	Popula-tion. (1,000's.)	Tele-phones per 100 (1,000's.)	Popula-tion. (1,000's.)	1930 on 1925.	1930 on 1920.
United States	13,329	12.4	16,936	14.8	20,201	16.36	19	51
Canada	856.2	9.8	1,144	12.2	1,419.8	14.18	24	66
New Zealand	88.5	7	125.3	9.4	161.7	10.7	29	82
Denmark	252	7.7	311.5	9.2	348	9.8	11	38
Sweden	389	6.6	434.5	7.2	536.3	8.8	23	38
Australia	233.4	4.4	384.5	6.8	512.2	8.0	33	120
Norway	155	5.8	173	6.3	191	6.7	10.4	22
Switzerland	152.3	3.8	196.8	5.0	297.9	7.3	51	96
Germany	1,812.3	3	2,588	4.3	3,246	5.1	25	79
Great Britain	986.9	2.1	1,391	3.1	1,996	4.3	43.5	102
Netherlands	161.8	2.4	215.9	3	303.7	3.8	39	90
Finland	45	1.3	85	2.4	125.7*	3.4	52*	190*
Austria	133.5	2.0	152.7	2.3	233.9	3.4	53	75
Belgium	62.8	0.8	156.3	2.0	289.7	3.6	85	363
France	473	1.2	740.9	1.8	1,153.5	2.8	56	144
Argentine	116.5	1.3	189	1.9	279.9*	2.5	62*	166*

* 1929 figures.

The percentage increase shows Great Britain in a very favourable light and it will be noticed that this country has doubled her telephone density in 10 years. It will be seen that in 10 years the U.S.A. have increased their total by nearly 7 million telephones, Germany by nearly 1½ million, Great Britain by over a million, France by nearly 700 thousand and Canada by 560,000.

Fig. 5 demonstrates how little change takes place in what we may style the "order of merit" in telephone density in 10 years' time, despite all the fluctuations and spurts indicated in the preceding slide. It will be seen that New Zealand has passed Denmark, Australia has passed Norway and nearly caught up with Sweden, Switzerland has passed Norway, Great Britain has passed Holland, and Belgium has passed France and Austria. That is, Norway has dropped two places and Belgium has gone up two places, only 3 other countries having changed places at all on the list.

TEN YEARS' VARIATIONS IN TELEPHONE DENSITY.

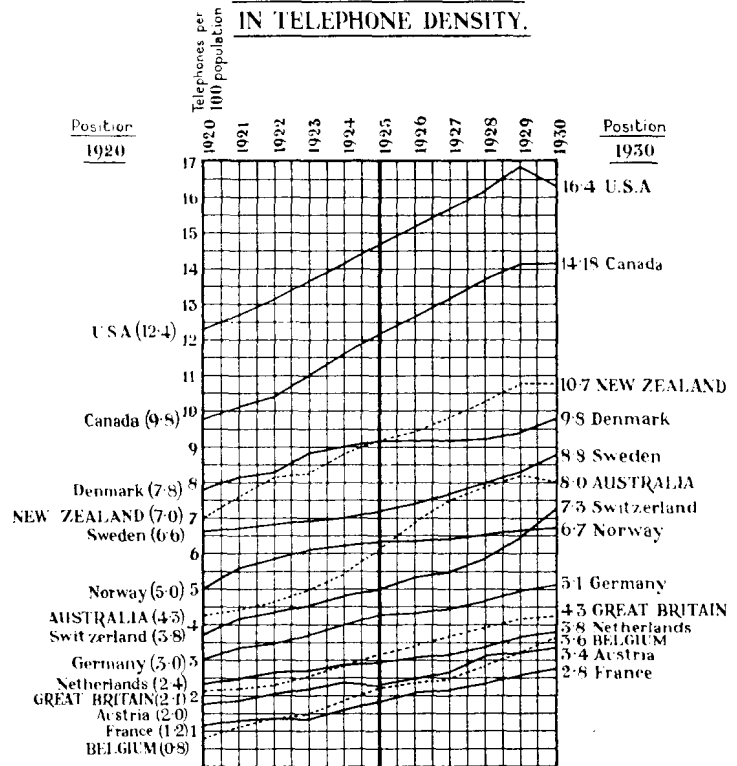


FIG. V.

Fig. 6, which shows the growth of the telephone in certain large cities of the world, is remarkable chiefly for the extraordinary fluctuations in growth which these cities exhibit. The list does not profess to show the 10 most highly developed cities in the world in order of merit. Such a list, in which San Francisco, with 40 telephones per 100 inhabitants, would be first and Stockholm, with 31, tenth, would not even include New York, Chicago, or Los Angeles with their well-known high telephone density—to say nothing of the great European cities. I have therefore selected 8 important cities, notable at various times for their telephone development. Of these, Stockholm is the only one which does not boast a million inhabitants.

FIG. 6.

QUINQUENNIAL TELEPHONIC GROWTH OF EIGHT REPRESENTATIVE CITIES. (In thousands of telephones.)

	New York.	Chicago.	London.	Glas-gow.	Berlin.	Ham-burg.	Paris.	Stock-holm.
1880	3.1	1.6	1.0	—	—	—	—	—
1885	8.3	4.0	5.0*	—	4.3	1.8	4.0	3.2
1887	10.7	4.6	—	—	6.8	2.8	5.3	5.6
1888	11.3	4.9	6.0	2.1	8.9	3.6	—	—
1890	12.9	6.8	10*	—	14.5	5.2	8.0	8.4
								(1891)
1894	15.5	10.8	12*	5.2	20.9	10.2	—	11.5
1895	19.2	12	15.0*	6	30.0	10.7	14	16.4
1897	30.0	14.0	20*	7	36.6	13.5	17.0	22*
1900	67.2	30	41.3	11.4	42.3	16.8	25.4	31
1904	176.6	91.5	93.5	18.9	—	—	—	—
1905	221.9	111	114	37.5	74.8	31.7	58.8	49.2
1910	401.8	239.6	203	42.5	122.5	60*	75.4	72
1913	526.4	348.4	258.8	40.8	154.8	77.3	95	85.6
1918	761.9	504.4	286	38.5	—	—	132.1	125
1920	892.2	575.8	339.8	43.2	199.5	85.7	159.6	118.1
1925	1,415.1	790.7	476.8	50.1	415.8	139.1	255.6	107
1929	1,811.4	987.8	661.9	54.2	515.1	173.8	367.9	126.5
1930	1,786.2	981.3	712.4	56.1	517.9	178.9	400.5	133.4

* Estimated figures.

I had intended to show the development at the end of each quinquennium only, but the records of the 80's and 90's are so scanty that I have had to intercalate several other years in order that such data as are obtainable could be shown against the year to which they referred.

The table shows several interesting curiosities. It will be seen that Berlin had many more telephones than New York in 1890-1897. Stockholm had more telephones than Paris in 1900, and London than Chicago down to 1905. Glasgow had more than Hamburg in 1905.

In telephone density Stockholm is the best of these cities with a figure of 31.4. Chicago next with 28.7. New York has 25.5, while Paris shows the best percentage of the great European cities, with 13 telephones per 100 inhabitants, but here again comparisons prove fallacious. The telephone area of Paris is confined to the city, and if, as in the case of London and Berlin, the suburban districts were included in the area, the two latter cities would show a higher density.

It will be seen that New York has increased fivefold in the last 20 years, despite a slight decline in 1930, London nearly fourfold, Berlin more than twofold, Paris more than fivefold, whilst Stockholm, already very highly developed in 1920, has not quite doubled its totals. It should be explained that the figures for Berlin in 1925 and 1930 apply to Greater Berlin; the earlier figures to Berlin within the old city boundaries, except that in the 'eighties the telephones in the suburbs (including Potsdam) are comprised in the total.

It may be proper here to say something about two of the known stimuli of rapid telephone development, viz., competition and rate-reductions. The first, contrary to widely-held belief, has not played a large part in telephone progress. It is an uneconomic policy, leading to duplication of plant, and usually means that the public have to pay two subscriptions if they wish to enjoy the full benefit of their local system. Two instances which led to a very high development are on record, one in Stockholm and the other, later, in Glasgow. In Stockholm the State, entering into competition with the already established Allmänna Company, introduced and long maintained a flat rate of about £2 5s., whilst the company finally reduced their flat rate to about £5 12s. and introduced a measured rate of £2 10s. The telephone development of Stockholm, already very good, went up by leaps and bounds. Inter-communication between the two systems was at one time permitted on payment of a special fee, but was afterwards withdrawn. It is said that the State administration recouped themselves for their uneconomic rate of charge by their receipts from other Swedish towns' systems, and that the Allmänna Company made good their financial position by their share in more remunerative undertakings in Russia and other foreign countries. I may here mention that the £2 5s. rate continued to flourish in the minds of our Press and Parliamentary critics for many years after it had ceased to exist. On the amalgamation of the two systems, the number of telephones in Stockholm decreased for some years, due to the thinning out of duplicate lines.

The same thing occurred at Glasgow on the conclusion of the short-lived and feverish competition at uneconomic rates between the Corporation and the National Telephone Company. The number of telephones in Glasgow rapidly increased, until it was the best developed town in Great Britain. Duplicate lines multiplied, and when these were given up on the cessation of competition, Glasgow's 42,000 lines soon dropped to 38,000. The whole story of the municipal enterprise, its sale at a loss to the Post Office and the ensuing reconstruction of its plant is both instructive and interesting but is too long to relate in detail here. Competition proper has played no great part in American development, although there are both Bell and independent companies at work in Philadelphia, and there were competitive companies at one time in existence in Cleveland, St. Louis, Pittsburg and some smaller cities. When the Bell patents expired, a tremendous impetus was given to the activities of the independents, who were able to reach huge tracts of territory all over the United States which the Bell companies did not cover, and whose demands were probably too great for one organisation to meet all at once. Thousands of small undertakings sprang into being, which were bound by no uniformity of rates, and hampered by no standard of construction. Many of them gave a standard of service at a rate so low that subsequent reconstruction together with a rise of rate became imperative, and even to-day one reads in the Chicago journal, *Telephony*, almost weekly exhortations to rural subscribers to be wise and submit to an economic rate which alone will ensure the provision of high-grade construction. This phenomenon, however, hardly comes under the category of competition.

The time at my disposal precludes me from giving anything but a rough outline of rate development in some of the principal countries, and their effect on telephone development. It is, of course, self-evident that reductions of rates in whatever country would on the whole have a favourable effect on that development. When the high unlimited rates charged in the dawn of telephony were reduced or supplemented by more moderate rates, the telephone naturally became accessible to a wider range of clients. In New York, for example, while the flat rate was \$260 (£50) a year for a metallic circuit development was not very rapid and was, as we have seen, at one time surpassed by that of Berlin. A measured rate of 150 dollars (upwards of £30) for 1,000 free calls was introduced in 1894; this \$150 was reduced to \$120 in 1895, \$99 in 1896 and \$90 in 1901, falling to \$48 (or £10) for 600 calls in 1906, with the result that the number of telephones increased sevenfold between 1897 and 1905. These rates having since undergone various changes, now stand at \$72 a year inclusive of 900 calls for a business connexion. There have always been, of course, since the introduction of metallic circuits, lower

charges for private houses, still lower rates for party lines, and varying rates for the different zones into which the city is divided. Tariffs on similar principles (except that there are no zones) have long been in force in Chicago, Philadelphia, Boston, Baltimore, Detroit, Pittsburgh, San Francisco, &c., where measured rates predominate. Even where these rates do not actually predominate, they are often the only rate quoted for business connexions. Nevertheless, in some of the large cities in the United States flat rates still prevail ranging from about £15 to £30 a year, while, in the smaller towns, and especially in those served by the independents, all kinds of rates are to be found ranging from \$2 or \$3 a month to \$6 and upwards.

In this country, the rate charged by the United Telephone Company in 1880 for unlimited service in London was £20, while the rates charged by the provincial companies in the larger cities varied between £12 and £20. In the early 'nineties we find the conditions for London subscribers considerably eased by the introduction of a £12 residence rate, and a £10 rate for local service at exchanges such as Kensington, Sydenham and Croydon. By this time the prevailing provincial rate was £10 for unlimited service. The year 1900 saw the introduction of message rates and party lines by the National Telephone Company in provincial towns at £3 and 1d. a call. This rate proved unremunerative, and in 1907 measured rates were introduced, the Post Office charging £5 covering 500 calls, and the company, which operated most of the large city areas, £6 for the same number of calls. Meantime, in 1901, the company and the Post Office agreed on the introduction of a £5 message rate in London, with an additional payment of £1 10s. 0d. for a minimum number of calls. The flat rate had by then been reduced to £17 a year.

After the war, as most of those present know, flat rates were entirely abolished, and in 1921 message rates ranging from £2 2s. 6d. a quarter to £1 17s. 6d., plus 1½d. a call, were introduced. The residence rate had temporarily disappeared. It was restored in 1922, and a series of reductions ensued which culminated in the present rates varying from £2 a quarter for an individual line to £1 7s. 6d., plus 1d. a call.

In France the rate of £16 in Paris seems to have endured from the beginning right down to 1915. The £12 and £8 provincial rates were maintained from 1889 to 1915—although a message rate was introduced in the small towns in 1897. These high rates, without any relief for the small user in the way of residence rates or message rates in the large cities, no doubt account for the extremely slow development of the French telephone system before the war. After many variations due to the fluctuations of the franc, the flat rate was recently abolished and the French Administration adopted the present message rates varying from 600 francs in Paris (plus a minimum of 360 francs for calls) down to 250 francs in the very small places.

Germany, like other countries, began with a flat rate. From 1881 to 1884 it was £10 and was then reduced to £7 10s. In 1900 were introduced new rates which were maintained until 1921. These consisted of flat rates varying from £9 in the large towns down to £4 in the smallest places, together with message rates varying from £5 to £3, plus 10 pfennige per call. After a short-lived attempt (it lasted only from 1923 to 1927) to abolish a yearly or monthly subscription and charge subscribers only for a minimum number of calls per month, the present rates were introduced in May, 1927. In the large cities you now pay 144 marks (£7 4s. 0d.) inclusive of a minimum number of 480 calls, and decreasing rates in the smaller towns according to their size.

In Sweden, a Bell Telephone Company started in 1880 in Stockholm with an annual charge of about £8 17s. 0d. and when the Allmänna Company entered the field the subscription they charged was £5 11s. 0d. The State intervened in 1889 with a charge of £4 9s. 0d., and then ensued the fierce competition at the uneconomic rates I have already referred to. On the acquisition of the Allmänna system by the State, rates were introduced varying from £16 10d. 0d. to £4 8s. 0d. After several subsequent modifications, the rates for Stockholm and Göteborg were fixed in 1924 varying according to the number of calls made from 130 kronor (about £7) with 2,000 calls to 360 kronor (£20) with practically unlimited service. These rates apply to business houses, but there is a rate of 80 kr. (about £4 10s. 0d.) for residences, including 1,200 calls. It is important to remember that in almost all countries except Great Britain an installation charge is made to new subscribers varying from £1 to £5 and upwards. (The English equivalents of foreign money in the foregoing paragraphs have been calculated at par.)

The system of making subscriptions payable monthly was introduced in America early in the present century and in Germany in 1923. The quarterly charge was introduced in Great Britain in 1921. There is no doubt that these innovations have given great impetus to telephone development in each case. When the requirements of the wealthy, the well-to-do and the "comfortably-off" are satisfied, telephone administrations have to turn wistfully in the direction of the "new poor," and rates and methods of payment must be devised to attract their custom. They can no longer say, as I once heard a chief of the old National Company say, "Well, if he is the sort of man who cannot afford to pay £10 in advance, he is not the sort of subscriber we want on our books."

It would be a fascinating task to endeavour to draw harmonious curves showing how with every rate reduction in every land the number of telephones correspondingly increased. But since facts are stubborn things and do not always show a proper sense of fitness, our ingenuity might not get the reward to which it was entitled. Sometimes the public has taken two or three years to realise and appreciate the boon which has been conferred on them;

sometimes it will be found that there was a sharp upward move in telephone development before the rate-reduction took place, and so on; and the upward curve will not keep even pace with the descending one. But it is incontestable that the second or third rate reductions in New York, for example, were followed by the enormously rapid growth to which I have already referred, and that the introduction of message rates and measured rates brought the telephone within the means of the smaller user, and marked the commencement of a more universal use of the telephone.

The credit of introducing the message rate is, I believe, due to Switzerland, which adopted it in 1889, although it was tried experimentally in some American towns in the '80's. The late Mr. Gaine, of the National Telephone Company, with characteristic enterprise, tried to introduce it as an experiment in Sheffield in 1892. He described to a Committee of the House of Commons how he escaped with his life from a meeting of enraged and abusive Sheffielders, some of whom calculated that the service they were getting for £10 would cost them some £80 or £90 a year at a 1*d.* a call, and whose protests caused its temporary abandonment.

People have a natural objection to paying the full cost price for a facility which they have been obtaining partially at the expense of the rest of the community. In most cases when the message rate was introduced the wind was tempered to the shorn lamb by allowing both flat rates and message rates to co-exist, and by restricting the flat rate to existing subscribers while compelling new ones to subscribe at message rates. This policy was followed both in America and this country. But when, after the war, it was found necessary to reconstruct the tariff system here and the flat rate was entirely abolished, the light of the big user was long and bitter in the Press, in Parliament and in various trade chambers. Even in pre-war Germany an autocratic administration which proposed the abolition of the flat rate in 1907 was unable to withstand the protests of powerful interests and it was not until 1923 that unlimited rates disappeared. By this time nearly all European administrations were converted to a belief in the essential justness of the message rate, and most of their subscribers now realise the improvement in service which has resulted from the abolition of overworked flat rate lines.

It only remains to touch briefly on some other criteria employed in comparing telephone development. Firstly, there is mileage of wire. This criterion, however, has little effect on what I have styled the "order of merit." According to the American Telephone and Telegraph Company's last table of statistics, the United States comes first with 62 miles of wires per 100 inhabitants, Canada second with 45, Australia and New Zealand third and fourth with 35, and Denmark fifth with 26. So far the order is the same as in the table of telephone density based on population. Then comes Germany sixth with 20, Sweden and Switzerland seventh and eighth with 19 and Norway and Great Britain ninth and tenth with 18. Except that Germany is in front of Sweden, Switzerland and Norway, there is no change, and each country occupies a position on the list in close relation to that on Table 4.

Secondly, I might refer to an article published last April in the *Telegraph and Telephone Journal* showing the number of telephones per square mile. It was then observed how the countries with wide open spaces necessarily suffered in comparison with compact, highly cultivated countries in which there was little prairie or mountain territory. Holland, Belgium, Denmark and Great Britain are neck and neck for the first place with figures of 22.8, 22, 21.4 and 21.2 telephones per square mile respectively. Switzerland is next with 18, and Germany with 17, but the other great telephone-using countries are far behind. The number of stations existing per square miles is probably not as sound a criterion of telephone development as the number per head of population, but the figures I have given are nevertheless instructive.

They warrant the presumption that if the ratio of telephones to population in the large cities of England, Holland and Belgium, for example, is nothing like so high as in America or Sweden, and yet the number of telephones per square mile is far higher, the telephone system must at least be widespread and penetrate all parts of the country.

This brings my task to a close. I hope I may have succeeded without being prolix in bringing before you a picture of 50 years' development of the world's telephone system in its stupendous rise from the 50 subscribers on the New Haven Connecticut exchange in January, 1878, to the 35½ million telephones now in use in the world. My design has been to exhibit summary tables of statistical facts, with such comment as might seem necessary, showing present development in comparison with that of the past, and British development along with that of foreign countries, in the hope that they may be of some use in enabling us all to apprehend readily by what stages and in what company we have reached our present position. It would be impertinent in a compiler of statistics to attempt to draw lessons from his assembled figures; and as to prophecies of the future I shall leave these to the wizards who specialise in development studies. I should like to express my sincere thanks to Mr. S. L. Andrew, of the American Telephone and Telegraph Company for his ready aid in assisting me to fill in some of the gaps in my American figures, and my acknowledgment to the books by Mr. Kingsbury and Mr. Baldwin, which I have freely consulted. My chief hope is that I have not wearied you with overmuch detail, and that these investigations into the past may have awakened in you some of the interest they aroused in me.

[NOTE.—Recent information received from America gives the total number of telephones in the U.S.A. in 1910 as 7,635 and not 7,956. Figs. II and III should be altered accordingly.—W. H. G.]

THE G.P.O. PLAYERS IN "THE NEW POOR" AND "WHERE THE CROSS IS MADE."

THE G.P.O. Players gave their audience an excellent display of their varied attainments in the above-mentioned plays at King George's Hall on Oct. 30 and 31 last. The last named, by a performance of which the Society won the Russell-Scott Trophy in the one-act Play Competition promoted by the Civil Service Drama League in May last, is a tragic study of illusion rapidly developing into madness. The atmosphere of Mr. Eugene O'Neill's play is tense throughout, and its frequent dramatic moments offered opportunities to the players which they never failed to seize. It was admirably suited for competitive purposes; and on seeing this performance one could readily understand why the Society was successful in winning the trophy. Mr. Pilkington sustained the trying role of Nat Bartlett, always on the verge of madness, with great success, and Mr. Storr, in a wonderful make-up, looked and acted the part of the crazy skipper to the life. Miss Dorothy Smith, as the much tried daughter and sister, was good, as always, and Mr. Gartland brought a welcome air of sanity into the distraught household. The three ghosts (Messrs. Cyril Leigh, Wilfred Sellars, and Stuart Godson) made an impressive progress across the stage.

One had half expected the assistants from the asylum, whom Dr. Higgins had promised to send, to appear at this stage and be hailed by the deluded captain as his long lost crew; but the author preferred the more poetic and less harrowing expedient of apparitions to bring about the tragic denouement. The whole performance evidenced the study and care which had been employed in its production.

In Mr. Cosmo Hamilton's comedy, "The New Poor," we made the full circle from the serious to the frivolous. This is a light, well-constructed piece, which is full of surprises and keeps its secret well. We certainly did not suspect that the supposed Russian princes would prove to be comedians—and not crooks, nor that Miss Maudsley's careful sleuth-work would lead to aught but their discomfiture. The detective she introduces into the house certainly comes from the realms of farce, but Mr. Wilfred Sellars, seizing the bull by the horns, gave a broad and vastly entertaining rendering of the part. Mr. Eric Hudson, in the best part we remember to have seen him take, was altogether admirable as the enamoured host, and Mr. Horace Pilkington, the chief of the pseudo-Russians, gave a remarkable exhibition of his versatility, playing the punctilious "Grand Duke" Boris with a killing, aristocratic air. Miss Dorothy Smith, equally versatile, looked the astute woman of the world who sees through all shams. The other Russians capably supported their chief, Miss Winifred Wray, a newcomer, being delightful in the part of Princess Irina. Mr. Cahill shone in the role of the unsuspected villain, Gutteridge, and Miss Harwood adequately represented the lackadaisical Mrs. Wellby. As for her three incompetent, amorous daughters, these characters were played with fitting charm and verve by Miss Henniker, Miss Mimie Law, and Miss Le Plastrier. It was understood that, having regard to the calls of economy in these strange times, the Society dispensed with a professional producer. Certainly it is in no spirit of depreciation of former producers that we record that Mr. Storr's production of these two plays was as good as any we have seen in the Society's annals, and he received a very hearty and well-deserved call on the night of the first performance. Once again Mr. Will Harrison's orchestra entertained us with excellent music before and between the acts.

ANNUAL REUNION OF C.T.O. SUPERVISORS.

THE Supervisors of the C.T.O. held their annual reunion in the Sunday School Union Hall, Old Bailey, at which they greeted a large number of their predecessors, on Tuesday, Nov. 17. Miss Gertrude Hall, the Chief Supervisor, was the hostess, and had the pleasure of receiving the older folk, many of whom she had herself served under in former days.

J. J. T.

LETTERS FROM A RETIRED CONTRACT MAN TO HIS SON.

(VI.)

MY DEAR TOM.—Splendid! So your training is finished and you have passed your final “dummy interview” with flying colours and been allotted an area. Well, it is up to you now to pull your weight and get the very best out of it. Mother and I will be anxious till we hear from you that all goes well. We know you will do your best and no man can do more, the trouble is that many men do not do their best, and so for all time just manage to shuffle along and if they don't get the sack they wonder why they are passed over when a promotion is made. Self analysis should tell them why, but some are too indifferent to use their brains even to this extent.

I am glad you asked that question about the necessity for making a special effort to retain subscribers who have given notice to give up the service: it is most important. Of course there are many classes of ceasement where it is impossible to retain the station, such as death, bankruptcy, giving up the premises and that sort of thing, but there are others where by making a real canvassing effort you may get the notice withdrawn. I know the Department views the matter very seriously, and quite rightly, as it is obviously in every way advantageous to retain a subscriber as it has spent its money in providing the plant to supply the service and much of the labour and material will be so much loss if it no longer obtains rental for the installation or what is left of it after the instrument is removed. Even the retention of an extension is important, for in this case also the labour and material used in providing the internal wiring will be wasted and expenditure will be involved in reconditioning the apparatus if it has to be taken away, but which if it had been retained would have been good for many further years' service. It is more important to retain a station than to obtain a new one on which fresh expenditure is necessary. Do everything you can, therefore, to get the subscriber to withdraw the notice to cease. Call without fail immediately the ceasement card is handed to you. If the subscriber has some grievance, clear it up: if he says he has no further use for the service, by judicious enquiry find out why and use every canvassing argument to make the subscriber reconsider his decision. You will find a great variety of excuses are given for giving up the service and you must be prepared to meet them all with reasoned arguments. If a man says he can get all he requires at a kiosk, point out the value of incoming service and the disadvantage of having to go out to the kiosk at inconvenient times and so on. If he says his neighbour will let him use his telephone, your line is again the loss of incoming service and inconvenience to his neighbour and you can add that his neighbour is not allowed to deliver messages to him and so forth. If he says he does not get value out of the service commensurate with the cost, you must tactfully try to find out just what he uses it for and the extent of the user and then tell him of the opportunities he is missing by not using the service more and explain the various facilities available. His case may be like a man living in a house with 20 rooms and only using two of them because nobody had told him the others were available. The emergency value of the service should be pointed out, and its value in case of illness. If you know that he has a wife you might suggest that she will miss it. For a business man the value of the entry in the Directory should be emphasised and the possibility that one order received on the telephone may cover the cost of the service many times over. He should be made to see that by giving up the service he is closing a door against the entry of business and making a present of it to someone who has the service, and so on. All the business-getting arguments should be used with even greater force and finally it might be pointed out that sooner or later he will have to become a subscriber again so why go to the trouble of having the apparatus removed only to be installed again with the inevitable change of number?

Should you find that the subscriber is leaving the premises you will, of course, suggest a removal or a new line at the new address. If both of these methods of retaining the subscriber fail try to find the name of the incoming tenant either from the outgoing man, if he knows it, or from your friend the house agent—for I assume that by this time you have made a friend of him—and get into touch with the new man about taking over the installation. If he is not located in your district report to your Chief and ask that he be communicated with. Again, remember the motto. “Once a subscriber always a subscriber.” I might go on enlarging upon this aspect of your work for several letters, but I have said enough to show you the importance of retaining every telephone upon which notice to cease has been given.

I was interested in the copy of the Contract Officer's daily report you sent me. It is, of course, new since my time and seems very comprehensive, not to say elaborate, but I suppose it is necessary. There are men whom you could trust to do an honest day's work without the necessity of reports, but unfortunately there are others who need some such moral suasion to keep them up to the mark and even some whom even such a daily analysis of their work will not persuade to go straight. I imagine that the two latter classes have to be thanked for the introduction of the report. As I see it, however, the honest worker has nothing to fear from the form and only the dodgers and slackers will suffer, and I have but little sympathy for such. It seems to me that the main objection to the report is the time it takes to write up. You tell me that your instructions provide for each entry to be made on the spot immediately on completion of an interview, which means it has to be written up in the street in many cases and this seems rather inconvenient on a floppy form, but perhaps the one you sent is torn from a pad. Wherever the writing up is done it must take some time and while this is no doubt only a matter of minutes per man, in the aggregate the time must be considerable. However, I suppose all that has been considered. Beyond the loss of 5 or 10 minutes a day I can't see that the report will do you any harm: indeed, if you look at it critically when completed it may enable you to see some weakness in your methods and enable you to rectify them.

Yes, of course your Chief was perfectly correct in emphasising the importance of the unsuccessful interview card. It is important, as you will find. Indeed, if the man who had your district previously kept his index up to date you will no doubt have discovered this for yourself by this time. A properly kept unsuccessful interview card index is one of the most necessary and useful tools which a Contract Officer possesses. I said “properly kept,” and I mean just that. An out-of-date, slovenly, uninformative index is worse than useless and must be taken in hand and put on a proper footing. On the other hand, an up-to-date list of probable subscribers, showing why service was refused and with properly entered additional calls with the date of the next call stated, keeps the Contract Officer in touch with his district and is a constant reminder of calls which must be made and the line he must take. Besides all this, think of the boon such a record would be to a new man taking over the area at some future date. An unenthusiastic Contract Officer may say “Oh, hang the next man,” but that is a foolish attitude, showing that he lacks the team spirit for, for all he knows, to-morrow he may be the “next man” in another's district and the card index would be the first thing he would turn to. If he found that his predecessor had the same views of the “next man” as he had what a rotten grind he would have to get a grip of his district and I would say it serves him right, only the absence of a well-kept index means a serious loss of time. Knowing your methodical habits I am sure your cards will be a model of neatness and correctness, with no “dud” cards anywhere in the index. By “dud” cards I mean those relating to hopeless cases, cases where there is no possibility of an order being obtained; but, on the other hand, you must remember that a card should be prepared where *you* think a prospect ought to have the service and this means the correct weighing up of all the circumstances and coming to a prompt decision. You must not be over-impressed with the prospect's refusal, for the non-subscribers of to-day are

the subscribers of tomorrow. If applications are received by the office from people upon whom the Contract Officer has called but has not thought it worth while to make out a card, obviously his judgment is at fault and he must revise his methods.

It is a good plan when you get an order for an exchange line and have failed at the moment to get an extension to hold your card for a bit noting it "call again *re* extension," and to make a point of calling after completion of the line to see if there is anything further to be obtained or to obtain names of people the subscriber would like canvassed and generally to see if all is going well. The subscriber will appreciate the little attention and I have known it lead to good business.

Your chief will have details of the current development study of your area and he will advise you of roads which show that the development in the view of the expert officer who made the study, is capable of improvement. For instance, a street may show that on one side the development is good, whereas on the other, although the type of houses and inhabitants is similar the development is poor: or a street having a hundred tenants may only have fifty subscribers, although in this case again the houses are similar. In both cases there is evidently a good possibility of an intensive canvass providing good results. If you are not getting this information you should ask your Chief to obtain it for you, it is very helpful.

A final word! You will appreciate that the only way to get good business is to spend every available moment canvassing, therefore don't waste time in the office. Get out at the earliest possible moment. Ten minutes too long in the office each day means an hour's canvassing lost in a week or a week lost in the year and therefore so many orders lost which would otherwise have been obtained.

We hope to see you soon when you will be able to tell us all about how you have been able to apply these rather random hints and I expect you will be able to tell your old dad how a Contract Officer ought to conduct his business. Well, cheerio. Love from us both and mother adds her usual warning about taking care of yourself and says she will write you in a day or two.

Your affectionate Father,

THOS. E. L. SERVICE.

THE LIFE STORY OF A TICKET.

At first glance, perhaps, the reader may say, "Why not the life story of Brown or Smith or Jones"—so common is my family in that world known as "The Telephone Department," but in this matter of family, I do not suffer from an inferiority complex, as you will see from the story to be told.

I belong to the T.T. 3 branch. This branch is perhaps better described as the poor relations of that higher branch, the T.T. 5's, who only live in really big places, known as Zone Centres, and also the T. 415 H's who are really very "big" and can live anywhere. We T.T. 3's are not at all proud and do the work equally well of recording local calls, junction calls and short distance trunk calls—all relatively trifling in price but very important in the aggregate. I do not say that our function is less important than our more costly brothers and sisters. Are we not also the records of comedy, tragedy, drama, and, in fact, do we not probably record all these to a greater extent as we touch the home circle, leaving our T.T. 5 relatives to "big business"—to mere records of "hard facts" so beloved of "Mr. Gradgrind." I am speaking as a T.T. 3 living in a district in which there is no Zone Centre. Who does not conjure up pictures of leaping flames, clanging engines, at the sight of "Fire" written on one of us, or the anxiety of friends and interest of the passers-by by "Ambulance"; and, Oh horror! when we

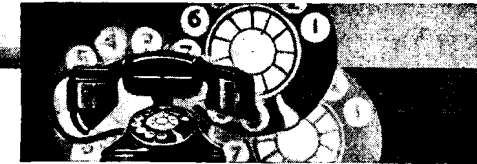
are the record for a "Police" call!! yet the very next ticket may record a call to the butcher or baker—in fact, we cover the widest range of human nature.

Well, I have tried to make you see our work in life, but how do we do it?

We arrive in a tightly packed batch at an exchange where we take our place on a board. We now await the big event—the record which will be handled in so many different ways. Here is one of my relatives—a local call—a mere record of a number from — and valued at only 1*d.* Now here is a junction call or to the initiated a 2nd unit call. A little more is shown here, a code is given which will tell someone at a later stage that this relative is worth 2*d.* In another position I can see another batch of relatives being covered with writing. What can it mean? These are Trunk calls and record times, dates, places and prices. A slightly prouder lot these, for they will not mix with their penny and twopenny brethren. Now someone is handling me. What is my fate? I am a "trunk call." Now for my adventures. There seems to be some discussion and I am turned over to receive a lot of writing. I am covered by many others of my family. After a time I am lifted to be priced and counted, and placed with many like myself in an envelope. Here I am pleased to meet my relatives the local and 2nd units, and we exchange confidences on our journey to a big place called "The District Office." We had been warned of the handling we should receive in this building, and I almost expected to see written over the door, "Abandon hope all ye that enter here." However, I soon found it was not so black as it was painted. I was taken away from my companions the locals and 2nd units and placed with others of my kind coming from far and near in a bundle called a "Balancing Group." A long wait of more than a week now before we are all put together on a Sorting Table. Deft fingers pick us up, separating us swiftly into numerical order of subscribers. I soon find that I am being jostled by some of those proud T.T. 5's and, wonders will never cease, there are some of the T. 415 H's. These are very aloof fellows, for they are rarer specimens than either the T.T. 3's and 5's, and actually are known by name as "Personal Calls"—as Greenwood Manor is to 5, Beech Road, so to speak. However, like the humans sorting us, their fate is the same in the end. We are all sorted in together, making a neat pile, and are put away until the end of the month. Then what a hurry and scurry. Fingers fly, getting us all ready for the grand finale—the posting to the accounts to be sent all over the country. We find ourselves in little piles beside a machine—what a racket is going on! thumbs turn us rapidly, some say at many hundreds per hour, extracting the prices appearing on us, and typing them on the machines which greedily swallow them all, returning them in one huge total, when required. Tickets are turned over, accounts flipped in and out of the machine. They are collected and disappear to other regions and away we go again into a drawer, there to await oblivion, or another journey to the exchange from which we came.

What! is it my fate to travel again? I felt I was out of the common when all that writing was placed on my back. Someone disputes the record upon me. They declare I am a fraud and have taken up too much time. Away I go to the exchange again, there to be turned over, re-read and scrutinised, and my record questioned. They cannot alter me there. Am I not a true record of fact? Once again to the District Office, where they believe in me, but cannot satisfy my master—the subscriber, so off I go now to that great city known as "Headquarters," recommending that, in order to appease my master (maintaining amicable relations it is called by these humans) I am to be valued at less than I really am. More thought—this time by the really Great, so important am I becoming and finally back to my own office again, beautifully clad in a new white-paper cover, decorated with a fine number, there to be kept apart from my fellows sleeping away the rest of their lives until the waste paper man calls for them, while I am carefully put away in a sanctum called the Registry for future reference—if necessary. Who would have thought that a T.T. 3 could have such adventures?

D. E.



WHERE ACCURACY IS ESSENTIAL AND RELIABILITY A RELIGION

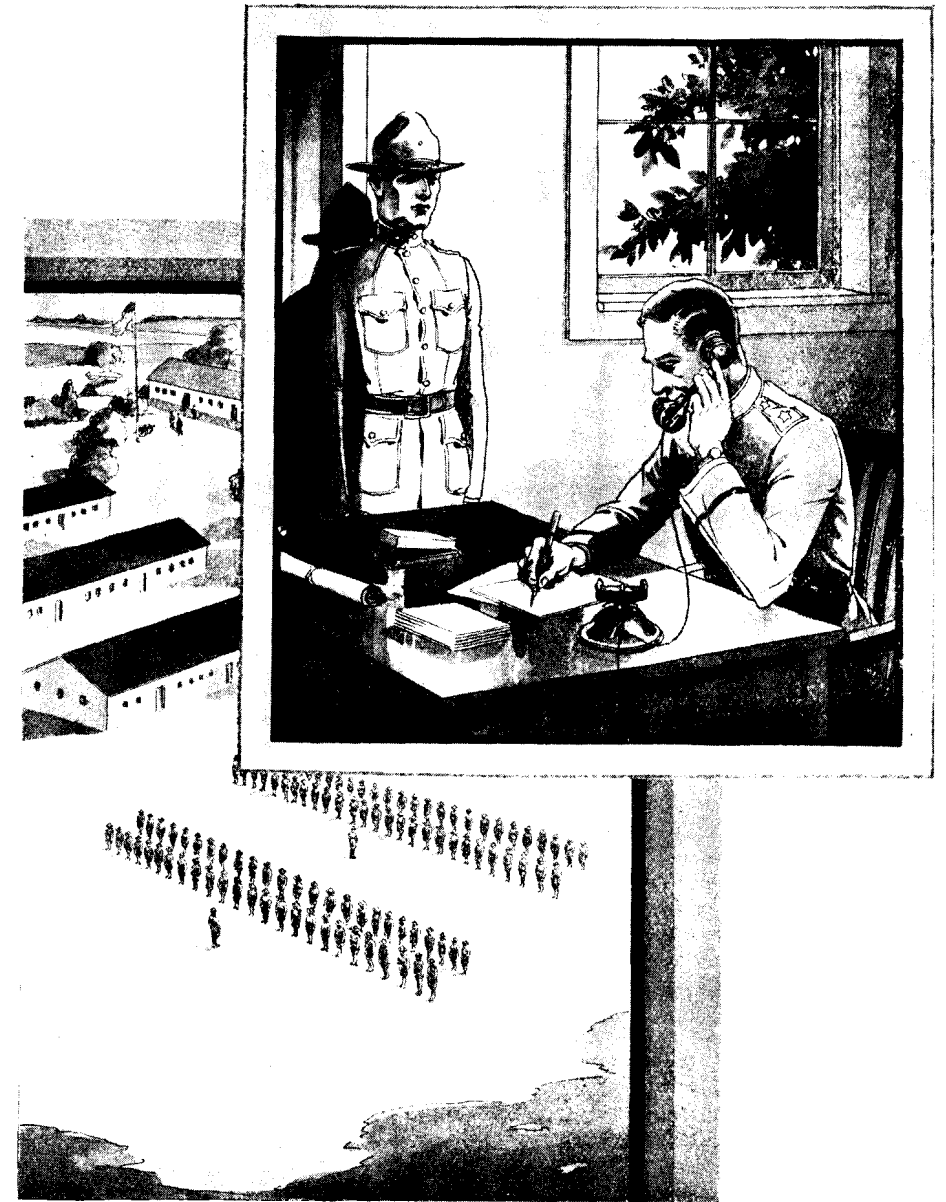
THE following is a partial list of the United States Army posts where Strowger Dial Systems are in use:—

- Rock Island Arsenal
- Watertown Arsenal
- Augusta Arsenal
- Watervliet Arsenal
- Sandy Hook Proving Ground
- Scituate Proving Ground
- Savannah Proving Ground
- Springfield Armoury
- Wright Field
- Erie Ordnance Reserve Depot
- Fort Monroe
- Fort Shafter
- Fort Davis
- Fort Clayton
- Intermediate Depot (6th Corps Area)
- U. S. Quartermaster's Intermediate Depot
- Picatinney Arsenal

IF THE United States Army could be said to worship a fetish in the selection of equipment, it is that of reliability. Guns, motors, plane communication devices, must be able to "stand the test of time"—must not fail even under the most difficult conditions. Materials which are purchased and used for training and pre-war activities must measure up to the same standards of dependability that they must meet during actual war times.

Highly significant, then, is the widespread adoption of Strowger Dial equipment by the United States Army for use in armories, arsenals, proving grounds and ordnance depots. Here, the primary advantages of Strowger operation which produce speed, accuracy and the utmost dependability in communication are looked upon as being not only valuable, but definitely essential.

The selection of Strowger Dial Systems by the United States Army for use at these important military posts indicates the esteem in which this equipment is held by experts who are trained to know rather than to guess. They believe that for the United States Army only the best will do. Should a telephone company be satisfied with less?



STROWGER AUTOMATIC DIAL SYSTEMS

GENERAL EXPORT DISTRIBUTORS
 The Automatic Electric Company, Ltd., Chicago
 In Canada • Independent Sales and Engineering Co., Ltd., Vancouver
 In Australasia • Automatic Telephones Ltd., Sydney
 In Japan • Automatic Telephones Ltd. of Japan, Tokyo
 In China • Automatic Telephones of China Federal Inc., U. S. A.
 In South Africa • Automatic Telephones (South Africa) Ltd., Johannesburg

Automatic Electric Inc.

Manufacturers of
 Strowger Automatic Dial Telephone and Signaling Systems
 Factory and General Offices: 1033 West Van Buren St., Chicago, U. S. A.
 Sales and Service Offices in all Principal Cities

ASSOCIATED COMPANIES

American Electric Company, Inc., Chicago
 International Automatic Telephone Co., Ltd., Liverpool
 Automatic Telephone Manufacturing Co., Ltd., Liverpool
 The New Antwerp Telephone and Electrical Works, Antwerp
 Eugene F. Phillips Electrical Works Limited, Montreal

TELEGRAPHIC MEMORABILIA.

THE *Happiest of Happy Christmasses* to all and this in all sincerity, *malgre* higher taxes, *malgre* lower incomes, for to quote a local post office poet on the financial situation:—

“ When the local rates come in, never mind,
 “ When the water rate comes in, never mind,
 “ If these bills you cannot pay,
 “ Then to these you'll have to say, ‘ Never Mind.’ ”

Is the writer too frivolous? Well this is the best he can do to usher in the Yuletide of 1931, except it be an item which came in with his South African mail. Apparently the Telegraph Administration with a view to boom the facilities for telegraphing by telephone had adopted the appropriate slogan of “ Be your own telegrapher ! ” So far good, but came there one day to the postmistress of a fairly sized dorp, the following note:—“ Dear Miss.—Please send me a packet red telegram (delivery) forms and packet red envelopes. There is a wedding in village to-day and we thought it would be cheaper if we wrote our own telegrams ! ”

Personal.—It is much regretted that on page 44 of the November issue in “ C.T.O. Personalia,” the name of Mr. James Bailey, I.S.O., appeared as Mr. James Bouly. However, J. B. has survived the shock and continues his unruffled self.

One cannot permit the retirement of Mr. Thomas W. Jones of the C.T.O. to pass without a word of congratulation. Thos. W. Jones entered the Government Telegraph Service by open competition in 1887, and soon became known as an expert manipulator. For ten years he was a member of the Special Event Staff, and on several occasions was selected for special duty at the Royal Palaces. During the war he became associated with the Foreign Telegraphs (Cable Room C.T.O.), at one time working the London, Nantes, St. Nazaire (Undulator) emergency circuit. Later on in the same department he was one of, if not the actual first operator at the opening of the Anglo-Russian (London, Peterhead—Murmansk) circuit, where he remained until he was removed due to promotion on the Inland Staff, leaving a service which he had always graced, with the rank of Superintendent Telegraphs Higher Grade, in November of the present year.

A *vece note* to “ Mensano ” regarding his admirable letter in the November issue of the *T. and T. Journal*. I hasten to assure “ Mensano ” that I am quite at one with him in the spirit of real concern which he shows for the future of telegraphy in this country. The analogies of the railways and the gas organisations I would, however, maintain are only “ unfortunate ” in the sense that at present, anyhow, they emphasize the lag in the progress made by the State-owned enterprise, as against the two industries mentioned, of which certainly one, even now, is not yet out of the wood.

A *propos* of the presumed lethargy of State Departments in accepting modern methods, a newspaper correspondent, writing on a visit to a certain “ Typing and Shorthand School,” makes the following discovery: “ It is remarkable to notice,” says he, “ that the girls never take their eyes off the copy they are typing: never once does the eye stray to the keys ! ” How many years ago was it that touch-typing was taught in the Government Telegraph Schools here? There is, however, one difference, the particular school visited teaches its pupils by a rhythmic method. On this occasion a gramophone was playing the Toreador song from “ Carmen ” to which the pupils kept time !

Countries.—AUSTRALIA.—Reuter's Canberra correspondent states that the Commonwealth Prime Minister has announced the decision of the Government to abolish private control of broadcasting at the end of June 1932. A corporation similar to the constitution of the British Broadcasting Corporation is to be substituted. A new B-class broadcasting station is being built

at Perth, Western Australia, by Amalgamated Wireless Ltd. It will be known as 6PR and will work on a wavelength of 341 metres, with an unmodulated power of 200 watts.

CANADA.—A *Very Important Question.*—The 10th inst. is the tentative date for the hearing in London (England) of the appeal before the Judicial Committee of the Privy Council relative to the respective rights of the Dominion and the provinces to control broadcasting which the Supreme Court of Canada decided in favour of the Dominions. *Telegraph Statistics.*—The Dominion Bureau of Statistics at Ottawa publishes the following interesting statistics on the Telegraph industry for last year:—Various telegraph and cable systems operating in Canada. *Revenue* \$14,264,997, decrease \$1,991,444. *Operating Expenses* declined \$11,791,291. *Total net revenue* \$2,473,706, nearly two million short of 1929. New construction of companies plus repairs, \$4,000,000. Number of telegrams transmitted decreased by 2,471,749 to 15,558,224 plus 1,142,696. *Cablegrams received*, 5,692,524 including 4,709,506 carried to U.S.A. by W. Union Co. via Canso. Number telegraph offices in Canada closed was 104, including 37 Canadian Telegraph Offices located in the U.S.A. and elsewhere. Number of employees decreased by 725.

CANARY ISLANDS.—There are two small broadcasting stations at Santa Cruz and Las Palmas of recent erection, sponsored by the Philips Radio Company, says the *Electrical Review*. Up to date there are about 400 sets in Teneriffe and 300 in Grand Canary. Conditions are said to be very variable. Contact is fairly readily made on a short wavelength with the principal broadcasting stations in the United Kingdom and on the Continent: also with the U.S.A. The wavelength used is 250 metres, but the short wave gives best results in summer and the long wave in the winter months. CZECHOSLOVAKIA. The new transmitter at Libice, near Prague, by the time these lines see print, should be in full operation. Power 120 kw, wavelength 486.2 metres. EGYPT.—The income of the Telegraph service between May 1 and Sept. 30 this year was £E. 62,000, a decrease of £E. 18,000 as compared with the same period in 1930. Similarly the Telephone revenue was £E. 277,000, a decline of £E. 13,000. E. AFRICA.—The cable rates between the United Kingdom and Kenya, Uganda, Zanzibar, and Tanganyika Territory have been reduced.

FRANCE.—In addition to Radio-Paris with its 85-kw. transmitter at Ersarts-le-Roi, it is expected that the Ecole Supérieure P.T.T. will also shortly be increased. It is also intended to build a new high-power station in Corsica. *Tourists' Wireless Sets.*—The French Minister of Commerce and Industry has announced that in the case of temporary admission of wireless sets brought into France by tourists, a deposit must be paid or a guarantee given to cover the usual duties. It will be necessary for tourists to declare their sets at a post office nearest to their hotel or other temporary residence and to give other information with regard to their plans. Further particulars may be obtained of the Customs Authorities. *Radio-telegraphic service* on the London Paris aerial route. Passengers on aeroplanes flying between London and Paris are now able to send telegrams while in flight. Croydon and Le Bourget are the respective land stations.

GERMANY.—*The Electrical Research Products v. Siemens & Halske.*—The *T. and T. Age* states that the German courts have upheld the claim of the Electrical Research Products, Inc., and this last mentioned company have now full and unchallenged use of their patent of March last year regarding a process for preventing the loss of *permeability* from deep sea pressure. This is considered one of the most important submarine cable patents in Germany. *Wireless Licences.*—The number of licensed listeners increased considerably from July 1 to Oct. 1 by 12,354 to 3,731,948, an increase of 222,439 compared with total figures on Jan. 1 last. *World Radio* points out that no less than 218,191 of these licences are issued free to the unemployed, war-wounded and blind.

GREAT BRITAIN.—*Pirate Listeners!*—The British Post Office campaign against wireless pirates, which lasted not more than four

weeks, resulted in the sale of no less than 204,000 new licences. At the time of writing it is understood that there are no less than 117 prosecutions now in hand, and others under consideration. The B.B.C. will, of course, benefit considerably by this rope-in of delinquent listeners. *New B.B.C. Station.*—The British Broadcasting Corporation intends to proceed immediately with the plans for a short-wave (16 to 30 metres) station at Daventry for programmes for reception in all parts of the British Empire. The initial cost is estimated to be about £40,000 with an annual outlay, for maintenance and operation, of a similar sum. *Wireless Beacon.*—From Southampton comes the information that the Nab Tower, off the Isle of Wight, is to be fitted with a radio beacon. It is also surmised that experiments are being made with a submarine oscillator. *Edinburgh.*—The British Radiostat Corporation, Ltd., claims that the first commercial installation of the "Stenode" system of multiple telegraphy is now working on the private wire between the Edinburgh and London offices of the *Scotsman* newspaper. This single voice-frequency circuit is carrying four telegraph channels (one capable of 225 words per minute, one of 95 w.p.m. and two of 72 w.p.m. each) in addition to another channel which can be used for telephone conversation or for picture transmission on the Belin system, says the *Electrical Review*. The "private wire" used between the two cities is rented from the General Post Office. *Portables and the Railway Companies.*—The London & North Eastern Railway Company has come to a decision which it is understood is in agreement with the views of all the railway companies of Great Britain, to the effect that portable wireless sets are *personal* luggage, and may be taken into a passenger compartment. The "portable" has thus secured its claim to a permanent place among the household gods, for it is now classed in the companies' books in the same category as the small gramophone and the folding baby-carriage! May such wireless set be operated? "Certainly," say the companies, "provided the other passengers do not complain"! It looks, then, as though this latest classification would open a new horrible vista of a radio-fiend to accompany the fresh-air one we still meet! There is, however, one relief, typewriters, noiseless or otherwise, are to be relegated to the luggage-van—and charged for!

INDIA.—Reuter's Simla agency informs us that an increase of five annas per rupee in the rates of all foreign telegrams has been decided upon by the Government of India. The change is due, it is explained, to the fact that the tariff on such telegrams is fixed in gold francs. The Indian rupee being no longer on a gold basis, India has suffered under the existing rates.

ITALY.—It is stated on good authority that the apparatus used in the Vatican radio station for the recent inauguration of the Belin system of transmitting pictures by wireless was almost the only equipment of non-British manufacture employed there.

A new picture telegraphy service between Italy and the United States of America has been opened and will be operated via London and the transatlantic section of the wireless circuits of I. & I. Communications, Ltd. *New Submarine Telegraph and Telephone Cables.*—According to Reuter's Trade Service in Rome, the Ministry of Communications has given instructions for the laying of a new submarine cable for telephony and limited high-speed telegraphy between Sardinia and the mainland, about 120 miles.

NEW ZEALAND.—Reuter's Wellington agency report that the House of Representatives passed a Broadcasting Bill on Nov. 5 which is to establish a system similar to that in Great Britain. The Board of Control is to take over from the existing company on Jan. 18 next. This follows upon a similar decision by the Australian Government which takes effect on June 30, 1932. **NORWAY.**—The British Postmaster-General announces that a service of picture telegraphy in facsimile direct between London and Oslo is now available for public use.

RUSSIA.—"At present," says the *Electrical Review*, "55 broadcasting stations are operating in the Soviet Union, their power varying from 0.3 to 100 kw. Some belong to the trade unions

and others are controlled by the People's Commissar for Posts and Telegraphs. The listeners' tax was abolished two years ago, and in January last the registration of sets ceased also. Some sixty languages are used for broadcasting.

SOUTH AFRICA.—There are now five transmitters in the Union. The latest to be opened by the African Broadcasting Co., is situated at Bloemfontein and operates on a wavelength of 510 metres. The Radio Society of South Africa says, among other outstanding features of the year's progress are the general use, wherever possible, of a.c. mains-operated sets, the introduction of short-wave adapters for use with broadcast receivers, the increasing number of far-reaching short-wave transmitting stations and the improved prospects of practical television by the use of the cathode ray in lieu of a scanning disc. *All-Red Wireless Chain!*—A civil aviation wireless specialist left the Air Ministry last month for Africa to discuss wireless problems with the Government officials in Egypt, Sudan, Tanganyika, Rhodesia, and South Africa, says the *London Daily Telegraph*. This officer is to work in co-operation with Imperial Airways and the Marconi Field and Air section. The following list of wireless stations for keeping in continuous touch with machines flying between Cairo and the Cape, will give some idea of the aid afforded to aerial navigation by the radio service, thus:—Heliopolis, Wadi Halfa, Khartoum, Juba, Malakal, Port Bell, Nairobi, Moshi, Dodoma, Mbeya, Mpika, Broken Hill, Salisbury, Bulawayo, Johannesburg, Victoria West, and Cape Town.

TASMANIA.—The Post Office Department is conducting a series of experiments with the object of devising equipment which will enable programmes broadcast on the mainland to be transmitted to Tasmania for relaying from the Hobart station. Owing to limited population the revenue available in Tasmania is of itself insufficient to provide a satisfactory service.

U.S.A.—From the *T. and T. Age* we learn that the Radio Corporation of America has granted, as from Aug. 1 last, a "direct licence" for the manufacture of Television and Radio equipment to the Freed-Eisemann organisation, which thus has the honour of becoming the first in the (American) field to be so licensed. *Teletype and American Army.*—The Teletype was utilised for Army purposes during the U.S.A. military manoeuvres between the Red and Blue armies. These particular machines were supplied by the American Telephone & Telegraph Company, and had special symbols and lines designed for the transmission of military maps. It is understood that it was at the Training Camp at Camp Dix, N.J., where this special apparatus was so used. *Criminals and Wireless.*—The Michigan State Legislature has made it a felony for any private motor-car to be equipped with short-wave radio receivers, as it has been discovered that bandits have commenced to equip their own motor cars with various types of this kind. As a result only the police may now install such sets! *Broadcasting and Educational Systems.*—No less than forty odd institutions of higher learning are using broadcasting stations as normal parts of their educational systems. The transmitting time varies from one to 53 hours per week each. The cost of operation and maintenance are usually met by appropriations from State and Educational Extension Departments, says the *Electrical Review*.

A High Power Stations decision.—The hard-worked *Federal Radio Commission* has decided the final apportionment of high power among stations in the five radio zones into which the U.S.A. has been divided. The Commission granted the maximum of 50 kw. to nine stations, 25 kw. to six stations. The decision has been made on the basis of four stations in each of the five zones using the maximum power, or a total of twenty throughout the entire country.

Chance.—Chance will not do the work,—Chance sends the breeze;
But if the pilot slumber at the helm,
The very wind that wafts us towards the port,
May dash us on the shelves!—(*Old Play*, 15th Century).

MANCHESTER AUTOMATIC SYSTEM.

DEMONSTRATION TO THE PUBLIC.

By J. S. McFADDEN (*Traffic Branch*).

THE old adage "Don't give up the old friends for the new" does not enter into telephone development, as subscribers have already realised through the advent of the automatic telephone, which is steadily superseding the manual system.

The demonstrations given in this district have been witnessed by over 5,000 people in all walks of life such as subscribers, curiosity seekers, wireless fans, &c., whose minds have been revolutionised by the introduction of the director system, and to whom the change appears to be one of optimism. The chief concern of the visitors appears to be "How the calls are registered against the callers" (having in mind the (alleged) experience of over-charging in the past). "How does the director differentiate between the various letters A, B and C, &c., and between letters and numerals in the exchange code and number." They eventually believe that it can actually do this, because they have seen for themselves through the medium of the demonstration set that without the assistance of an exchange operator, a series of calls are completed.

Their minds being eased on the registration point, and that the director can accomplish all that an operator could do, they realise that in future there will be no arguing with an operator, and that the receiver hook ceases to function as a rattle, they must now cultivate to a higher degree the virtue of patience.

That the new friend has the propensity of soothing the nerves is indicated by the expression of pleasure manifested on the faces of the listeners at the end of a demonstration. After the various questions have been answered, the visitors leave for their offices, giving one parting glance at the switches and the salutation:—

"Marvellous—Good-day."

The demonstration set used in the Manchester District consists of the following:—

- An amplifier and loudspeaker for various tones.
- Subscriber's instrument.
- Subscriber's rotary line switch and meter.
- 1st code selector.
- "A" digit switch finder.
- "A" digit selector.
- Director.
- First, second and final numerical selector.
- Call display position.
- Manual "A" board.
- Multi-coin box.

Each lecture took the following form and may be of interest to readers of the *Journal*:—

Subscribers transferred from manual exchange working to automatic must realise that there will be no exchange operator to assist them in making a straight automatic call. In lieu of an operator the caller will in future be guided by four tones which indicate the progress of the call. The tones are:—

- Dialling tone.
- Ringing tone.
- Engaged tone.
- Number unobtainable tone.

(These tones, and the general use of the dial, were here fully explained.)

There is only one method of dialling to ensure success and that is to bring the finger plate in respect of the required letter or numeral round clock-wise to the finger stop and then release it. Dial impulses occur as the dial returns to its normal or home position and interference with the backward or homeward journey of the dial will result in failure in so far that the caller will not get the number required, this cannot be classified as a wrong number, but as a number you do not want, caused through interference with the dial.

The operation of a call from one auto subscriber to another auto subscriber.

The subscriber refers to Telephone Directory and observes that the exchange and number he requires is shown thus MOSs Side 3457. He takes off his receiver and listens for dialling tone, the receiver is not replaced on rest until the call is finished.

As soon as caller takes his receiver off the rest he causes a "rotary line switch" in the exchange to search for and seize a disengaged "1st code selector" which operates an "A" digit switch finder; this searches for and seizes a disengaged "A" digit selector; the caller then hears the "dialling tone" which signifies that the apparatus is ready to receive the call (if the switches previously mentioned are not available no tone will be heard in the receiver and caller should therefore hang up the receiver and try again). Having obtained the dialling tone, the caller then dials the 1st letter of the exchange code—M, the "A" digit switch then steps up to the 6th level (as M has the numerical equivalent of 6 on the dial plate) and searches for a free

outlet to a "director" in a group serving exchanges, the names of which begin with the letter M. As soon as the dial comes to rest, the caller then dials the letters O and S known as the B C digits, as they operate the B C switch in the "director." This switch will now be set on the 7 contact of the 10th level, so that the A, B and C digits—MOS have the numerical equivalent of 607. The caller now dials the numerical digits thousands, hundreds, tens and units, these are stored in the numerical switches in the "director." As soon as the 3rd letter of the exchange code has been received by the "director," they are translated into other impulses and sent out by the "director" to a "1st code selector" which steps up and rotates to a set of contacts on which is connected a junction to MOSs Side. This having been accomplished the "director" now discharges the impulses in respect of the thousands, hundreds, tens and units of the required subscriber's number 3457.

At the required exchange there are other groups of selectors known as the 1st numerical, 2nd numerical and final selectors.

The 1st numerical selector receives thousands figure of the number dialled and rises vertically to the level required (in this case the 3rd) and rotates until a free outlet to the 2nd numerical selector serving the MOS group of subscribers' lines is found. This selector receives the hundreds figure "4" of the number dialled and rises vertically to the 4th level, rotates to find a free outlet to a final selector serving the 3457 group of subscribers' lines. The final selector receives the "tens" figure 5 and the "units" figure 7 and rises vertically to the 5th level and rotates to the 7th contact. The "director" and "A" digit selector are now released and the connexion is held via rotary line switch, 1st code selector, and numerical selectors. If the line is free ringing conditions are set up and "ringing tone" is heard by the caller, if the line is engaged, "engaged tone" is transmitted to caller.

The registration of the call takes place automatically as soon as the called subscriber removes his receiver from the rest in response to the ringing signal. Ineffective calls are not registered, as the above conditions do not obtain.

Disconnexion takes place when the calling subscriber replaces his receiver on the rest.

If the required subscriber is connected to an exchange, the name of which is not shown in the directory with the 3 initial letters in heavy type, the caller dials the code TOL, as the exchange in question cannot be obtained by dialling. The code TOL obtains the assistance of a Toll operator who will complete the connexion. In this case the call is recorded by ticket.

Long distance Trunk calls are obtained by dialling the 3 letters TRU which brings the assistance of a Trunk operator.

O is dialled as a means of obtaining assistance re general service enquiries, reporting faults, &c.

TEL is dialled as a means of obtaining the Telegraphs.

DIR is dialled in respect of Directory enquiries.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office system at Sept. 30, 1931, was 2,020,063, representing a net increase of 8,220 on the total at the end of the previous month.

The growth for the month of September is summarised below:—

Telephone Stations		London.	Provinces.
Total at Sept. 30, 1931	...	724,555	1,295,508
Net increase	...	2,502	5,718
Residence Rate Subscribers—			
Total	...	186,092	290,511
Net increase	...	1,087	1,524
Call Office Stations (including Kiosks)			
Total	...	7,357	28,795
Net increase	...	63	140
Kiosks			
Total	...	2,585	8,955
Net increase	...	47	135
Rural Railway Stations connected with Exchange System—			
Total	...	17	2,006
Net increase	...	—	4

The total number of inland trunk calls in July, 1931 (the latest statistics available) was 11,362,819, representing an increase of 424,312 (3.9%) on the total for the corresponding month of the previous year. Outgoing international calls in July numbered

53,022 and incoming international calls 58,698, the increases over July, 1930, being 6.225 (13.3%) and 8,733 (17.5%) respectively.

Further progress was made during the month of October with the development of the local exchange system. New exchanges opened included the following:—

LONDON—Whitehall (automatic);

PROVINCES—Sheldon (Birmingham), Hawick (automatic); Breamore (Fording Bridge), Burntwood (Lichfield), Brownham (Devizes), Carstairs (Lanark), Culford (Bury St. Edmunds), Collingbourne (Ludgershall), Flaxton Moor (Strensall), Goosnargh (Preston), Hanslope (Stony Stratford), Henlade (Taunton), Ivington (Leominster), Killingholme (Immingham), Keyingham (Hull), Lockerley (Romsey), Lower Withington (Holmes Chapel), Langford (Biggleswade), Muirkirk (Cumnock), Newton Ferris (Devon), Newborough (Peterborough), Polesworth (Tamworth), Powerstock (Bridport), Romsley (Birmingham), Sutton St. James (Wisbech), Syderstone (Fakenham), Warboys (Huntingdon), Whitley Bridge (Knottingley) (all rural automatic);

and among the more important exchanges extended were:—

Falmouth, Glasgow (South), Harpenden, Kilmarnock, Lisburn, Rickmansworth, Wellington (Shropshire);

71 new overhead trunk circuits were completed, and 74 additional circuits were provided by means of spare wires in underground cables.

REVIEWS.

"The Quest for Power." By Hugh and Margaret Vowles. Published by Chapman & Hall. 354 + x pp. Price 15s.

The study of the history of a science is always interesting, and particularly so when, as in the present case, the science in question is of fundamental importance to us all. The intrinsic interest of the subject has been added to in the volume under review by the delightful manner in which it has been presented.

The book deals with the development, from the earliest times, of the methods used by man to obtain mechanical power. It is divided into three sections. The first one, The Apprenticeship of Toil, deals with the development of tools and craftsmanship, the control of water, early building and sanitary engineering, the beginnings of transport, the introduction of the use of iron, early methods of counting, of measuring and of time reckoning, and the development of engineering among the Greeks and Romans. The second section, The Age of Power, describes the development of the use of steam from the earliest attempts at its utilisation up to the modern steam turbine, internal combustion engines, the use of water as a source of power, the various methods used for the transmission of mechanical power, the generation and transmission of electrical power, and the development of machine tools as a result of the availability of power.

In the third section, The Materials of Power, the history is given of the development of the means for obtaining coal, oil and alcohol, and of the application of these substances for purposes of power generation, the development of the use of iron and its derivatives up to the latest alloy steels, and of the production and utilisation of the other important metals used in engineering.

The book concludes with an account of the World Power Conferences held in 1924 and 1930, and with an interesting essay on the possibilities of the future development of the utilisation of power for the service of mankind.

The whole subject is treated in an extremely readable manner, and the book abounds with interesting details. How many readers, for instance, are aware that there existed in Roman time or earlier

double acting force pumps using turned pistons and mushroom valves, a coin-in-the-slot machine used by Egyptian priests for the sale of holy water, a taximeter for recording the distance travelled by a carriage, with a modified form for recording the distance travelled by a ship, like a modern patent log, an alarm clock worked by water, and a semi-automatic machine gun for projecting a continuous stream of arrows.

The book is well printed, and is profusely illustrated with well reproduced drawings, and with many whole page photographic plates. We can strongly recommend it, not only to professional engineers, but also to all readers who take an interest in the story of the development of man's mastery over nature.

C.T.O. NOTES.

Promotions.—Mr. E. L. Clair, Supt. (L.G.) to Supt. (H.G.). Messrs. C. Land and E. J. Samuel, Asst. Supts. to Supts. (L.G.). Messrs. J. D. Edwards, L. G. Birch and H. Maidment, Overseers to Asst. Supts. Messrs. F. V. Hodge, F. Kent, H. H. Mountain and J. W. Tadgell, Telegraphists to Overseers.

Retirements.—Mr. W. Hume, Supt. (L.G.); Mr. J. J. Farley, Overseer; Messrs. J. S. Dowson, E. L. Welby, H. Markin, Misses W. M. Middleton and A. Wood, Telegraphists.

Lecture.—C.T.O. Layout.—Mr. E. L. Clair (Supt. Higher Grade) read a paper to a staff gathering on the proposed layout for the instrument room on the third floor. It is expected that eventually the whole of the circuits, excepting the Phonogram Room, will be housed on one floor.

Before Mr. Clair dealt with the details of the layout, he sketched briefly the circumstances which have led to the present conditions of the telegraph traffic. For instance, the telephone has practically killed the London local telegraph traffic and has made heavy inroads on the longer-distance traffic. Then, also, telegraph traffic fluctuates to some degree with the prosperity of the country generally and now it is experimenting the troubles covered by that hackneyed phrase "trade depression."

Under the new scheme Morse will disappear for day-to-day working. What is a telegraphist now? Echo answers What! Improved machines of uniform type and greater speed may save the telegraphs and so the teleprinter is to be the standard apparatus used. Where the volume of traffic does not warrant a teleprinter the telephone will be used.

The Central Hall, home of the tubes connecting the C.T.O. with many L.P.S. offices, will be closed, but the staff will not shed tears over this. All tubes will be run to a position on the third floor, the inward and outward flow of traffic being thus centralised, and conveyor bands will run between this central circulator point and all other necessary points in the galleries.

The balancing apparatus for all circuits will be accommodated at the south end of the floor and the Special Section and ID will lose their long-honoured positions.

Double tables will be introduced, with a band running underneath and between the two tables for the conveyance of messages to the circulation. There will be no racks to be collected from (and incidentally banged to attract the collectors' attention).

Altogether 350 circuits will be arranged for on the third floor.

Linoleum will be used to cover the flooring.

Some interesting figures showing the changes which have taken place in the C.T.O. are appended.

	1926.	1931.
Morse circuits	497	259
Baudot channels	172	44
Teleprinter circuits	32	295
	710	598

Useful discussion took place afterwards and Mr. Clair answered the many queries very happily and to the point.

FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

Australia.—Melbourne, Victoria Railway Commissioners, Dec. 9. Underground cables and junction boxes (A.X. 11152) Jan. 4. Paper and varnished cambric insulated, lead covered, steel wire armoured cable (A.X. 11127).

New Zealand.—Wellington, Post and Telegraph Department, Dec. 7. 6,800 galvanised earth rods (G.X. 10829). Dec. 18. Armoured cables and junction boxes (A.X. 11122). Jan. 18. Railway overhead equipment (G.X. 10792). J. J. T.

THIRTY-SIX YEARS AS CASHIER.

This is not the service history of any member of the much-respected Accountant-General's Department, although many of all grades of its staff have undoubtedly come into daily contact with the modest personage to whom due honour was paid on the 6th ult! On the date mentioned, Mr. F. H. S. Grant, Assistant Secretary, presided over a gathering of the members of the G.P.O. North Refreshment Club, London quite appropriately in the Dining Room of the same, and there, following on a kindly and witty speech, presented to Miss Childs, the late cashier of the club, a very comfortable arm-chair and a substantial cheque.



MISS E. CHILDS.

Miss Childs commenced her service as cashier of the club with the formation of the latter in September, 1895. Well known to every club member, in the course of her long service she has witnessed considerable development of the club's activities. In 1895 its membership was 900; it is now 1,800; then only 700 meals were served daily; to-day the number is 1,300. In 1895 the annual receipts were about £8,000; now that sum has doubled. These statistics are not quoted as an advertisement of the club's progress, though they may incidentally serve so laudable a purpose, but, on this occasion for the simple reason that without these details, no adequate estimate of the nature and responsibility of Miss Childs's duties could be made.

Someone, well able to supply reliable figures, has computed that four thousand different members have known Miss Childs, who, in the course of her 36 years has dealt with 10,000,000 bills at her little peephole desk, and has accounted for a sum of over half-a-million pounds sterling to the membership. This, my informant reminds me, does not represent the total amount that has actually passed through the hands of this admirable cashier. From the writer's personal observation, covering some years, the number of five pound notes and sovereigns (in the days of long ago!) which were tendered day after day in payment of, let one say, shilling, if not lower bills, must have been unprecedented at any other similar house of refreshment. This was, quite explicable, particularly on the last day of the month and for a short period thereafter! Thus, "an estimate," says one "of several million pounds as the amount actually handled does not seem unduly high."

That Miss Childs has gained the personal regard and highest esteem of the membership simply by her business efficiency plus her cheerful and pleasant demeanour could never be challenged. Calm, deliberate, courteous, despite the not infrequent rushes of clamorous members eager to return to their posts of duty! Never flustered by a loud voice or over-borne, as during the war by the sight of military uniforms of high rank! In fact the Censors were—it may be truthfully said—among those who appreciated good service, and failed not to remark upon the efficiency of Miss Childs in particular and the Club in general, though maybe their worshipping was done from afar!

Errors at the pay desk were very few and far between and even these were settled promptly and on the spot, and were more frequently than otherwise to be discovered on the customer's side of the desk. There is a recorded case of a highly-placed official of the A.G.D. who twice challenged the reckoning of Miss Childs on the same occasion,—but unsuccessfully. He vowed afterwards to the writer that he should "never have the face" to do so again, for she seemed so sorry for him!

J. J. T.

LIVERPOOL NOTES.

It is again our pleasure to announce a promotion in the Liverpool Telephone Branch. Mr. G. K. Geill, well known for his many amiable and sterling qualities, has been appointed Traffic Superintendent, Class II. It will, I hope, be our privilege later to refer again to this event when the date of Mr. Geill's leaving his present class and colleagues is definitely fixed. In the meantime we offer him our hearty congratulations.

"Kind Hearts are more than Coronets."—(Tennyson.)

On Thursday evening, Nov. 12, the Bank Exchange staff organised a social in aid of a colleague who has been superannuated owing to ill-health. More than 200 members of the various exchanges and their friends attended and thoroughly enjoyed the evening's entertainment. The price of admission included excellent refreshments ably served by a willing band of helpers. The Director of Ceremonies was Miss C. A. Harrison who performed the office with her usual wit and skill. Many items of song and dance, with a short play by the juniors, were contributed, but the chief item was a burlesque "The Crowning of the Telephone Queen." The Queen (Miss M. Parr) was grotesquely attired and caused much amusement by her appearance. She was accompanied by maids of honour and page boys, suitably dressed for the occasion, and announced by the town crier. Miss Nellie Proctor was the chairman. Some eminent members of the staff were delightfully burlesqued even to the (almost) correct regimentals.

A prominent Scottish District sent (*sic*) a mixed deputation of ladies and gentlemen who did the rightsome reel attired in full Scottish rig-out kilts, sporrans, and phillibegs, &c. The gathering was brought to a successful conclusion and everyone was gratified to hear that the financial result reached a very substantial sum.

At the conclusion of a very successful season out of doors, the Ladies' Committee of the Post Office Golf Association organised a social and dance. By kind permission of Lt.-Col. Kempe, M.C., President of the Association, who was present, the function took place in the Post Office Gymnasium. Some 200 members of the staffs of all branches spent a very enjoyable evening under the stimulus of Miss Vi. Bellamy (Lady Captain) and her team of helpers.

Extract from letter of important public subscriber.

"I wish to express thanks for the excellent service and attention given to us during the Election period, and should be glad if you would convey to all concerned how pleased we were with everything that was done, especially the Traffic Department."

BIRMINGHAM NOTES.

Birmingham Telephone Society. The second of the series of lectures arranged for the season was held on Nov. 12, when a paper was given by Mr. N. Wiles, Assistant Traffic Superintendent, on "Developments in the Timing of Telephone Calls." Mr. Wiles gave an interesting description of the apparatus it is proposed to bring into use to facilitate the timing of calls, which he illustrated with lantern slides.

Lieut.-Col. W. T. Brain (Postmaster-Surveyor) presided.

The paper was followed by the usual entertainment, which on this occasion was arranged by Mr. Caine, of the Contract Department, and a few dances terminated a most instructive and enjoyable evening.

The next meeting has been arranged for Dec. 11, when a paper will be given by Mr. A. G. Cooper, Assistant Traffic Superintendent, on "Introduction of On Demand trunk working."

Sport. The Ladies' Hockey Team, in connexion with the Civil Service Sports Association, Birmingham area, continues to flourish. Victories have been recorded against:—

The Central Exchange ladies, under the name of the Bell Athletic Club,
The Yardley Ladies Hockey Club,
Messrs. Lucas's, Ltd., and
The G.E.C. Magnet Ladies Club.

The club sustained its first defeat in the match against Messrs. John Wright & Co., losing a strenuous game by the odd goal of seven.

OBITUARIES.

THERE are probably few in the present C.T.O. who will readily be able to recall Miss Annie E. Lee, who left the service in 1903 when ill-health compelled her retirement at the end of that year. This worthy lady entered the service in 1870 and after duty in the South Western District of London, came to T.S., served under the late Miss Saul in the old "Met" Gallery, was made an Assistant Supervisor in 1892 and was promoted to the higher rank in the very year that illness demanded her complete release from telegraphy. Notwithstanding this disability she survived until the 9th ult., when, after a lengthy illness, she passed peacefully away at her home in Acton. For many years she was an active member of the Westminster Chapel and did some very useful work there.

News also reaches us of the death of Miss Kate Leverton on Nov. 1, who was the first officer to be selected for the Chargeship of the Decoding staff at Electra House. Entering T.S. as a telegraphist in 1885, she became an Assistant Supervisor in 1907, a position she held till her unfortunate retirement through ill-health in 1918. She proved herself an official very much esteemed.

J. J. T.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

The business transacted by the Contract Branch during the month of October resulted in a net gain of 3,344 stations.

For the first ten months of this year there has been a net increase of 23,973 stations. This progress is not without significance to those who might be contemplating reducing expenditure by savings on telephone facilities.

In spite of the stringent economies that the existing situation has demanded in many ways, up-to-date people realise that real economy is more likely to result from more and improved telephone facilities as the foregoing figures go to prove.

The Beckenham Urban District Council have signed an order for 10 exchange lines and 33 extensions for their new Town Hall building now being constructed.

The number of exhibitors at the Motor Show held at Olympia in October was 536 and the number of telephones provided was 386, i.e., 72% of telephones to exhibitors. At the Commercial Motor Show 295 telephones were provided.

During the fortnight ending Nov. 14 an advertising campaign was conducted in Wimbledon in connexion with that town's celebrations occasioned by the opening of a new town hall and with a shopping display.

15,000 circulars were distributed to residents in the district and a further 2,000 to business firms.

A Contract Officer was stationed in the Wimbledon Post Office in charge of telephone display apparatus and advertising literature. The enterprise was favourably commented upon in the local press and good results are expected to accrue. A number of orders for exchange lines, &c., have already been obtained.

The Staff Salesmanship Scheme is progressing favourably and a large number of the staff in all branches of the London Telephone Service have responded to the scheme and been supplied with the Compendium, &c. The scheme is yielding good results and this is particularly noticeable as regards the London Engineering Department.

Between Sept. 30, 1931, when the scheme started, and Nov. 18, 1931, the following orders have been obtained as the result of the efforts of the staff in various departments.

Particulars.	No. Ordered.	Particulars.	No. Ordered.
Exchange lines ...	72	Extension bells ...	16
Extensions ...	46	Coin boxes ...	4
Plug and sockets ...	9	Miscellaneous small orders	30
Hand microphones ...	156		

L.T.S. Sports Association.

Monday, Oct. 26, was a red letter day in the annals of the Association. The occasion was the annual distribution of summer sports prizes, in the Cornwall House Refreshment Room. The proceedings commenced at 5.30 with social intercourse and refreshments during which an excellent string band played.

At 6.30 the Controller, supported by the Deputy, Assistant Controllers, Principal Clerks and Lady Superintendents, took charge of the meeting. In warm terms he spoke of his gratification at the attendance of such a large assembly and added that it must be very encouraging to the officials of the Sports Association to find their efforts so well supported. Mr. Napier then introduced Mr. and Mrs. Curtis-Bennett to the meeting.

Mr. Hugh Williams, Vice-Chairman of the Association, gave a brief resumé of the summer activities. The Cricket Section had been particularly successful. For the first time in friendly inter-departmental matches they had succeeded in defeating the A.C.D. team and upon the return match managed to secure a draw, thanks to a splendid stand by Mr. Doody, of the Contracts, and Mr. F. W. Smith, Accounts. Mr. Williams then announced that our cricketers intended following up their successes by entering for the shield presented for inter-departmental competition by Mr. Noel Curtis-Bennett, next year. So far as the Inter-Branch Shield, the gift of the Superintendents of the L.T.S. was concerned, the League contest had resulted in the Contract Branch winning the trophy. In this competition the Messengers had put up a very good show. They succeeded in defeating the Traffic Branch team in one match and in another the Accounts narrowly escaped a hiding. Mrs. Curtis-Bennett then presented the Shield to the Captain of the Contracts team.

Ladies' Tennis was the next sport for attention. The Ladies' Doubles Tournament for the Agnes Cox Cup drew a good number of teams (four in a team this year) from the exchanges and office sections. A.R.I. of the Accounts Branch were the winners, defeating Ravensbourne Exchange. There were over 70 entries for the Cup presented by Mr. and Mrs. Pink, in

the Ladies' Singles. The finalists were Miss Wilson and Miss Head, both of the Accounts Branch A.R.I. Section. Miss Wilson secured the trophy. This competitor was the first winner of the "Pink" Cup; in the second year she was beaten by Miss Parker, of Maryland Exchange; in the final and this year she managed to regain her position.

The Lotus Shield for men's inter-branch swimming teams was won this year by the Contract Branch. Since the trophy was presented the Accounts have been the winners on four occasions and the Traffic Branch an equal number of times.

The presentation of a bouquet to Mrs. Curtis-Bennett and cordial votes of thanks to both Mr. and Mrs. Curtis-Bennett brought the prize distribution to a close. Mr. and Mrs. Curtis-Bennett expressed their appreciation at the warm reception accorded to them and congratulated the L.T.S. on such an enthusiastic gathering.

After a brief interval for further social intercourse and refreshment a concert was given by members of the staff, one of the features being the number of artistes who came to assist in the programme, from the exchanges. Every item received its due measure of applause and encores were the order of the day.

A report of this enjoyable evening would not be complete without a tribute of appreciation being recorded of the excellent catering arrangements made by the lady members of the Social Committee of the Association.

L.T.S. (Male) Swimming Club. A well attended and enthusiastic meeting was held on Nov. 10, 1931, in the Refreshment Club, Cornwall House, and it was decided to form a male swimming club in connexion with the L.T.S. Mr. S. G. Waghorn (A.N.B.4) was elected as Captain, and Mr. G. Frier (T EDE) Secretary. All who are interested are cordially invited to get into touch with either of these officers who will be only too pleased to give all information.

Streatham Exchange. - Kenmore Swimming Club. The second annual swimming gala of the above club was held at the Streatham Baths on Thursday, Oct. 15, and was thoroughly enjoyed by a large gathering of members and their friends.

The principal events of the evening, a two-lengths handicap for the club trophy, kindly presented by Mr. Mellett, jeweller, Streatham, was won by Miss M. Willis, and the 100 yds. free style championship was won by Miss D. House.

An inter-exchange team race, 6 teams competing, and a men's team race (5 clubs competing) proved exciting items on the programme. Clerkenwell won the former by just beating Museum, whilst another visiting team, "The Buckingham," won the latter.

During the evening a brilliant exhibition of diving was given by members of the Amateur Diving Association, and an interesting demonstration of life saving by the South London Swimming club, also a much-appreciated exhibition of the art of swimming by our coach, Mr. R. Lowe.

An exciting and thrilling evening was brought to a close, all too soon, by a well-contested water polo match between two local teams. Well done, everyone, and many thanks to all for making the evening such a record success. Our special gratitude is due to Miss Bristow and Miss Grant, who so unselfishly worked behind the scenes to provide the refreshments.

London Telephonists' Society.

The second meeting of the session was held on Nov. 6, at the City of London Y.M.C.A., Aldersgate Street, when, before a crowded "house," Mr. Dive delivered his paper on "Speech."

The lively expectations of the audience were in no way disappointed.

It is impossible to convey in a short review an adequate impression of the paper, but the literary feast with which we were entertained included apt quotations from authors ranging from Horace (the Latin poet, as Mr. Dive was careful to explain) to Dr. Helen Boyle, and Mr. Dive's paper not only attained that high literary standard which we should expect from him, but was also readily comprehensible by all his hearers.

An expression of thanks to Mr. Dive for his paper was moved in a very appropriate manner by Mr. White, who remarked that if, as Mr. Dive had suggested, the possession of his ability in "Speech" was a temptation, he, for one, would pray to be tried to the uttermost!

Miss Cox seconded the motion very suitably, and a brief further discussion followed. The members then reluctantly dispersed after a most exhilarating and enjoyable evening.

The next meeting will take place on Dec. 4, at the same address, when a "Mystery Debate" is promised. Be sure that you do not miss this occasion, or your curiosity may never be satisfied.

Personalia.

Resignations on Account of Marriage.

Assistant Supervisors, Class II.

Miss W. E. Ellis, of Western.

Miss D. Thomas, of Sidcup.

Telephonists.

Miss W. Wahmsley, of F.E.S.	Miss F. L. Gerrard, of Toll "B."
.. E. V. Heath, of Brixton.	.. C. M. M. Richardson, of Mayfair.
.. E. E. Barber, of Purley.	.. E. M. Burcham, of Mayfair.
.. H. B. Mennie, of Toll "A."	.. G. I. Cook, of Avenue.
.. K. M. Jones, of Finchley.	.. D. Johnson, of Grangewood.
.. L. A. A. Dunk, of Primrose.	.. D. M. Abel, of Holborn.
.. V. Moore, of North.	Mrs. A. Goddard, of City.
.. J. Thomson, of Bishopsgate.	Miss O. D. Dowler, of Trunks.
.. D. Billingham, of Bishopsgate.	.. E. M. Scales, of Trunks.
.. W. E. Hall, of Tandem.	.. L. F. Hutchinson, of Trunks.
.. W. L. Williams, of Tandem.	.. E. Underhill, of Trunks.
.. I. Freeman, of Shepherd's Bush.	.. F. E. Tatt, of Clerkenwell.
.. D. M. K. Cooper, of Tottenham.	.. A. C. Nevill, of Clerkenwell.
.. L. J. Beveridge, of Albert Dock.	.. E. Atkinson, of Paddington.
.. V. L. Pratt, of Museum.	.. D. M. Broadway, of Paddington.
.. E. M. Morgan, of Welbeck.	.. A. W. T. Biddle, of Victoria.
.. D. E. Turner, of Clissold.	.. K. D. Harper, of Victoria.

WESTERN DISTRICT NOTES.

The accompanying photograph is of the little Post Office and Exchange at Mousehole, Cornwall, and is typical of the average Cornish fishing village.



MOUSEHOLE TELEPHONE EXCHANGE.

Some idea of the nature of these villages can be gained from the fact that the Post Office in question is in the middle of the main street.

The following 3 letters were recently received from a lady who had some grievance against the Telephone Service:

"I resume my complaint with reference to my telephone. The bell has developed a pianissimo complaint. If the matter cannot be rectified, I hope H.M. Postmaster-General will remove his offending instrument."

"May I at the same time draw attention to the inefficiency of H.M. Telephone Service. A dozen times lately I have been tempted to throw the property of the Post Office into the garden and instruct them to collect it at their leisure. We have been inflicted with X rings on a Y line and, since that has been corrected, with an inability to get the Exchange. I have expended one telegram on the matter but should like to know before incurring further expense whether in future I may deduct it from my account. The other is probably within the province of that of H.M. Postmaster-General, but why should I pay a Shylock of a Post Office 4d. for telephoning two miles.

Having inflicted you with my grievance,
I remain,

Before there had been time to give attention to the complaint or even to test the line and instrument, the following letter was received:—

"May I present my compliments to you. My telephone previous to my complaints to you—a most indifferent instrument, has recently behaved in a most exemplary manner. I withdraw my insinuations *re* the incompetence of the telephone service completely, and I am so grateful that I must refrain for the time being from drawing the attention of H.M. Postmaster-General to the exorbitance of his charges."

The foregoing is typical of the hasty conclusions to which some subscribers jump.

On Nov. 12 the Staff of the District Manager's Office and their friends enjoyed their first Whist Drive and Dance of the season at Deller's Cafe, Exeter. The company numbered 237 and a most enjoyable evening was spent from 7.30 p.m. to 1 a.m.

Visitors arrived from Taunton and Okehampton and the surrounding districts.

Amongst those present were Mr. T. A. Beck (District Manager), Mr. F. J. Frost (Traffic Superintendent), and Mrs. Frost, Mr. G. D. Bateman (Traffic Superintendent II), Mr. W. Kay (Chief Clerk), and Mrs. Kay, Misses Jinkin and Browne, Travelling Supervisors from Plymouth, Mr. H. F. Peake (Head Postmaster, Torquay), and Mr. N. G. Howard (Head Postmaster, Okehampton).

The winners in the Whist Drive were the recipients of some handsome prizes.

DEATH OF MR. A. LUMSDEN.

We regret to announce the death of Mr. A. Lumsden, Traffic Superintendent, Brighton, who passed away on Oct. 20 1931, after a long illness. In the early part of this year he underwent an operation, but unfortunately this was not successful, and the fatal termination ended a period of considerable suffering.

The funeral took place on Oct. 24 at the Brighton and Preston Cemetery. The interment was preceded by a service at the Brighton Presbyterian Church and was attended by a large number of sorrowing friends. A feature of the service was the touching tribute paid to Mr. Lumsden by the Minister, the Rev. J. Ceiriog Hughes, M.A.

"Our departed brother," said Mr. Hughes, "had a particular genius for friendship, and his geniality was infectious. He did not hoard his gift, as do some people, and he expressed and extended it to a marked degree in the Scottish Association. He was the faithful secretary of the Association from its inception and imparted to it his geniality and his friendliness. As a Freemason, he practised brotherly love and charity, for brotherliness was at the centre of his heart. He has now entered the Grand Lodge above."

Referring to Mr. Lumsden's responsible office in the Telephone Service, Mr. Hughes said that Mr. Lumsden's work was to "link people together," and he was no less efficient in that sphere than in his social undertakings. His aim, both in his daily vocation and in his social relationships, was to increase the world's friendships, and his service to mankind had been of great value. "He lived in Sussex, but his heart was in Scotland. We thank God for this generous, kindly brother, and his spirit."

MEMOIR.

Alexander Lumsden was a native of Loch Winnoch, Renfrewshire, and began his telephone service as a boy in Glasgow, in May, 1886. He was a clerk from 1888 to 1890; Local Manager, Stirling, from 1891 to 1894; District Manager, Ayrshire, from 1895 to 1899; Local Manager, Aberdeen, 1899 to October, 1902. He left the service with the intention of going abroad, but the project fell through and he returned to the telephone service in Edinburgh as Instrument Inspector on Jan. 5, 1903, which position he occupied until the end of 1903, thereafter being promoted to Exchange Manager. He was transferred to Brighton as Traffic Superintendent on Oct. 1, 1912, and held that position until the end.

"Alec," as he was known to his intimates, was the soul of courtliness and for this reason he never forgave rudeness in a subordinate. He had an extraordinary capacity for seizing on the point of an instruction and his judgment was invariably correct; coupled with this was an almost uncanny faculty for putting his finger on the weak spot of a proposal. If he differed from you, he never imposed his opinion, but suggested in a kindly and friendly way that perhaps you would like to reconsider the matter and see him again.

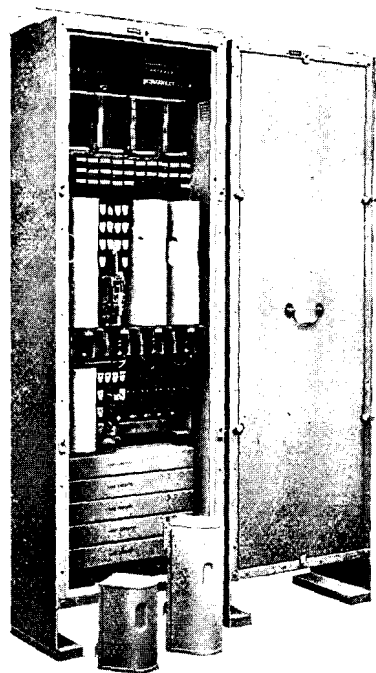
He brought his national characteristics to the writing of his reports, which were always succinct, written with an economy of phrase, with no redundancies.

Many of us feel that we have lost a true friend, one who never refused a favour if it was in his power to grant it, and we offer to his bereaved family our whole-hearted sympathy, and if it is any consolation, may we say of him in the words of the late Lord Haldane:—

"If we have striven to think and to do work based on thought, then we have at least the sense of having striven with such faculties as we have possessed devoted to the striving."

G. H. C.

G.E.C.



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MANCHESTER NOTES.

How the 40% Cut in Wages, and the Increased Income Tax Affects the Bachelors.

A LAMENT. BY TWO VICTIMS OF THE TRAFFIC STAFF.

Lo! round the dying embers crouch The Two,
All chill and cheerless, striving yet awhile
The leaden hours with jesting to beguile,
Till bed more comfortless shall hide from view,
Their shiv'ring forms, save where their frozen feet,
Pallid, peep out beneath the meagre sheet,
And eke their noses, cerulean blue,
There Morpheus do they shudd'ring court in vain;
The hours, slow flying, no oblivion bring
Till at long last the dread alarm's ring,
Summons them forth to self-same cross and pain,
That with its daily anguish racks the soul,
And turns the all too much oppressed brain—
Mercuric Zero, and the lack of Coal.

Blackfriars Auto Exchange. An area-correcting transfer of some 900 subscribers' lines from the City and Central Exchanges to Blackfriars Auto Exchange was effected successfully at 1 p.m. on Sept. 19, 1931. One satisfactory feature of the transfer was that very little increase in the Assistance traffic was experienced. This, again, was reflected in the comparatively small percentage of subscribers who required tuition during the course of the dial back test.

A further transfer was effected gradually during October, namely, the transfer of all the call offices from City, Central, &c., Exchanges to the Toll Exchange. These numbered approximately 280. A number of demonstrators kept in touch with the call offices in order to help callers and to explain the system to those in difficulties. Much good was effected in this way and the difficulties were lessened considerably.

A large number of further conversions is due to take place between December and February.

Manchester Trunk Exchange Amateur Operatic and Dramatic Society.—This society, the president of which is Miss Hall, Supervisor, Trunk Exchange, presented "The Street Singer" at the Holy Name Hall, Oxford Road, on Nov. 6 and 7 before bumper houses. It was an all-feminine production and distinguished members of the cast were Miss Helen McCormick (Bonnie), Miss Grace Brown (Violette), Miss Beatrice Woods (Armand), Miss Eileen Carroll (Yvette), Miss Laura Tomkies (Francois), Miss Isabel Prew (Levy), Miss Marie King (Marie) and Miss Dorothy Brindley (Estelle).



THE CARNIVAL SCENE FROM "THE STREET SINGER."

The dancing, for which the company had been trained by Miss Alda Fayne, was a very pleasing item of the show. The orchestra was under the direction of Mr. G. Simpson, and Miss D. Deane played at the piano. Altogether the play was a great success and reflected much credit on Miss Crick, the producer.

At the close of the Friday night's performance, Mr. Moorhouse, Assistant Postmaster, said a few well-chosen words of thanks to the performers, which expressed the feelings of the whole audience. On the Saturday night, Mr. Whitelaw, District Manager, also expressed the thanks of himself and

the audience for the great treat the girls had given them by their fine performance. Bouquets and boxes of chocolates were presented to several members of the cast. It was a pleasing feature that the show was well patronised by colleagues from other exchanges. It was a matter for regret that at the last moment Mr. and Mrs. Maddan were unable to be present.

We are obliged to Mr. H. N. Davis, Press and General Photographers, Manchester, for the photograph.

Central Exchange. We are glad to learn that Miss Wright, Supervisor, who has been absent for some weeks suffering from influenza, is now on the way to recovery and we hope she will soon be back amongst us.

Pegging of the Central and City Multiples.—In connexion with the September transfer, the work of pegging the multiples was of considerable magnitude. Some 51,000 pegs were handled and a staff of 70 telephonists, who gave up their Saturday afternoon relaxation, ungrudgingly effected this work satisfactorily within a minimum of time.

Hot Pot Supper. A hot pot supper was given by the Telephone House Social Club in the dining room at Telephone House, on Nov. 3, to all those who had helped at the pantomime and other shows given by the club during last season. There were 170 present. After the supper several songs and recitations were rendered by members of the company. At 9 p.m. dancing commenced, and Mr. Green, Exchange Manager, Toll, and Miss Foster, Supervisor, Toll, led off in grand style with the favourite fox trot. A most enjoyable evening was spent and everybody enjoyed themselves.

Telephone House Dance.—A dance arranged by the Social Club was held in the dining room on Nov. 14, at which 200 took part. This also was a great success.

Writing Assistants. We congratulate the Misses Bossons, Robinson and Arundale, Telephonists, on their appointment to the Writing Assistant Class.

Ode to the Traffic Branch. Christmas, 1931.

Seize the mighty polished carver,
Raise it flashing up on high;
Plunge it deep and deadly downwards,
In the Turkey or the Pie!
Ah! to see the happy faces,
Beam, when feeding time is here;
No wrong numbers to oppress them,
Or "Sorry you've been t-r-r-roubled, Dear!"
Little reck they of the 'morrow,
Or the thought of coming ill;
Putting all their trust in Beecham,
Or some Little Liver Pill!

Christmas.—Manchester staff wish to send the season's greetings to all confreres.

THE INSTITUTION OF ELECTRICAL ENGINEERS.

The following are the remaining Ordinary Meetings of this season's programme:—

1931.
Dec. 8.—G. J. S. Little, B.Sc.: "Electric Wave Filters."
1932.
Jan. 12.—W. E. H. Kennedy, M.C.: "Industrial Psychology and its possibilities in the P.O. Engineering Dept."
Feb. 9.—F. H. Buckland and R. H. Franklin, B.Sc.: "Some Notes on the Design and Manufacture of Telephone Cables."
Mar. 8.—R. T. A. Dennison: "P.B.X. Installations. Requirements Governing the Design of Automatic Equipment for and their Practical Application."
May 10.—G. F. O'Dell, B.Sc., A.K.C., M.I.E.E.: "Standardisation—an Unattainable Ideal or an Essential to Progress?"

LEEDS DISTRICT NOTES.

THAT the spirit of devotion to duty in nerve racking circumstances which was so often displayed by telephonists during the war is also an attribute of the younger generation was convincingly in evidence during the disastrous floods in the Calder Valley on Nov. 4. Torrential rain for many hours, accompanied by wind of gale force, caused the river Calder to rise rapidly and sweep over its banks at Mytholmroyd into the streets. When Miss Jessie Riley, the telephonist at the local exchange, who lives at Halifax, arrived at Mytholmroyd about 9 a.m. with the intention of going on duty she found the street in which the exchange is situated a raging swirl of water between 4 and 5 ft. deep. After various manoeuvres, which included a scramble through an old foundry, Miss Riley got within 25 yds. of the exchange and



MISS RILEY, TELEPHONIST, MYTHOLMROYD EXCHANGE.

*Reproduced by Courtesy of the
"Yorkshire Evening News."*

there met Mr. Sutcliffe, the Caretaker Operator, who was also endeavouring to get to the exchange. With Miss Riley perched on his shoulders, Mr. Sutcliffe breasted the flood and they arrived at the exchange to find the switchroom awash with over a foot of water. Taking off her wet shoes and stockings Miss Riley sat on the top of the table and promptly started work. By reason of the floods there were many more calls than usual, but all were dealt with expeditiously. The water continued to rise slowly for another hour, but then fortunately began to recede. By 1 o'clock the switchroom was clear, and it was possible to resume more normal conditions of working.

The newspaper reports give the verdict of Mytholmroyd that Miss Riley is "a right champion," and we are pleased to say that the thanks of the Secretary of the Post Office were conveyed to her for her courage and devotion to duty, and to Mr. Sutcliffe and his wife for the assistance they rendered in enabling the service to be maintained during the floods.

It is a sign of the vitality of the Telephone Service that the agenda for the District Head Postmasters' Conference, held at Leeds on Nov. 5 and 6, included no fewer than four items dealing with telephone matters.

On the evening of the first day of the Conference a most enjoyable and informal dinner was held at the Guildford Hotel, Leeds, at which the entertainment provided by the speeches was augmented by several excellent songs and humorous items by members of the staff.

The telephonists at Heckmondwike Exchange held a successful whist drive and social on Oct. 20, in aid of the Heckmondwike Children's Christmas Treat Fund. At the conclusion of the whist drive there was an enjoyable musical programme, after which supper was served by the telephonists, and Miss M. A. Chadwick presented the whist prizes. Mr. G. Blackburn (President of the Children's Treat Fund) proposed a vote of thanks to all who had helped to make the evening a success, and thanked the organizers for their effort, which contributed over £6 to the Fund.

A hearty welcome is extended to Mr. W. Stewart, who has taken up duty at Leeds as Assistant Superintending Engineer, N. E. Engineering District. As Mr. Stewart, who was previously Executive Engineer at Dundee, is a native of the "land o' cakes," it would seem that the days of the "border raids" are not yet over.

The autumn meeting of the Leeds Civil Service Golfing Society was held at Moortown on Sept. 24, when 40 competitors took part in a four-ball best ball medal round. The winners were Lt.-Col. Hobbins & Mr. H. A. Harrop (P.O. Survey Department, N.E.D.) with a net score of 73 and the runners-up, Messrs. H. Walsh and S. Price (Ministry of Labour) with 74.

SHEFFIELD DISTRICT NOTES.

Appointment of Mr. J. G. Ferguson, Traffic Supt. I to District Manager, Aberdeen.—After 11 years in Sheffield, Mr. Ferguson left us on Sept. 22, 1931, to take up his appointment as District Manager, Aberdeen.

At an informal gathering in the District Office he bade us official farewell. Mr. Lomas (Sectional Engineer), Mr. Hann (Chief Clerk), Mr. Edgar (Contract Manager), and Mr. Teasdale (Traffic Supt. II) on behalf of the Staff, expressed their regard for Mr. Ferguson and wished him every success in his appointment.

The District Manager (Mr. S. R. Vaughan) then presented him with a wrist watch and a cigarette case, and also a handbag for Mrs. Ferguson, with the best wishes of everybody for a very pleasant stay in Aberdeen.

We welcome to the District Mr. F. H. Woodrow, late Traffic Supt. II, York, as our new Traffic Superintendent. Also Mr. A. V. Sturdy, Assist. Traffic Supt. transferred from St. Albans.

Resignation for Marriage.—Miss G. E. Batty.

NEWCASTLE-ON-TYNE NOTES.

Retirement. A large and representative gathering of all sections of the staff assembled in the Conference Room, Telephone House, Newcastle-on-Tyne, on Oct. 31, 1931, to bid adieu to Mr. David Anderson, Contract Officer, Class I, upon his retirement on that date.

The District Manager, Mr. J. D. W. Stewart, recalled that Mr. Anderson had served under three telephone administrations during his 26 years of service. Firstly as a canvasser for the Glasgow Corporation Telephones, secondly with the pre-transfer Post Office Telephones, when that administration bought out the Corporation, and thirdly, with the Post Office Telephones as it is

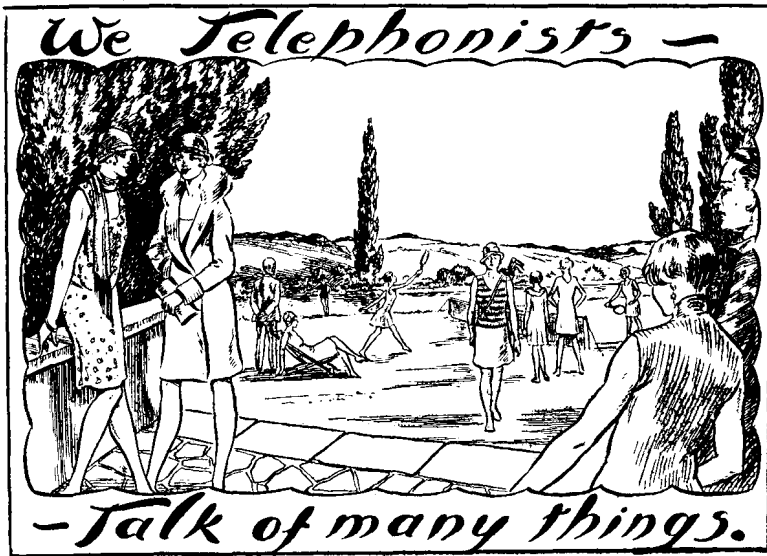


MR. D. ANDERSON.

constituted to-day. Mr. Anderson had won the affection of all with whom he had come into contact, and he could invariably be appealed to—and not in vain—for information on many subjects outside Telephone matters. He was transferred from Glasgow to Newcastle-on-Tyne in October, 1920, on promotion to Contract Officer, Class I, and the many friends he has made is reflected in the fact that it was possible to hand to him a substantial sum of money towards the cost of a Radio-Gram Kit.

The Contract Manager, Mr. R. P. Lowe and Mr. R. G. Reynolds, Contract Officer, Class I, joined with Mr. Stewart in wishing Mr. Anderson many happy years in retirement, and the gathering concluded by warmly congratulating Mr. Anderson after he had thanked the staff in his usual characteristic style.

Promotion.—Mr. C. P. Waugh, Contract Officer, Class II, has been promoted to Contract Officer, Class I, vice Mr. D. Anderson, retired.



The Secret of Long Life.

Just where the road forks, you will find a gate set in a hedge, and, if you went through that gate as I did and followed the path, you would see at the end an ivy-covered cottage. If you knocked at the door and entered you would find yourself at once in a stone-flagged room with an old-fashioned fire-place in which a wood fire would be burning. At this time of the year you would also find quite an old man sitting in a cushioned wooden armchair. He would be wearing a greenish-black suit-coat, corduroy trousers, a coloured neckerchief and a hat that could never have been very new. I am sure you would find him so dressed, because he has, so far as I can remember, never been dressed otherwise. As you would have found him, so I found him, one drear afternoon of bare dripping trees and low dull skies.

It was the old man's birthday, and, after exchanging greetings, I said cheerily, "And how old are you?" "One hundred," he replied, with a slight twinkle in one streamy eye. "Why," I said, "you were ninety-eight last year, so you must be ninety-nine to-day." "So I am," he said, "but I'm a bit wheezy on my chest and I can't say the proper number—not to satisfy the doctor, anyway—so I've jumped one for comfort. But," he went on, "if you knew my age, why ask me—don't you think I've got enough to worry me without answering useless questions? After all, it's only one error of about one per cent., and you can't expect exactitude at my age." "To what," said I, "do you attribute your longevity?" "You asked me that last year," he replied testily, "only you said 'long life' instead of 'longitude,' but I've thought of a different answer this time." "Oh," said I eagerly, "and what's that?" "I've lived so long," he answered, "because I ain't dead yet." "Splendid," I said and then I added, trying to catch him, "I'm very glad, but why haven't you died?" "Because," he said, "I've kept on living, see. Lor' bless us, you wear a man out with your questions. What else do you want to know?" "What I want to know," I said slowly and emphatically, "is how you have ordered your life so that you have attained to so great an age; for example, have you been a vegetarian: a non-smoker: a total abstainer: a cold bather: an early riser? What would you suggest that I should do so that I, too, might live to be as old as you?" He gave me a bleak look, wiped his eyes with his handkerchief, chuckled and said, "Lord save us if I ever gave you or your likes any sort of hint that would prolong your life. You and your like are a danged nuisance—poking into my past, everlasting asking my age: can I read without my specs.: do I remember Waterloo: am I a Presbyterian or a meat-eater. I tell you what," he almost shouted, "I'm going to get a card printed with all the inflammation on it: perhaps I'll have a bit of peace then to be able to live a little longer without being pestered every year with this kind of exquisition. I reckon that ever since old Passon let out that I was ninety, I've been questioned and cross-questioned, examined and interviewed and photographed, and generally poked by about a thousand and forty-eight men and other old women. If a man wants to live to be a hundred, why can't ye let him alone instead of taking years off his life making him tell all sorts of lies to excuse himself for not being dead; and not only that, but expecting him to remember the reasons he gave last year and the year before and the year before that. I tell ye," he went on, banging his stick on the floor, "I think sometimes that it ain't hardly worth while going on to be a centurion." "Well, anyway," I said humbly, when the outburst had subsided and I had passed him the shag I had brought, "anyway you're wearing well." "No, I ain't," he snapped, "—nasty scratchy stuff; I'm wearing flannelette and always have done: stops the pneumatics." "Don't you mean 'rheumatics'?", I ventured. "No, I don't," he said, "pneumatics is what I said and what I meant. It's a composition word meaning pneumonia and rheumatics. I use a lot of them composition words: it saves me breath; it saves me time and so I live longer." "Well," I said, "I must be going." "Thankye," he said, "and if you're calling again with some more shag, you'd better come on a day that isn't

me birthday; perhaps then we can have a sensible chat—and tell them at the 'Hollybush' that I'd 'a been along sooner but for you."

PERCY FLAGE.

Service Cameos, No. 1—Miss Ophelia Pulse.

So sweet of the Editress to ask me to write for you. I simply adore interviews—yes, really. One gets to know one's fellow creatures so gratefully well, doesn't one? Yes, really. And so useful in giving one ideas on things—I mean dress and colour schemes and how to furnish the boudoir and cocktails—yes, really, I mean all the really charming things that one wants to know about, doesn't one, don't you think? And then one meets People Who Matter. Why, only the other day I went to see Miss Ophelia Pulse—named after Shakespeare, you know, and called Pulse after her father, who, being a policeman, was always on the beat—a most remarkable woman, yes, really, and one for whom one may safely predict a future. She commenced life at the perfectly absurdly early age of nought with nothing but a layette and a rubber ring tied with blue ribbon. Yes, really, and blue, too, not pink, did you ever! Most frantically tactless of her Aunt Hepzibah. But Ophelia with most amazing intuition sucked it neutral and so averted what might otherwise have developed into a hideous domestic disruption—yes, really. At the age of one she celebrated her second birthday, and at the age of three she is stated to have said to her father, "Say, Poppa, ahm gonna show this lil ole woild sumpin. Betcha life I am." In the whole of my journalistic career I have never met a child who, at three years of age, could express itself fluently in both American and English, or who showed such a consciousness of the future and such fixity of purpose—no, really. From that time Miss Pulse has never looked backwards but with characteristic modesty she gives all the credit to her mother. "Momma always said 'Look where you're going, or you'll fall downstairs!'" "Nowadays," I said, "it seems all the girls believe rather in the gospel 'Go where you're looking.'" Miss Pulse smiled ever so sweetly and said that she'd be so awfully pleased if I'd write that in her book of "Cute Bibfuls." I think it was real nice of her, don't you. I mean, yes, really. Then I asked her about her official career and she told me she had started on the Lowest Rung. But her advancement has been meteoric. She was born officially as a Girl Probationer and she has rapidly worked her way up through the successive ranks of Telephonist 36-hour, Telephonist 48-hour until now, at the age of thirty (plus) she is a Supervisor, Asst. Cl. II, Provincial Class III (Redundant)—truly a triumphant climax to the brilliant career of a woman of outstanding ability and merit. The only other thing I can remember about the amazing Miss Pulse is that she takes a number nine shoe, but as she laughingly remarked, "Destiny shapes our ends—yes, really." I'm sorry about the photograph, but the result was not all that could have been desired. I think Destiny must have had a hand at that end as well. After all, one simply has to be discreet in these matters, hasn't one. I mean, yes, really. She gets on awfully well with her staff at the Exchange. More than once, she tells me, the dear girls have offered to take her for a ride and have asked her what sort of flowers she prefers. Ah! the adorable pash and the divine crush! Sometimes, you know, we interviewers almost envy those whom we interview—yes, really.

BIRDIE TWILFIT.

DEAR EDITRESS.—I have no wish to appear revolutionary, but as a frequent user of the telephone I should like to appeal against the monotony of the standard expressions used by telephonists. Think of the awful "sameness" in saying "Number, please" thousands of times every month of the year. May I suggest an even shorter—but just as effective—phrase, very much in use at the present time, namely, "Yeah." The subscriber knows that he has to give his number—why ask him for it—and the term mentioned gives the necessary indication that the telephonist is in circuit. It is more efficient, since one word is used in place of two (time is money), and in fact the only disadvantage might be the lack of uniformity in pronunciation. This can be overcome, however, by including in the training of the telephonist one or two visits to a theatre showing a modern "talkie."

Then, again, at the present time what is a Telephonist to say when a subscriber, after getting three or four wrong numbers, gets unnecessarily rude and generally irate? The impatient one has to be politely passed on to a supervisor or if super-irate and making vague threats about his M.P.—to the Traffic Officer. Could not all this trouble be prevented, to a large extent, at the source, by the use of another very well known expression in common use—think of the effect on a subscriber if, after his little lecture, he hears "Sez you." I am confident that in most cases he would retire utterly defeated, replace the receiver reverently, raise his hat and silently pass away.—Yours faithfully,

R. F. H.

Shepherds Bush.

A most successful dance took place at the Carlton Academy on Oct. 27, in aid of the exchange library. In spite of two great disadvantages—a heavy fog and the General Election—there was a good attendance, nearly a hundred people being present, and everyone appeared to have a very enjoyable evening, foremost among them being the Traffic Officers from the local district office.

During an interval, the Supervisor-in-Charge had a pleasant duty to perform in presenting the cup which she had kindly given to be competed

for in the exchange tennis tournament. The winner was Miss V. M. Terry, and judging by the applause, the result was a popular one.

It is hoped that there will soon be another of these delightful Shepherds Bush dances.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North) London, E.C.1.

NORTH WESTERN DISTRICT NOTES.

Preston.

At Preston, on Monday, Oct. 26, under the auspices of the Society of Post Office Engineers, joint papers were read by Mr. J. M. Shackleton, M.I.E.E. (Superintending Engineer), and Mr. J. K. Murray, M.I.E.E. (District Manager), on the subject of "Co-operation." A well-attended meeting thoroughly appreciated the papers, with the subsequent discussion, and voted the proceedings an unqualified success. We feel the subject to be of such importance, however, that we are constrained to add a few comments from a different angle to that from which the papers referred to, approached the subject. Oft we hear quoted the efficacy of the "Voice with a smile" on the wounded feelings of an irritated subscriber as applied by our excellent colleagues—the telephonists. We would suggest that the lesson to be learned from this be taken to heart by all within the Service. You cannot have "Co-operation" and a "strained atmosphere" living side by side.

Traffic Office.—We have succeeded in obtaining the views of an ex-telephonist now employed in the Traffic Office on how she likes her new life. They will, no doubt, be of interest to officers who are contemplating a change of work and to others who have already made the change:—

"LIFE IN THE TRAFFIC OFFICE"
(as seen by an Operator).

On coming into the Traffic Office it is impossible not to be impressed by the difference in the atmosphere as compared with the Exchange. There, where the familiar sounds of operating make up the daily round, there is a feeling of being at the heart of things—at least, that is how I found it—but in the Traffic Department that feeling is lacking. The friendly sound of voices on either side of you whilst operating spoil you for working at a desk, isolated as it seems at first. Gradually, however, one gets accustomed to it, and that strange feeling of being "out of things," as it were, begins to wear off as the work becomes more familiar. In the Traffic Office I learned why certain things were done, but the reasons would never have entered into my head as an operator. I now know what happens to the various forms, papers, &c., with which one deals at the Exchange. What surprised me most was the systematic examination and care which every detail of the information we compiled receives. I had no idea what thought was expended in assisting operators to work under the best conditions and to smoothe over their little troubles. I found it a big advantage when working in the Traffic Office having had experience in an Exchange; things which would be merely black and white to an outsider are living things when you have been an operator and seem to keep alive the old associations. The regular hours worked here are a big change—and while they have their advantages they also have their drawbacks. For instance, there is no chance, while working here, of having that extra hour in bed which is so acceptable the morning after the night before. It is really impossible to compare the two spheres, as they are so vastly different, but I really cannot say I am sorry for having made the change.

District Office.—Our congratulations are offered to Mrs. Knight and Miss Lupton on their promotion to Clerical Officers.

Blackpool.

The first concert of the season by the Blackpool Post Office Concert Party was given on Friday, Nov. 13, 1931, under the direction of Mr. K. N. Scott and Mr. R. E. Ainsworth. The omens cast by the date and day selected were decidedly inauspicious, but the producers evidently thought that with the quality of the talent at their disposal they were justified in taking risks. We must say that their confidence was not misplaced, for a more enjoyable evening could not be imagined. Every item was excellent and worthy of special mention. Particularly good was a sketch, "Marton 71," which had strong local interest, but which we do hope was not in any way indicative of how they do things in reality at Blackpool.

We regret to announce the death of Mr. J. Gott, who, until recently, was Assistant Superintendent at this office.

Mr. Gott was well known in Post Office circles, and his retirement through ill health in February this year came as a shock to those who knew him

intimately. A man of untiring energies, he seemed to feel very keenly the enforced idleness which his state of health demanded, and the end was not unexpected.

Commencing as a Telegraph Messenger at Burnley, Mr. Gott came to Blackpool 30 years ago as a clerk. He was promoted Overseer, and then Assistant Superintendent, a position he ably filled for many years. His striking personality and his vast knowledge of all branches of Post Office work commanded the respect of all who came in contact with him.

We shall miss him greatly, and our deepest sympathy goes out to his widow and family.

We also regret to announce the passing of another familiar figure, in the form of Mr. F. Tranter, late Superintendent of this office, at the age of 69.

Mr. Tranter was also well known in Post Office circles, and all those who served under him can speak of the kind and gentlemanly manner in which he met them on all occasions.

Our heartfelt sympathy is tendered to his widow and family.

Coming to Blackpool from Cheltenham, as Overseer, he rose to the position of Superintendent by sheer hard work, coupled with his vast knowledge of Post Office work.

Both funerals were well attended by the indoor and outdoor staffs of the head and branch offices, and the many flowers sent showed the respect in which both these gentlemen were held.

GLASGOW DISTRICT NOTES.

Entertainments at War Hospitals.—A tea and musical entertainment were provided for the patients and staff of the Erskine Hospital on the evening of Oct. 19 by the supervising and telephonist staff of the Glasgow Trunk Exchange. A very merry evening was spent by all those present, under the able chairmanship of Miss Kay (Trunk Exchange Supervisor), who was supported by the Traffic Superintendent—Mr. L. G. Allen, Mrs. Allen, and Mr. S. Hutton, Exchange Superintendent.

A similar evening of entertainment was provided by the operating staff of the Central Exchange at Ralston War Hospital on Friday, Nov. 13. In this case the chair was taken by Mr. Allen, and he was supported by the District Manager, Mr. A. E. Coombs (who was obliged to assume the role of Deputy Chairman when it became necessary to announce the banjo items rendered by Mr. Allen). The concert was obviously enjoyed by the audience who joined in the community singing with enthusiasm.

Resignations on Account of Marriage.—Miss C. Rankin and Miss J. Smith, both of the Trunk Exchange.

On Efficiency.—A lowering of the standard of efficiency is inevitable when the counter is staffed by a succession of officers learning the work.—(Post Office Circular.)

Already the development of industry has specialised the manual operations until the worker is given in many cases only a comparatively small and routine task. . . . But it will be infinitely worse if the mental operations are equally specialised. Professor Marshall went shrewdly to the point when he said that it will "diminish the need of the operatives for resource and judgment in small matters." Nor is it quite true that mental operations are better performed if they are narrowed. The mind may become more efficient in respect of a particular operation if it is confined to that operation, but there is a false analogy between mental and manual operations. The mind needs variety in its work.—(J. Lee.)

The present rotation of duties is excessive and should be curtailed.—(Hardman Lever Report, 1929.)

Find out the particular work a man is adapted to and at home with. It is quite a mistake to keep a clerk on work which is distasteful to him: he will never be a success. For example, a clerk may be quite happy in writing up a day book, but quite unable to put a good business letter together. Such cases are common. . . . If the duties of the office are arranged having regard to the qualifications of the various members a marked improvement in efficiency is sure to result.—(Anon.)

Constant rotation does not tend towards efficiency and the staff should be employed on the work for longer periods (than three months).—(R. A. Dalzell.)

A constant interchange of duties in a large office means disorganisation and would involve an enlarged staff and additional floor space. I know of instances when clerks have become so expert at their particular work that it would need the employment of three men, at all events temporarily, to replace them and fulfil the same output in the same time.—(Hare.)

To rotate or not to rotate—that is the question.—(Anon.)

THE Telegraph and Telephone Journal.

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JANUARY, 1932.

No. 202.

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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCIII.

MR. D. H. THOMSON.

MR. D. H. THOMSON, Chief Superintendent, Telegraphs, Newcastle-on-Tyne, entered the telegraph service at Liverpool in 1905, and some nine years later was promoted to the Headquarters Traffic Section to assist with important trunk telephone development work then in progress.

The outbreak of war found Mr. Thomson following "the skirl o' the pipes" in the ranks of the Liverpool Scottish, with whom he proceeded to France, ultimately completing his military career as Lieutenant in the Royal Engineers (Signals).

Returning to Headquarters Traffic Section, the post-war



[Photograph by Stuart, Newcastle-on-Tyne.]

period provided him with the opportunity of demonstrating an infinite capacity for mastering details and good work in the Telegraph Division secured for him steady progress, and in 1929 promotion to his present position. The London Telegraph and Telephone Society, for which he acted as Honorary Secretary, is indebted to Mr. Thomson for years of valuable service. His obvious kindness and sincerity of purpose have made him many friends who wish him well.

Playing a good game of tennis he is in demand during the summer as a mixed doubles partner, while in the long evenings he continues to maintain an unabated and well-informed interest in wireless by either constructing or demonstrating the "last word" in receiving sets.

The
Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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A RETROSPECT OF 1931.

NOTWITHSTANDING the unfavourable economic conditions which prevailed during 1931, the total number of telephones in the country increased by over 80,000. Complete returns are not yet to hand, but it may be confidently estimated that there were about 2,039,000 Post Office telephones working on Dec. 31 last, which, with the addition of some 40,000 non-Post Office telephones, brings the total for Great Britain to nearly 2,080,000. During the year the number of exchanges working rose to about 5,050 (an increase of over 200), and the number of call offices to 36,750 an increase of about 3,000.

The following developments of the automatic system took place. Sixty-three automatic exchanges were opened during the year, serving about 59,000 lines (including 6 exchanges in London serving about 11,000 lines). Moreover, about 4,000 lines in London have been transferred from existing manual exchanges to automatic exchanges. The principal provincial centres in which these new exchanges were opened were Newcastle-on-Tyne (12 exchanges), Bristol (10), Birmingham (6), Manchester (3), Preston, Lancs. (4), Folkestone (5), Watford (3), and Ayr (2). In addition to the foregoing upwards of 290 new rural automatic exchanges were provided during 1931.

In the sphere of long-distance telephony, the year 1931 has been eventful from the point of view of the British Administration. The engineering side are to be congratulated on their developments in connexion with improved transmission. During 1931 many "backbone" circuits have been put on the "Zero" attenuation-loss basis, with the result that speech to places such as Aberdeen is

as full and clear as in a local connexion. Progress has been made with the introduction of the inland trunk "Demand" service, an outline of which was given in Mr. Darby's articles in our columns last year. New equipment—plant and circuits—has been designed, and its manufacture and installation are in full swing. In London an actual start has been made with the system, the first "demand" service on a long-distance route being inaugurated on Nov. 28 last from London to Birmingham. The results obtained were well up to expectation, the average time from the receipt of a demand for a Birmingham call by the London Trunk operator to the obtaining of a reply from the called Birmingham subscriber being 88 seconds. It should also be recorded that during the year service was provided between England and the Channel Islands.

The chief items of progress in the overseas telephone service were its extension to French Cochin-China and French Morocco in March, Roumania in May, New Zealand in July, Jugo-Slavia in November, and Siam in December. The Anglo-Italian service was extended to both Sardinia and Sicily during the year, and the Anglo-Spanish to the Canaries and the Balearic Islands. The "personal call" service was extended to trunk calls between this country and Switzerland last month, and this useful service is now available to all countries in Europe with which Gt. Britain has connexion. In December also the Anglo-Brazilian service, formerly confined to communication with a call office in Rio de Janeiro, is now extended to all subscribers' telephones in that city. Similarly the service to the Dutch Indies (which now extends to Sumatra) was made available to subscribers at their own telephones. The past year was also marked by further extensions of the extra-European services, such as Australia to South America, Dutch Indies to North America and South America, New Zealand to certain European countries (all of which pass through that world-centre the London Trunk Exchange), whilst numerous extensions of the Ship-shore service are to be recorded.

During the year there was an increase in the number of wireless receiving licences of over 900,000, the total number being now well four millions and a quarter.

The year 1931 marks an important epoch in British telegraph history by reason of the fact that agreement has been reached between the administration and the responsible staff representatives on the Report of the American Commission. This agreement disposes of many controversial questions which have been debated over a number of years and should facilitate reorganisation of the service on modern lines.

Telegraph traffic has again suffered in consequence of the prolonged trade depression, with unfortunate consequences from the staff and revenue point of view.

The process of rationalisation or mechanisation continues to make steady progress, and the day is not far distant when Morse telegraphy will be a thing of the past. The year has seen the abolition of all news circuits in Great Britain: practically the whole of the work arising out of the General Election was dealt with on teleprinter circuits, and Wheatstone working at race meetings has also been largely abandoned in favour of the teleprinter.

It is safe to say that within a short time the telegraph system will be better equipped than at any time in its history to assist the trade and commerce of the country, and all ranks are ready for the opportunity to prove that the telegraph service is still a vital necessity to the prosperity and social well-being of the community.

THE WORLD'S TELEPHONES.

THE article on this subject which we print in another column shows that for the first time since 1920 the world failed in 1930 to increase its total number of telephones by upwards of a million. Indeed the gain for both 1928 and 1929 was a million and three quarters, but that for 1930 has fallen to about 850,000. Of this increase Europe bears the creditable share of 602,000, while North America is comparatively stationary with an increase of 150,000 in lieu of its usual figure of eight or nine hundred thousand, and Australasia has actually receded slightly.

It is needless to stress here the period of world-wide financial depression through which we are passing, a depression whose effects will be further reflected in the figures for 1931 when they are available. It will be seen from the preceding article that this country will show a substantial increase and there is no reason to doubt that France and a few other European countries will also do so, Italy, Spain, and Russia, for example. Germany will probably succeed in keeping her gains slightly in advance of her cessations, but there are indications that America may find difficulty in doing so, and that Australia will again show a loss of stations.

What 1932 will bring forth is too hazardous a matter to conjecture. We are all hopeful of an improvement in trade conditions and we know that every great administration is putting forth all its efforts to increase the development of the telephone. We may perhaps be not too sanguine in looking for a return to the million mark in the world's increase for 1932.

SHOULD THE PUBLIC BE TOLD MORE?

LONG experience has disposed us to attribute to lack of information rather than to malice the less discriminating criticisms levelled at the telephone service and the more impracticable projects of rate reform which are sometimes put forward. Failure to understand the first principles of the matter they are discussing is no deterrent nowadays to the critics who rush into print; and we cannot expect the telephone to receive exceptional treatment in the popular if somewhat anarchic sport of newspaper correspondence. Perhaps we are somewhat to blame in not telling the public enough of the financial, engineering and operating problems incident to the rendering of a continuous day and night telephone service, the difficulties to be overcome and the contingencies to be provided for. Certainly we have frequently endeavoured to

counteract the strange impression, so astonishingly prevalent even at this time, that telephone service is something "on tap," as it were, to which the subscriber can be connected—presumably by a passing wire at slight cost—much as a new client can be supplied with gas or electric light by means of a few yards of piping or wire from the main.

We are convinced that if it were properly explained to the average intelligent man that a heavy capital cost is involved in the case of every new subscriber in supplying a pair of wires connecting his premises with the nearest exchange, amounting in favourable circumstances to a good many pounds, and in unfavourable circumstances (where, for example, premises lie near the limits of the exchange area) to as much as £70 or £80; that the subscriber, besides being supplied with instruments and ringing plant, has to be allotted multiple positions at the switchboard, wired in the most complicated fashion to enable the operators at every section of the board to reach him, or alternatively, that he may be accessible to the elaborate and almost human actions of the automatic selectors; and that an expert operating and engineering staff must be available at all hours to attend to his calls and keep his circuit properly maintained. Moreover, seeing that in a large urban system the majority of calls are made to numbers on exchanges other than the caller's own exchange, a liberal and constantly increasing supply of junction-wires must be provided between all exchanges, and costly trunk wires must inter-connect the exchanges in different towns. Then, in order to avoid the expense and inconvenience of opening the roads each time new subscribers are to be connected, it is necessary to provide for all contingencies by a carefully estimated margin of spare wires in every underground cable laid—an item of unproductive capital of which every business man will appreciate the significance.

To most of us all these considerations are commonplaces, but to a considerable section of the public they are not, and it will no doubt be one of the most useful tasks of those engaged in the present publicity campaign to undeceive them. Experience has shown again and again that cavillers, when enlightened concerning the difficulties and large capital outlay confronting a telephone administration, have ungrudgingly changed their attitude. Extraordinary misconceptions of telephone service certainly exist, as witness a recent letter to the *Daily Express* from a gentleman who, in advocating a reduction of rentals, draws attention to the "enormous revenue the B.B.C. derives from its licensees." "If the B.B.C. can do it for 10s. a year," he asks, "why cannot the Postmaster-General try it?" The letter-writer certainly might have defined what he means by "it." He might just as reasonably ask why his railway company cannot "do it" (provide him with a season ticket, for example) for 10s. a year. The service provided by the B.B.C. is no more comparable with that provided by the telephone administration than with that provided by a railway company, or even with that purveyed by a general supply stores. The comparison is entirely a fallacious one and would not be attempted if a better understanding of the nature of a great public telephone service existed.

HIC ET UBIQUE.

WE take the opportunity of wishing our readers a Happy New Year. We hope for the whole world a more prosperous one than 1931.

The universal economic troubles are reacting in different ways on the telegraph and telephone rates in foreign countries. According to the *Daily Telegraph* the French Administration are raising their trunk telephone charges, whilst according to another paper the Americans (whose telegraphs and telephones are privately owned) are placing a tax on telegrams and trunk calls above a certain value. In Germany, on the other hand, it is said that in order to stay the fall in the demand for new telephone connexions the rates are to be reduced.

All Southern Railway stations (we learn from the daily press) between Victoria and the Kent coast are now linked by telephone for the first time with the opening of a new telephone exchange and switchboard at Orpington Junction railway station. Now the new exchange is in operation, suburban stations are able to telephone direct to stations 100 miles away, instead of telegraphing.

The replacement of telegraph by telephone for all kinds of railway signalling purposes is, we suppose, inevitable.

According to the *Scotsman*, an Orkney farmer controls two farms, separated by 30 miles of Britain's wickedest water—the Pentland Firth—by daily telephone instructions. He is Mr. Peter Maxwell, of Orquil, St. Ola, near Kirkwall, who owns also the huge Caithness farm of Thurdistoft. Special trains carry his sheep South. When he is at the Orkney farm he is in constant touch with Caithness, and vice versa. Both farms are run on highly scientific lines, and are exceptionally well equipped.

It is announced that an agreement has been arrived at between the Governments of Persia and Iraq regarding the establishment of telephone communication between the two countries. A commission, which will have the assistance of foreign experts, has been appointed to complete the necessary technical details.

We regret that owing to great pressure on our space the continuation of Mr. Sellars' Chronology is again held over.

LT.-COLONEL A. C. BOOTH.

A PERSONAL TRIBUTE.

DOUBTLESS, elsewhere, and more worthily, other more capable pens will deal with the technical side of Staff-Engineer A. C. Booth's career in the Telegraph Service, from his entry into the C.T.O. as telegraphist in 1888, transfer to the Clerical Branch of the E.-in-C. in 1895, to Repeater Officer in the same year and thence onward through the usual grades to that of Staff Engineer.

To the present writer A. C. B. has for years stood out as one of the most pertinacious of officers in any job undertaken by him. be the obstacles that confronted him mechanical, electrical, human or what not. Mechanisation, and that electrically driven, was his goal in all things, though, with A. C. B., it was not always possible to introduce the new force and its sequelæ into domestic as into public use! It was doubtless the personality, and his prior knowledge of the C.T.O. and a special section of the same, which had not a little to do with the gradual conversion of the manipulative administration and its staff to the acceptance in their midst of experimental officers of the E.-in-C.'s Department. The C.T.O. was at one time *sacrosanct*, or almost, to the engineers, who were looked upon as intruders instead of helpers and co-operators. A. C. B. had experienced some of the difficulties of Anglo-Continental working, and from the first this was also a distinct asset, which he wisely valued to the full. Was there a difficulty? A. C. B. was always willing to listen to suggestions from the man on the spot. He would then weigh those suggestions very carefully and sooner or later such suggestion would be tried out. Printing telegraphs allured him, in which probably he acquired his first taste by a knowledge of the Hughes Printing Telegraph. His pertinacity meant something more than mere doggedness; it meant doggedness with a purpose, and that purpose meant thoroughness, a thoroughness of the type which was not less earnest when examining overhead lines for faults than when testing out the accuracy of the finest mechanism of the very best type printer.

A. C. B.'s name is well-known and respected on the Continent, where his experience and efficiency were fully appreciated, together with his sterling straightforwardness, by the foreign delegates and representatives. This was confirmed on the day of his retirement from the service of the British Post Office, by the various congratulatory telegraphic communications received from abroad.

That he has no love for paintings, sculpture or literature he would probably admit, but his eyes sparkle at the success of a combination of finely made wheels and levers as they smoothly fulfil the purpose of their maker. One quality has always proved transcendent. He has always exercised mercy and restraint in dealing with subordinates and never has he been known to be slow in helping a lame dog over the stile. That the same spirit will still imbue our respected engineer friend during the coming years of his retirement is surely a safe prophecy!

J. J. T.

ROBERT WIDDERSPOON GRAY.

His many friends throughout the Service will learn with deep regret of the passing of Mr. R. W. Gray, Traffic Superintendent, Class II, Nottingham, on Dec. 10, 1931.

Mr. Gray entered the service of the Post Office as a telegraph learner at Glasgow and remained on the telegraph side until 1915, when he transferred to the telephone branch as an Assistant Traffic Superintendent, Class II, in the Glasgow District Manager's Office. In 1923 he was moved to Nottingham, and in 1930 was promoted to the rank of Traffic Superintendent, Class II, there.

Outside the office, Mr. Gray's interests lay in the Wesleyan Church and his chief recreation was golf. His church activities were wide and included the Sunday School and Foreign Missions, and he will long be remembered and loved by the members of the Church to which he became attached immediately upon his transfer to Nottingham. His kindness and desire to help those with whom he came in contact inspired a deep regard for Mr. Gray in all his official associations and his Nottingham colleagues mourn the loss of a counsellor and friend.

The funeral took place at Wilford Hill Cemetery, Nottingham, on Dec. 14, 1931. There were many floral tributes from old friends, the District Manager, his staff, and from Nottingham Exchange staff. The District Manager, the Traffic Superintendent, the Supervisor and Telegraph Superintendent, Nottingham, and a number of his old colleagues in the Traffic Office were present.

TELEGRAPHIC MEMORABILIA.

A HAPPY NEW YEAR to all readers in all countries, and may Telegraphy recover some of its lost ground and/or discover new fields in which it may be able to fructify.

Samuel Alfred Varley!—It is understood that the hundredth birthday of Samuel Alfred Varley, whose name will always be associated with the Single Needle telegraph instrument is to be celebrated during the present year. Later information states that although Samuel's brother Cromwell was three years the former's senior, it has now been decided that both brothers are to be included in the Commemoration ceremonies. No particulars as to what form the celebrations will take are at the moment available, but there are evidences here and there that an exhibition of "Varley" relics is to be included. Our readers and especially those connected with the telegraph profession would wish to be assured that the organisation of the programme for this occasion is in good hands. To this, in Gilbertian words, but in the most unqualified seriousness of their literal meaning, it can be unequivocally replied:—"Of this there is no possible doubt, no probable possible shadow of doubt, no possible doubt whatever!"

Among the many seasonal greetings and good wishes received one may be forgiven if in acknowledging the same with the keenest and most grateful appreciation, to everyone concerned, one would yet desire to specially mention the Yuletide card from the C.T.O., London. At first sight it may appear invidious thus to mark out one particular greeting, but when that greeting is known to be yet one more card from the pen and pencil of Mr. A. H. Johnson, the writer feels that he has mollified all criticism. The twin pictures, "How we DID it 43 years ago!" and "How it is DONE today," give alike a gentle sarcastic touch to the old warrior telegraphists of yesteryear, and maybe a slightly heavier twinge to the more modern school of to-day. Only a telegraphist who loved his profession, and who could appreciate the potentialities of the telegraph systems of a decade or two back,—only such an one could have so faithfully limned those four earnest telegraphists assiduously occupied at that old "quad" table, and yet with a rapid *rolle face* could at once so satirically depict the troubles of the mechanised telegraphy of the 20th century. The quotations from Chaucer and Shakespeare are indeed well chosen, and to follow this example it may be said of A.H.J. himself, and to quote the bard of Avon, "A merrier fellow within the merits of becoming mirth, I never spent a merrier time withal!"

The death of Edison.—The demise of this aged inventor gave the American press, a splendid opportunity for unbridled ecstatic eulogy of which it did not fail to make full use. Thomas Alva would doubtless himself have been the first one to smile at the suggestion of one leading article which declares that, "If he (Edison) had lived in the age of the Cæsars he might have given the world the printing press and the steam engine and saved modern civilisation a millenium and a half of waiting." It is quite as well, however, that this universally admired American was reserved for the nineteenth and twentieth centuries. A Cæsar's estimate of the value of such a combination of revolutionary changes, might not be assessed beyond the value of a laurel wreath, certainly not in the cold coinage of the realm, as apparently has been the American case. A Congressional Summary, the *T. and T. Age* informs us, has made an analytical study of the value of Thomas Alva Edison to his fellow men,—in dollars! For example:—Railways, \$5,000,000,000; Telephones, \$1,000,000,000; Electrical supplies, \$8,57,000,000. Wireless Telegraphy, \$15,000,000; Batteries, \$5,000,000; and so on up to a total in hard cash of about \$8,000,000,000.

At the other end of the scale and in the same journal, Nikola Tesla esteems that, "Edison was probably the last exponent of the purely empirical method of investigation. Everything he achieved was the result of persistent trials and experiments often performed at random." Here is the newer school of inventors

speaking, a school that sits down with the higher mathematics as companion, works out the problem, then goes to the experimental room, frequently sure of the result.

Felicitations of the sincerest are tendered to Mr. E. Colliver of the C.T.O., upon his promotion from Asst. Superintendent to Superintendent (Lr. Grade) as from last month. Also congratulations to Mr. J. L. Baird, of Television fame, who was married in New York on Nov. 13 to Miss Margaret Albu. Nothing is said as to whether the ceremony was televised! *A Golden Wedding!*—On Thursday, Dec. 17, 1931, the golden wedding of Mr. and Mrs. Alexander Campbell MacEwan was celebrated with due éclat. The details of the happy function are not at the moment available, but it is said that a new vow was taken, that henceforth the banks of the Thames are to be banned for early morning bathing by Alec, though his natural forces still seem unabated. Good Luck to Alec and to his worthy partner (*nee* Miss Rachel Taylor) an erstwhile champion Wheatstoner of the old R.R.

Mr. H. M. Pease (Standard Telephones & Cables, Ltd.) has been appointed a director of the Constantinople Telephone Co. to fill the vacancy caused by the resignation of Mr. F. Gill. Sir G. M. Allard, chairman of Amalgamated Wireless (Australasia) Ltd. and Sir William Vicars having resigned, Mr. Coats, of Sydney, and Mr. Frank Strahan have been appointed to fill the vacancies.

To H. E. A. many thanks for information that touch-typing was first taught in C.T.O. circa 1914-15.

Countries.—ARABIA.—One does not receive much telegraphic news from Arabia, and now it is regrettable information regarding one of our telegraphic readers stationed at Aden. For some time past, Mr. Leslie W. H. Ampleford, a prominent Technical Officer in the Eastern Telegraph Co.'s office there, had been in ill-health, which culminated in an attack of appendicitis. The Company, with its usual generosity, offered to give him three months special leave to permit of an operation in England, but he decided to undergo it out there, where, at this time of the year, the climate approaches somewhat to that of our summer. Latest reports, it is assuring to state, say "making good recovery." His mother may possibly be recalled by some as Mrs. W. H. Ampleford (*nee* Miss Alice Eley) who, prior to her marriage was a very popular colleague in T.S. Telegraphy seems in the blood in this case!

AUSTRALIA.—The following excerpts from a most interesting report issued by a special committee appointed by the Australian Postmaster-General and the Minister of Defence to enquire into the possibility of manufacturing telephone and telegraph equipment at certain Government factories, are not without their special lessons in these present critical days: The report states that (a) to undertake the manufacture of certain classes of such equipment would require careful chemical, metallurgical and physical research. (b) From experience of the manufacture of related items in Australia it was estimated that the cost would be twice that of imported articles, without taking research work into account. (c) Preliminary work would take 2 to 3 years and cost about £30,000. (d) Outlay on machinery would be heavy and developments abroad tend to make such machinery obsolete. (e) The manufacture in the Commonwealth generally added 100% to cost. The Committee finally recommends gradual extension of present policy of giving contracts to local manufacturers. *Broadcasting.*—A new "B" class broadcasting station has been opened at Hamilton, Victoria, for the Western Province Radio Co. It operates on a wavelength of 297 metres, with 200 W in aerial.

BELGIUM.—The number of licensed listeners is about 200,000, but, says *World Radio*, new licences have recently been issued at the rate of about 1,000 per day, as a consequence of a number of prosecutions which have resulted in the imposition of heavy fines.

BURMA.—The Commissioners of the Port of Rangoon have accepted a tender amounting to about Rs. 40,000 for a rotating loop radio beacon at Letkokon, at the mouth of the China Bakir River. The station is being manufactured to the specification of the British Air Ministry and will be entirely automatically controlled.

CZECHO-SLOVAKIA.—*The New Transmitter.*—The new broadcasting (200-kw.) station, thirty odd kilometres outside Prague, near Cesky-Brod, is a remarkable organisation due to the designers, I. T. and T. Laboratories and the Standard Electric Co., of Prague, who installed the station. No adequate description could be given in these pages, but mention may be made of the fact that the aerial towers are 492 feet high and are insulated and self-supporting, and are spaced over 800 feet apart. The transmitter house has a copper roof which is connected to copper bus-bars down all four walls to the ground. The floor is also covered with a copper-mesh screen.

EGYPT.—The Official Report for the Egyptian Telegraphs for 1929-30 shows an increase in telegraph traffic of 1,105,779 since that of 1917-18 and the number of offices from 113 to 516. *Wireless.*—The Alexandria and Abu Zaabal radio stations owned by the British Government, were opened in 1921 and used mainly for communicating with England. In 1929 two other stations were opened for public service at El Kosseir and El Urish, and in 1931 new stations were opened at Giza and at the oases of Siwa, Bahrieh, and Dakhlieh.

ESTONIA.—The radio receiving sets numbered 13,663 up to August of last year, or an average of 12 per 1,000. Licence fees, says the *Electrical Review*, are Kr. 15 (about £1) per valve receiver and Kr. 9 per crystal set. The transmitter at Tallinn (Reval), is 10 kw. power with wavelength of 296.1 metres. Communications Minister granted concession to a private broadcasting company.

FINLAND.—It is notable that the returns and figures of certain countries concerning broadcasting are rather slow in becoming public. Here is Finland whose report just announces that the number of wireless licences at the end of 1930 was 106,808, a steady improvement on the two preceding years. Programmes are broadcast from the two Government stations at Helsingfors and Lahti. The stations at Viborg, and Tammerfors, and elsewhere, retransmit the programmes.

FRANCE.—*The Faraday Centenary.*—On Nov. 26 last Capt. J. M. Donaldson, President of the I.E.E., attended a dinner given by the Société Française des Electriciens and presented the president of the latter body with a specially bound copy of the Faraday Centenary number of the Institution of Electrical Engineers' Journal. *New Radio Station.*—The new radio station at St. Rémy-l'Honoré, inaugurated on Nov. 14, has a power of 120 kw. and occupies a site of 214 acres situated on a plateau occupying the highest point in the Department of S-et-O, and is joined up with the Paris studio through 30 miles of cable. *A Curious Use for Telegraphy.*—The Minister of P.T. and T. recently dealt with an extraordinary case of fraud in connexion with the examination of candidates for posts in the French colonies. The examinations (there were two) were held in France and in Indo-China, simultaneously, to be exact "at the same HOUR OF THE CLOCK," while all the competitors had the same sets of questions to answer. Now every international telegraphist knows that 8 a.m. in Saigon is only 1 a.m. in Paris and in this interval some very smart cribbers "managed to cable to Paris the essential passages in the papers distributed in Indo-China." I am assured on the highest authority that this is not likely to happen again!

GERMANY.—According to the German technical press nearly £500,000 (at par) profit is made by the German Ministry of Posts out of the broadcasting monopoly. Only one-fifth of the licence fees is expended on programmes. Listeners pay an annual fee of 24 marks, payable in monthly instalments.

GREAT BRITAIN.—The Postmaster-General recently gave the information that the number of wireless licences in force on Oct. 31 last was 4,100,000. At the beginning of the year there were 3,411,910 licences in issue. *Television Extensions.*—It is stated in London that the B.B.C. has initiated discussions with Baird Television Ltd. to explore the possibility of the more active participation of the B.B.C. in the provision of television trans-

missions both from the programme and technical points of view. *Plymouth.*—A correspondent of this port informs us that it is expected that early in this present year some type of wireless fog and signalling apparatus is likely to be installed by the Great Western Railway Company near Plymouth most probably at Rame Head. The latter company is specially interested in the guidance of Atlantic liners, and smaller craft. Our informant states that the range will be one of from 25 to 30 miles. *The Telegraph Service of Great Britain.*—The Second Report of the Select Committee on Public Accounts draws attention to the operating loss on the telegraph service. During the year ended March, 1930, it amounted to £772,789 on an operating income of £4,689,493, or an additional loss of £44,256 over the previous year. It was understood by the Committee that the increase in the deficit was due to the then rise in the rate of bonus. It appears, however, to have been made very clear to the Committee that "there was no prospect of the telegraph service paying its way."

HOLLAND.—Philips Lamps Ltd. state that their short-wave radio transmitter has closed down for a period of six months from November last.

INDIA.—The establishment of a radio-telegraphic service between India and Siam is a very welcome advance in India's communication facilities. Radio communication between the more important railway centres is, says the *Electrical Review*, to be introduced. The Government Railway Board have apparently actually ordered four sets of Marconi short-wave apparatus from the Indian Radio Telegraph Co., Ltd. *Broadcasting.*—The future of broadcasting in India is not so promising. While the Retrenchment Committee recommend the closing-down of two broadcasting stations at Calcutta and Bombay and the equipment to be sold outright, the commercialists in Bombay opposed such action on the plea that the Government gave a pledge to continue the experiment until March of this year, and on this guarantee many traders had stocked radio goods to the value of 10 lakhs of rupees. The service was continued, however, after an appeal had been made by the Government of "no piracy" in connexion with licence fees, and that all persons should renew their licences at once. At the moment affairs appear to be in a state of "as you were"!

IRISH FREE STATE.—A site, says the *Electrical Review*, has been definitely settled for the erection of the proposed high-power broadcasting station by the Ministry of Posts and Telegraphs about three miles outside Athlone, Co. Westmeath. Power 80 kw., cost about £70,000: to be completed about September. Contractors, Marconi Company.

JAPAN.—According to the *Far Eastern Review* the manufacture of submarine cables has been under consideration for years. It has now been definitely arranged with the Sumitomo Electric Wire Works for their manufacture. The firm mentioned is to establish a factory in the Bay of Osaka. Work is at first to be commenced with gutta percha cables and the factory is expected to open at the close of the present year or the beginning of 1933.

LATVIA.—It is officially stated that the total number of licensed listeners in August last was about 22 per 1,000 inhabitants. The service from the Riga station (15 kw. 524.5 m.) is the monopoly of the Ministry of Posts and Telegraphs. Licence 21 lats (say 16s. 8d.) per annum, payable quarterly in advance.

NEW ZEALAND.—New Zealanders are looking forward expectantly to the opening of their very own broadcasting system on the 18th of this month. The arrangements generally are based upon the broadcasting system of the B.B.C. *Radio Licences.*—There is a grand total of 64,927 licences in force in New Zealand, which includes dealers' transmitters and special licences. Good business, says the *Electrical Review*, is still reported by local radio dealers, despite the world depression. There is even a growing demand for the more expensive sets. American apparatus seems, so far, to have been most popular, the purchase of British products up to the period of the "gold standard" having been against the British manufacturers.

RUSSIA.—Reuter's Agency informs us from Moscow that Aviation and Radiation are making rapid progress in Russia. A large number of aerodromes have been built and over 100 radio stations have been established to transmit meteorological data.

SCOTLAND.—Mr. D. Alan Stevenson recently gave a lecture at the Royal Scottish Society of Arts, Edinburgh, dealing with "The Navigation of Ships During Fog." The lecturer described different forms of wireless communication which he considered had come to stay as an essential aid to navigation. "There was," he said, "now nearing completion round the British shores a chain of 500-w. radio beacons," and the lecturer discussed the merits and demerits of the various systems, "revolving loops," "revolving reflector beam," "leader cables and submarine signals," &c. "Responsible lighthouse authorities in the U.S.A. and Canada had expressed the opinion," the lecturer remarked, "that submarine signals would in future have no place in navigation." The "talking beacon," which Mr. Stevenson described has been an unqualified success since its establishment at Cumbræ lighthouse on the Clyde, and it is apparently upon this type, judging by the trend of the lecturers remarks, that navigators will have to rely in the days that are to come.

SOUTH AFRICA.—Leading British and Continental makers of wireless apparatus were asked some weeks ago to tender for the equipment of a new broadcasting station at Cape Town for the African Broadcasting Company. Power 5 to 7 kw. Tenders were due in Cape Town on the last day of 1931 and the result will be watched with more than ordinary interest.

SWITZERLAND.—Broadcast reception via your telephone!—World-Radio reports that with the Bavarian success of supplying listeners with an optional means of obtaining good broadcast reception by means of the telephone circuits, Geneva, Berne, Lausanne, and Zurich have opened similar services. Charges:—10.85 fr. per month for non-subscribers but only 2.50 fr. for regular subscribers.

TUNISIA.—According to the *Electrical Review*, during 1930 the length of the telegraph lines in Tunisia was increased to the extent of 607 miles. Total mileage at end of year was just over four thousand miles.

U.S.A.—Television.—The National Broadcasting Co. has erected the aerial of a television transmitter on top of the Empire State Building, 1,000 feet above New York, according to Reuter's Trade Service, to which *World-Radio* adds that the 5-kw. scanning equipment, and studio are to be installed on the 86th floor of the building. Another report says 85th floor, but an odd floor or two more or less doesn't seem to matter! Some months back it was reported that the company's engineers were of the opinion that the new equipment will help to overcome many of the difficulties previously encountered in visual broadcasting, but asked for at least another twelve months. *Rapid promotion!*—The *T. and T. Age* reports that Miss Florence Philobaum, of San Francisco, entered the Postal Telegraph Company as an operator at Los Angeles in 1923, and in November, 1931, was appointed Traffic Inspector of the company in San Francisco. *A contrast.*—In the same telegraph organ we also read: "George St. Amour, Fast Newspaper Telegraph Operator in his day, died in Belle Vue Hospital, New York, from exposure and starvation in October last. Pushed out by mechanical telegraph machines, "which changed all this," comments an American newspaper and adds, "Three years ago he wrote an article on Mechanisation of Telegraphs when he was Night Chief of the *New York World*. Unfortunately this paper died out and George St. Amour with it, at the age of 54 after 30 years' telegraph service." To which one would quote, "One sad little story out of all the heaped-up sorrow of the world." *American Automatics!*—It is recorded in the scientific and telegraph press of the U.S.A., that at Balboa, the Pacific entrance to the Panama Canal, in the telegraph office of All American Cables Inc., the working arrangements have been so concentrated that one man handles seven automatic transmitters feeding seven cable circuits, collecting his traffic from New York and northern points

to Central, and South America. Similarly one man handles another bank of seven automatic perforators feeding two automatic transmitters covering the northbound messages for New York.

Man and Science.—The most astonishing fact in the whole picture of scientific progress is man himself. The modern astronomer thinks in terms of thousands of millions of years, and lives perchance for three score years and ten. His mind embraces the whole of space and seven feet suffice for his resting place.

J. J. T.

TELEPHONE DEVELOPMENT OF THE WORLD IN 1930.

By W. H. GUNSTON.

DURING the year 1930 about 850,000 telephones were added to the world's total, 600,000 of these being gained in Europe. This is probably the first year since the War—certainly since 1920—in which a gain of a million stations has not been reached, the net gain for both 1928 and 1929 being about 1¼ millions.

The Telephones are distributed as follows:—

	Dec. 31, 1929 (thousands).	Dec. 31, 1930 (thousands).
Europe	9,958	10,560
Asia	1,365	1,413
Africa	224	238
North America	21,706	21,850
South America	587	625
Australasia	706	704
	<u>34,546</u>	<u>35,390</u>

In a year of poor telephone development the progress made by Europe is distinctly good. It will be seen that North America added less than 150,000 to the grand total. The development of South America has been estimated on last year's figures and may possibly prove to be greater than the figure shown above. The figures for the other countries are mostly from official sources.

The following table shows the number of telephones per 100 inhabitants in all countries with upwards of 100,000 telephones and a density of at least 1%.

United States of America	16.4	Netherlands	3.8
Canada	14.2	Belgium	3.6
New Zealand	10.7	Finland	3.5
Denmark	9.8	Austria	3.4
Sweden	8.8	France	2.8
Australia	8.0	Argentina	2.6
Switzerland	7.3	Japan	1.5
Norway	6.7	Hungary	1.4
Germany	5.1	Czecho-Slovakia	1.1
Great Britain	4.3	Spain	1.0
		Italy	1.0

I.—EUROPE.

The total number of telephones in Europe increased by 602,000 or by rather more than 6%. By far the largest increase was in Great Britain, 110,161 (6%). France comes next with 97,526 (9%), then Germany with 66,548 (2%), Italy 56,776 (13%), Russia 46,000 (14%), Spain 38,000 (22%), Belgium 32,941 (11%), Switzerland 29,216 (11%), Sweden 27,331 (6%).

It should be observed that the Northern and Western countries of Europe (Scandinavia, Germany, Austria, Switzerland, France, Holland, Belgium, and Great Britain) contain 8,600,000 of the 10,560,000 telephones in the total. The development of this part of Europe is 4.5 telephones per 100 inhabitants, as against 1.9 for the whole Continent.

Country.	Population (thousands).	No. OF TELEPHONES.		Telephones per inhabitants.
		1929.	1930.	
Austria	6,750	217,918	233,912	3.4
Belgium	8,060	256,779	289,720	3.6
Bulgaria	5,483	17,091	17,532	0.3
Czecho-Slovakia	14,723	157,707	162,477	1.1
Danzig (Free City)	407	19,880	20,174	4.9
Denmark	3,551	336,199	348,513	9.8
Estonia	1,117	13,806	17,068	1.5
Finland	3,611	125,772	127,000	3.5
France	40,743	1,056,034	1,153,560	2.8
Germany	63,100	3,182,306	3,248,854	5.1
Great Britain	46,189	1,886,726	1,996,897	4.3
Greece	6,131	11,028	13,000*	0.2
Hungary	8,683	105,148	120,280	1.4
Iceland	94	4,781	5,145	5.4
Irish Free State	2,975	28,991	30,214	0.9
Italy	40,425	352,078	408,854	1.0
Latvia	1,883	40,996	47,302	2.5
Lithuania	2,000	13,312	14,480	0.7
Luxemburg	264	11,366	12,364	4.1
Netherlands	7,920	284,533	303,694	3.8
Norway	2,810	186,000	191,000	6.7
Poland	30,213	178,663	199,379	0.7
Portugal	6,032	34,558	37,000	0.6
Rumania	18,024	59,359	59,279	0.33
Russia	161,008	336,000	378,000	0.24
Serbs, Croats, & Slovenes	12,800	33,926	33,000*	0.24
Spain	22,285	190,059	220,000	1.02
Sweden	6,141	509,061	536,392	8.8
Saar Territory	805	23,110	24,161	3
Switzerland	4,066	268,714	297,930	7.3
Turkey	2,000	12,803	13,041	0.65
Total (including Albania, Gibraltar, &c.) say		9,958,000	10,560,000	1.9

* Estimated.

NOTES. *Great Britain.* The total comprises:

Post Office System	1,957,690
Hull municipal system	17,075
Guernsey	4,361
Jersey	3,587
Railway and other private systems	14,184
	1,996,897

Norway.—The latest figures available show State System (June 1930) 90,711. Private companies (December 1929) 75,319. Private systems in direct connexion with Government system 18,353. The total shown has been estimated from these data.

Russia.—The figure given applies to Oct. 1. Some 15,000 of the total applies to Asiatic Russia.

Spain.—The system of the Compania Telefonica Nacional comprised 212,360 stations. This has been rounded up to 220,000 to include some small remaining local systems.

II.—ASIA.

	Telephones.
Ceylon (8,137)	8,209
China	156,000*
French Indo-China (7,197)	7,200*
Federated Malay States (7,478)	7,798
India	54,610
Iraq (1,335)	1,667
Johore and Kedah (891)	1,300
Japan (proper) (950,798)	991,407
Chosen (37,055)	39,000*
Taiwan (14,338)	15,000*
Quantung (22,138)	24,000*
Saghalien (5,579)	6,000*
Netherlands East Indies (53,094)	54,045
Palestine (3,977)	4,374
Persia	4,000*
Philippine Islands	23,000*
Siam	3,000
Straits Settlements	
Penang (1,766)	1,508
Malacca (657)	602
Singapore (7,568)	7,532
Turkey in Asia (est.)	2,000*
	1,413,000

(The figures in brackets refer to 1929.)

*Estimated chiefly on last year's figures.

NOTES.—*India.*—The figures for the State system refer to Mar. 31, 1930. Those for the Companies' systems refer to Dec. 30, 1930.

China.—The figures are chiefly based on an American estimate.

Japan.—It will be seen that in the Japanese Empire there are about 1,080,000 telephones. In Japan proper (population 64,450,000) there are 1.5 telephones per 100 inhabitants.

III.—AFRICA.

	Telephones.
Angola (905)	1,000*
Algeria	39,777
Belgian Congo (1,175)	1,200*
Egypt (43,302)	42,830
Gold Coast (1,061)	1,267
Kenya and Uganda (2,811)	3,180
Mauritius (812)	834
Madagascar	2,035
Morocco (11,128)	12,000*
Mozambique	709
S. Rhodesia	4,191
South Africa, Union of (101,902)	107,145
S.W. Africa	1,685
Soudan	1,522
Tunis (12,352)	13,000*
Tanganyika	900*
Tripoli and Cyrenaica	1,000*
Total, with estimate for Erythrea, Dar-es-Salaam, Cameroons, Nigeria and other places	238,000

* Estimated on last year's figures.

Figures in brackets refer to 1929.

It is interesting to note that about 112,000 of the total telephones are in Mohammedan Northern Africa.

IV.—NORTH AMERICA.

	Population (thousands).	No. of telephones.	Telephones per 100 inhabitants.
United States (20,068,023)	123,500	20,201,000	16.4
Canada (1,406,164)	10,009.5	1,419,854	14.2
Mexico (81,695)	16,300	84,000*	0.52
West Indies—			
Cuba (76,817)	3,700	78,000*	2.1
Porto Rica (12,260)	1,300	12,300*	0.9
Haiti (2,148)		2,500*	
Dominican Rep. (1,958)	4,000	2,500*	
Dutch & French W. Indies		2,000*	
Jamaica		2,209	
Trinidad		3,748	
Bahamas		1,127	
Windward and Leeward Islands	1,740	1,590	
Other British West Indies		3,000*	
Central America (24,631)	6,548	25,000*	0.4
Newfoundland	263	8,500	3.2
Other places		2,500*	
	167,300	21,850,000	13.0

NOTES.—The figures marked * are based on estimates from an American source. Figures in brackets refer to 1929.

United States of America.—The total is thus made up:

Bell Co. (A. T. & T. Co.)	15,682,000
Independent Cos. connecting with "Bell" system	4,416,000
Independent	103,000
	20,201,000

This represents an increase of 133,000 on last year, or 0.6%.

Canada.—The total is comprised of:

	Telephones.
Ontario	636,118
Quebec	309,582
British Columbia	128,876
Saskatchewan	98,354
Manitoba	78,658
Alberta	78,784
Nova Scotia	47,193
New Brunswick	34,959
Prince Edward Island	5,712

This represents an increase for the year of 13,690, or 0.9%.

(To be continued.)

AMERICAN INFLUENCE ON BRITISH TELEGRAPH PRACTICE.*

BY G. T. ARCHIBALD.

The British telegraph service has been so much in the public eye of recent years that most of us feel just a trifle inclined to think it has come in for more than its fair share of criticism. The administration has been blamed both in the Press and elsewhere for the sins of Parliaments from 1868 onwards and the criticisms levelled at it have not always been free from bias. The Geddes "Axe" Committee, however, gave the administration a little encouragement, a new and better era seemed to be opening, but the dream was rudely shattered by the report of the Hardman Lever Committee, a committee set up to show us how the telegraph service could be made to pay its way. This committee's criticisms and recommendations, awaited with curiosity, were received with indignation in many quarters, and it is to be feared that in general the report was considered to be not as helpful as might have been expected, having regard to the commercial eminence of its authors. I think, however, that the report did something to stir things up. It provided an impetus, and there can be little doubt that one of its recommendations is responsible for the tremendous activity of the past three years. I refer to the recommendation that imperial and foreign methods should be studied by administrative and technical officers.

A commission headed by Mr. Simon sailed for America in September, 1928. Every possible facility was afforded the members of the commission. They spent seven weeks in the United States collecting information, discussing all manner of questions with officials of all grades of both competing companies, and in visiting telegraph offices in various parts of the country.

The commission submitted its report in February, 1929. The report was fairly well received. There was, perhaps, some suspicion of the motives underlying the report, but on the whole the criticisms which appeared in service journals was not discouraging. The report concluded with these words: "The successful carrying out of the scheme of reorganisation set forth in broad outline above will demand the whole-hearted co-operation of the telegraph staff of all grades. We think that our recommendations, if they are agreed in principle, should be communicated in their entirety to the staff organisations concerned with a view to ensuring their goodwill and their assistance in bringing the scheme into successful operation."

The commission was led to express that hope because of the difficulties hitherto experienced in obtaining agreement with the staff side on questions affecting the service. We thought that if all the cards were placed on the table, so to speak, the chances of agreement would be improved.

The Postmaster-General, I am glad to say, adopted the suggestion the recommendations were sent to the staff organisations concerned and joint committees were set up to see what measure of agreement on the points at issue could be achieved.

It is quite obvious that both sides approached the highly controversial questions with good sense and an earnest desire to reach satisfactory conclusions and agreements, and the joint committees responsible for the negotiations are to be congratulated on the success which has attended their labours. If the results fall short of expectations, according to the point of view, the negotiations represent, to my mind, a great advance on anything which I can remember in Post Office history.

During the past few weeks there have been important developments, developments which cannot fail to have far-reaching effects upon the service itself and upon those of us who obtain a livelihood out of it.

The agreed conclusions have been discussed at a special conference of the Union of Post Office Workers and their final ratification may be expected shortly. The Controlling Officers' Association has accepted the commission's recommendations and as soon as the final details have been settled it will remain for the Post Office to give effect as rapidly as possible to the joint committee's conclusions.

There can be little doubt that the outcome of these negotiations will be a revolution in British telegraph practice, and it is perhaps safe to say that the very remarkable changes which are to take place would not have been possible but for the visit to America of the commission headed by Mr. Simon. Those of us who were fortunate enough to be included in the party were tremendously impressed with the American service, with the spirit of the administration, with the careful selection and training of operators, with the care and thought given to questions of apparatus and layout, with the speed of service, with the desire to help the customer in every possible way, and with the efforts made to attract more and more customers. "Telegraph Don't Write" is a well-known slogan in America.

The desire to serve may not be altogether altruistic. Such details as dividends and salary increases must be borne in mind, but the fact remains that American telegraph officials are shrewd enough to realise that altruism and efficiency may be yoked together and make good trotting companions. And so, in America, everything is done to please and satisfy the big customer. The organisation thinks in split seconds, and there is more rejoicing in American telegraph circles over the saving of a fifth of a second than we could muster over a couple of minutes.

It is essential if we are to get a true picture that we should know something of the manner in which telegraph business is conducted in America, and to compare the conditions under which our own business is pursued.

The American telegraph business is in the hands of two privately owned companies or corporations, the Western Union Telegraph Company and the Postal and Telegraph-Cable Company. At one time and for a brief period the Western Union Company was controlled by the American Telephone and Telegraph Company but the combination was held to be illegal under the Shearman Anti-Trust laws and dissolved.

The two companies operate in competition with each other and with the telephone system. As may be imagined, competition between the two telegraph companies, especially in the larger towns and cities, is intense. There is therefore a real incentive to keep the service up to a high state of efficiency and it cannot be denied that the public obtain tremendous benefits from this competition.

Canvassers belonging to both companies are always at work, striving to obtain new traffic, complaints are handled with great care and with promptitude and no customer is allowed to remain dissatisfied for long. This competition, though relentless and unceasing, is nowadays carried on in a friendly spirit, though in earlier times relations between the companies were not so happy.

The companies are not tied down too rigidly by Acts of Parliament as is the case in this country. They are in a position to pick out particular classes of traffic for urgent treatment. If you deal in perishable foodstuffs, grain, stocks and shares, &c., and even if you are a bookmaker in a big way of business, your traffic is valuable to the companies and they will provide you with a service such as could not be given by any state-owned concern. But if you want merely to advise your wife that you will reach home to-morrow your message may take several hours in transit, especially if you reside in a place served by an omnibus circuit.

In this country we are prevented by statute from showing favour. Every telegram must be dealt with in the order of handing in, and we cannot be said to be in competition with the telephone system which has a rapidly extending no-delay service. But since the commission's return from America the much discussed and much misunderstood carry-over introduced in 1923 has been abandoned on the heavily loaded circuits and is now to be superseded by a system whereby the traffic at a number of circuits over and above the staffing standard is added together and provided for by a staffing pool.

The old carry-over system was designed to furnish a 15 minutes transit time, the abolition of which undoubtedly reduced the transit time, and it now remains to be seen whether the pool system will have the same effect.

The essence of success in American telegraphs is, as I have indicated, speed, and speed at any cost is the order of the day. Labour saving devices of all kinds are freely, almost lavishly, employed. Timing stamps and electrically operated numbering machines are fitted at most circuits and the operators are seldom required to use a pencil. Even roller skates are pressed into service in New York and Chicago to expedite the circulation of particular classes of traffic. We have not yet begun to think of roller skates, but we are experimenting with various types of number and timing machines, the most promising of which is a combined number and timing machine built to the design of the Headquarters Traffic Section. This machine represents a real advance on anything we saw in America and I shall be surprised if our friends over the water do not soon seek to take advantage of the improvement.

The American incremental system encourages operators to work at high rates, women are encouraged to remain in the service after marriage because it is thought to be bad business to part with thoroughly qualified workers who are willing to stay. About 70% of the women telegraphists in America are married.

The conditions of service in the American telegraph companies, as I told the Society in the paper read in 1929, are not nearly so favourable from a staff point of view as those offered by the British service. A week or two ago an American friend told me that short time is quite common just now, as traffic has fallen to the 1928 level. Basic rates of pay have not so far been reduced. Well, our traffic has fallen steadily for some years, but no one has suffered from short time, and basic rates were actually increased in 1928.

The change from morse to teleprinter and typewriter working in this country has created some staffing problems and the Post Office has agreed, properly, I think, that during the transition period every consideration will be shown to the senior operators who have grown up in the older methods of telegraphy and to avoid as far as possible—I am quoting the official document—any action which would suggest that their status is lowered, that they are being relegated to a position of inferiority.

In America numbers of morse operators who could not qualify in teleprinter working and for whom no other suitable work could be found were dismissed and replaced by young women. Such a state of things could not, of course exist in this country. On the whole I think it is fair to say that the American arrangements for recruitment, terms of service, pay, &c., are not suitable for adoption in a state service.

The American telegraph companies demand a higher educational standard for telegraphists than that imposed on boy messengers and girl probationers in this country, and persons on the equivalent grades in America are never promoted as telegraphists. The American telegraph administrator argues that a fairly high educational standard is essential if telegrams are to be

* Paper read before the Telephone and Telegraph Society of London.

dealt with intelligently. The Simon Commission took the same view and recommended the re-introduction of open competition with the necessary safeguards for the bright and intelligent boy messenger. No decision on this important question has apparently been reached.

American telegraph officials pay particular attention to quality of service, apparatus maintenance and layout, training of new entrants, collection and distribution of traffic and the comfort and convenience of the staff at operating positions. The traffic organisation is excellent and the amount of money expended on traffic work, money which they regard as well spent, is enough to make an English traffic man's mouth water.

It is in the matter of apparatus and layout that American influence on our service is most apparent. Our telegraph instrument rooms are dead dull places. Mr. Lee tried to brighten the C.T.O. by the exhibition of framed pictures of places of interest in and around the towns in communication with London. But even that experiment was only a partial success, perhaps because of the general dinginess of the galleries during the reconstruction. We should, I think, do everything possible to provide cheerful and comfortable working surroundings whatever expenditure is incurred.

We were told that the American telegraph systems would be glad to give up multiplex working in favour of single channel working, and that they would probably do so when phantom circuits became more readily available. We realised that the development of single channel machine telegraph circuits would be a comparatively easy matter in this country and promptly decided to recommend the adoption of the idea. Already in the Central Telegraph Office alone multiplex working has ceased or is about to cease on every route with the exception of the Irish and Channel Island routes, and even these may be converted before long. Traffic blocks due to the vagaries of divided multiplex and quadruplex working are largely things of the past, and supervising officers and operators alike are agreed that the move was a step in the right direction.

It required courage to submit a recommendation of this kind having regard to the fact that large quantities of comparatively new apparatus would have to be scrapped, but the results have justified the change and all concerned are to be congratulated on the manner in which they have responded to the altered working conditions.

The transformation of the service from morse to machine telegraphs, started after the war, has been almost completed and the process has been hastened as a result of the Simon Commission's report on American telegraphs and its recommendations.

A fairly considerable teleprinter development had been decided upon before the commission left for America. It seems to me, however, almost certain that the further development would never have been attempted but for the first-hand knowledge we gained during the discussion with our American colleagues.

It has been the practice in this country to arrange tables singly in instrument rooms, and we were rather surprised to find that in America this type of table was the rule rather than the exception. The advantages of the arrangement are manifold, conservation of space, concentration of apparatus and working positions, economic collection and distribution and reduced area of supervision. Space is no less vital in British offices than in America, and supervision outside peak hours with the working points of a sectional officer distributed over five, six and seven tables is unsatisfactory. The double table layout is obviously more convenient from the Supervisor's point of view and it is more economical when band carrier collection is employed, as one carrier will serve two tables.

All balancing and other apparatus, with the exception of multiplex distributors, not required in operating is removed from the instrument tables and mounted on apparatus racks. This enables the use of a narrower instrument table and secures, moreover, that all maintenance shall be in the hands of experts. The arrangement further removes from the operating positions a vast quantity of dust collecting apparatus, and gives the tables a more businesslike appearance; there is more room for the operators and there are no obstructions in the way of good supervision.

Cork carpet or linoleum covered floors are a feature of American telegraph instrument rooms, and a specially designed operator's chair is in general use.

All the features I have enumerated have been incorporated in the new lay-out of the Leeds office and those of you who have been fortunate enough to see it will agree that the transformation which has taken place is a most creditable piece of work. About a third of the floor space of the old instrument room has been saved, yet there is an air of spaciousness not previously apparent. An old and dingy instrument room is now a beautifully blended picture in cream, brown and green. There is every inducement to the staff and supervision to get on with the job, and our model office is a very good copy of a modern American office. In some respects, notably in the "V" belt conveyors and apparatus racks, I think we have improved on American design. The American belts are fixed at table level, ours are sunk below table level.

Similar layout schemes are being prepared for other provincial zone centres and for the Central Telegraph Office.

We are so far advanced in consideration of the new C.T.O. layout that I can indicated roughly the lines upon which we are proceeding. I should, however, explain that the plan has not yet received Secretary's authority and that it is subject to amendment.

The street tubes, circulation and delivery now accommodated in the Central Hall will be removed to a position facing the Centre Gallery of the

Third Floor. New tube apparatus of the self ejector type is to be fitted, and this apparatus is, I believe, practically noiseless in operation. The centre will contain 14 double tables serving all the principal provincial offices. The old "B" or News Division will become the News and Special Section, the old "C" or Special Section will accommodate the L.P.S. teleprinter offices, the present "G" Division, the pride of the ladies of the C.T.O. will be downgraded to Home Counties Circuits, and the old "F" will take the South Coast resorts. About 340 teleprinters will be accommodated on the Third Floor. The remainder, morse circuits, will be converted to telephone-telegram working and will, it is hoped, be located on the West Side of the Fourth Floor.

The apparatus racks, the design of which is, I understand, an improvement on the Leeds equipment, will occupy less space per rack than Leeds. They will be accommodated in the South Gallery of the Third Floor, once known as the Intelligence Duty, or I.D. The concentration equipment will be placed in the test room.

There will be the usual band carrier equipment inward from the circuits and, I hope, outward to them, and we shall be disappointed if our office drag exceeds three minutes when the equipment is complete. In the Leeds equipment the traffic from the table bands is carried to overhead transverse belts by means of riser belts. In the C.T.O. equipment we hope that the traffic will fall from the table belts into transverse belts about a foot from the floor. This arrangement is not only cheaper but less noisy. It works well in Berlin, where I saw it in operation.

The floors will be covered with cork carpet as at Leeds and I fancy that ultimately the C.T.O. will be one of the best equipped offices in the world.

One great advantage to be gained will be the ease and facility with which circuits may be concentrated outside the peak hours, with consequent economies in supervision staff, lighting, &c.

In order to reduce delay to a minimum every office in America is required to report to a central office when delay exceeds a certain maximum and the Control Officer, who is responsible to the Vice-President of Traffic at Headquarters, may order diversion or extra points as circumstances demand. This has the effect of keeping delay at a minimum. Shortly after our return from America a Traffic Control Circuit providing communication between the Headquarters Traffic Section, the C.T.O., and certain provincial offices was set up, and each office was required to keep the Traffic Section informed of the traffic conditions on particular routes. Some telegraph offices, mistakenly to my mind, thought that the scheme would destroy local responsibility and initiative, but experience has proved I think that American influence in this connexion has been all to the good.

The question of maintenance of telegraph apparatus has always been a thorny one. The traffic side has for many years past argued that control of mechanics is essential to efficient maintenance. It is a subject in which I have always taken a keen interest and it was no surprise to me to find that in America the engineering side had no control of installed apparatus. All maintenance men are trained by and are directly under the control of the Traffic Branch. The system is highly efficient, every maintenance man first graduates as a telegraphist; he knows exactly what is wanted from the traffic aspect; he is better equipped mentally for the job than the average mechanic; he is in close touch with the traffic, and he is a specialist. He is instructed in the Company's time but receives no additional pay until he is actually placed on the maintenance staff.

Here, I understand, it is proposed to train telegraphists as maintenance officers at telegraphist rates of pay plus a personal allowance. The scheme does not, therefore, go quite so far as American practice, but it represents a big step forward, and should be beneficial to the service if care is taken to maintain a high standard of qualification.

I believe there are only one or two woman maintenance officers in the whole of the United States. We are about to encourage women to take up this work. Some years ago it was decided to reserve 25% of the dirigeur duties for women. The response was disappointing, and one may be pardoned for feeling just a trifle doubtful whether the more complicated duties of a maintenance officer will appeal to the ladies.

Many telegraph officials in this country have always felt that our arrangements for overhauling apparatus left something to be desired. In America particular attention is paid to this aspect of telegraph maintenance, faulty apparatus is not tolerated, every piece is removed and tested at stated intervals and a life history of each unit is available. The work is usually performed at night when apparatus can be removed without detriment to traffic requirements. A scheme has been prepared for use in this country and a start is to be made next month. This is a development which we shall all watch with considerable interest.

As regards training of operators, our American experience has had very definite influence. The C.T.O. School is now largely a teleprinter school and the results obtained with the first batch of learners put through the new curriculum were quite up to expectations. We found that new entrants had no difficulty in qualifying to type 80 messages an hour after 5 months' training.

In America the training does not generally exceed three months and the qualifying standard is 60 telegrams per hour.

Technical instruction is given to American learners only if they are to be attached to offices at which a maintenance officer is not justified, whereas our administration has decided that such training shall be universal.

I think our new training scheme is more thorough than the American scheme. It may be of interest to add that the technical instruction given to our learners created a surprising demand for technical details and diagrams, a demand which we were only too pleased to satisfy.

The Simon Commission very definitely suggested the adoption of the American idea of specialisation in all branches of the work. The decision not to offer a special allowance to operators employed at the more heavily loaded routes and the Union's acceptance of a considerably higher staffing standard makes it necessary to modify that proposal. It is now proposed to restrict particular circuits to particular groups of operators as far as possible, to regard five hours as the normal maximum time of employment at one circuit, and to restrict movement of operators by a much better organised meal relief system.

Rest reliefs generally given at all large American offices will take the place, to a large extent, of casual reliefs. This is a much needed reform in our system and with this part of the scheme in full working order the life of a supervising officer should be almost ideal.

One further point in connexion with the operating side of our work is deserving of notice.

The quality of the work of every operator in America is tested from time to time. The tests are not used as a means of increasing output, but errors noted during the tests are brought to the notice of the operators concerned. Similarly, the tests frequently expose mechanical weaknesses in the apparatus and intermittent line faults. The whole object of the system is to secure a high standard of efficiency. I am glad to see that a similar arrangement is to be introduced into our service.

As regards supervision it has been decided, having regard to the higher operating standards imposed to relax our supervising standard by 20%. In America no standards are laid down and the amount of supervision required is based largely upon the volume and class of traffic.

In America phonogram work is performed by a grade trained in touch typing but paid at slightly lower rates than machine telegraph operators. Our administration is proposing to arrange for phonograms to be typewritten at the larger offices and to regard the work in future as proper to telegraphists, a step in the right direction. The staff will, I understand, be required to perform both teleprinter and phonogram duties. The decision to adopt this plan must have given immense satisfaction to the telegraph men and women, who have always felt convinced that phonogram work should be performed by telegraphists. I say this without disparagement to the telephonists who have done the work extraordinarily well, but in the provinces, particularly, the telephonists employed on phonogram work rotate on non-telegraph duties and I cannot believe this to be satisfactory.

I have tried to give you the facts without unnecessary and tiresome trimmings. It will be obvious that the best features of American telegraph practice are about to be incorporated into our system. Mechanisation cannot go much further. The motto of our American colleagues is "Hands off the people's telegrams." They employ no manual labour where a machine can be found to do the work more rapidly, they do not hesitate to scrap troublesome and obsolete apparatus, they are ever on the look out for better methods, better machines and better equipment of every kind. They find, as others have found, that human efficiency is encouraged by the provision of efficient machinery and equipment and I hope that we have profited by their experience and example.

I have said enough to indicate that American influences are largely responsible for recent and projected changes in British telegraph practice and I am confident that the agreement reached between the staff organisations and the administration will be advantageous from every point of view. I believe our re-equipped instrument rooms will bear comparison with the most up-to-date American offices and it now remains for all grades to co-operate in the effort to provide the speediest possible service. By giving such a service we shall ourselves provide the cheapest and the best possible advertisement. We shall be in a position to help the trade of the country, and we shall thus be entitled to participate in the good times which we are told are in front of us. I would appeal to every telegraph man and woman here present to-night to do everything in their power to urge forward any and every telegram with which they may be called upon to deal, and to remember that every minute saved in transmission may mean the increased use of the telegraph service by the satisfied patron.

TECHNOLOGICAL INSTITUTE OF GREAT BRITAIN.

We have received from this Institute a copy of their publication, "The Engineer's Guide to Success" (140 pp.). The book contains particulars of some hundreds of courses, covering all branches of civil engineering, mechanical and electrical, including special courses in telegraphy and telephony and for Post Office examinations (Engineering and Traffic Departments).

CORRESPONDENCE.

INFLUENCES ON TELEGRAPH PRACTICE.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Sir,—Owing to the number of speakers who wished to debate questions at Mr. Archibald's lecture on "American Influence on British Telegraph Practice" and the large amount of time monopolised by some of them on matters of doubtful relevancy, it was not possible for all who desired to do so, to enter into the discussion.

As many of the points raised implied a profound ignorance of economics generally I should like to add this contribution in the hope it will arouse some thought to other aspects of the various questions.

A leading criticism was the alleged failure to advertise the telegraphs. Advertising is a highly developed science. It is only effective while the advertisement continues and must be suited to the subject to which it is desired to call attention. In one case it is best blazoned before the public from every street corner at huge expense; in another, a subtle suggestion in the right place and at little cost, will suffice. The cost of the advertisement must bear some relationship to the possible increased income it is likely to create from the particular service or article concerned.

It would seem that the speakers desired to see gigantic hoardings after the style of those depicting a certain brand of beer: "A telegram a day keeps the doctor away." Now the *public* do not want to send telegrams every day, but they must always have something to drink. So there is sense in putting beer on hoardings but not telegrams.

The traffic to be encouraged is the occasional emergency need, and the first question asked in these circumstances is "Where can I despatch a telegram." At the present day the answer to this is "Over the nearest available telephone."

In view of the fact that practically every call office telephone plate from Land's End to John o' Groats now bears the superscription "Telegrams may be telephoned," and every telephone dial bears instructions for sending telegrams, there is some indication that *sensible* advertising is taking place. It remains for this idea to be developed.

Great help would be given to this campaign if the services of the B.B.C. were enlisted for an occasional broadcast talk on "How to Telegraph," by someone with vocal personality and conviction: a talk that would sink into the mind of the "occasional" person who would thereby gain more confidence and be inclined to approach a telephone for the purpose of despatching a telegram when the need arose.

I am perfectly certain such a public utility talk would be more appreciated by listeners than many of the somewhat nebulous educational talks broadcast every evening. These latter are mainly wasted time. That is my experience in endeavouring to keep alive one of the B.B.C. talk discussion centres.

Then we had that stale ghost, the maintaining of the telegraphs as a public utility service without regard to the cost. Amazing! Russia is installing teleprinters, but only in circumstances which justify telegraph facilities. Even the Communist mind is sufficiently intelligent not to uphold this antiquated contention. It is a wonder that in this direction it was not advocated that as the telegraphs from a social point of view, had largely been displaced by the telephone, every home in the land should be fitted with a telephone free of charge. No wonder the ballot box is beginning to revolt at the very mention of so-called social service!

The lecturer impressed the importance of "no delay." The older telegraphists know this, but there is a considerable number of "moderns" who have not this telegraph sense. There is a general slackness in their mentality not directed particularly against the telegraphs but appearing in their general attitude towards life. It can best be interpreted as a species of "untouchableness."

"Telegraph sense" means neither rushing nor hustling, but just remembering that a telegram is a telegram which still has its significance when handed to the addressee.

From where are we going to get the traffic? There is little likelihood of regaining traffic that has as a natural and inevitable course gone over the telephone. The problem is to make it worth while for the public to send what might be termed its incidental urgent communications that would otherwise not go at all, by telegraph. This traffic will always be with us and there is at the moment some indication of an arrest in the fall of it.

One or two speakers gave the impression of harbouring some sort of grouse and dwelling too much in the past. The telegraph staff, all things considered, have a lot to be thankful for, and it is folly not to meet things as they are in a generous spirit. The modern telegraph office is unquestionably a vast improvement so far as working conditions are concerned, compared with that of 20 years ago, and the British telegraph service has given its staff more opportunity to make good than any other administration would have dreamed of.—Yours faithfully,

"CARRY ON."

SHIP TO SHORE TELEPHONES.

By R. P. LOWE (*Contract Manager, Newcastle-on-Tyne*).

THE interesting article in the October number of the *Telegraph and Telephone Journal* prompts one to consider whether the achievements in the direction of ship-to-shore telephones in the Newcastle-on-Tyne District have been allowed to pass unsung because of the lack of publicity. Certain it is that such facilities have been in operation for just over two years, and a few remarks on the subject at this time may not be inopportune.

Unlike the system which has been installed at South Dock, Newport, the facilities on the Tyne are provided by means of



FIG. 1. PHONE AND CABLE HOUSED ON THE STAITH ALONGSIDE WHICH VESSEL IS BERTHED. NOTE WELL-USED TELEPHONE DIRECTORY.

(Photographs by W. Parry & Son, South Shields.)

separate direct exchange lines to seven points on the coal shipping staiths at Whitehill Point and Albert Edward Dock. This is a distinct advantage over the Newport system as it enables seven vessels to be provided with telephone service at the same time. The circuits are rented at tariff rates by the Tyne Improvement Commission, which is responsible for all fees for local and trunk calls.

At the outset, in 1929, the "business" end of each circuit comprised a portable box containing a telephone and multi-coin box, and no rental charge was made to the vessels for use of the service. After an extended trial, however, it was found that the weight of the portable box, in which were fitted the telephone and multi-coin box, was too heavy to admit of it being easily handled, and so the Commission decided early this year, to modify the arrangements. This involved dispensing with the multi-coin box equipment, and the provision of a simple telephone in a more convenient portable container measuring 15 in. by 12 in. by 9 in.

Thereafter, the Commissioners made a charge of 2s. a day, or part of a day (with a maximum charge of £1 per vessel) such charge covering free calls to exchanges within 7½ miles of North Shields Exchange, which includes Newcastle-on-Tyne.

The usual trunk fees are charged and the account for these is rendered by the Commission to the shipmaster, shipowner or

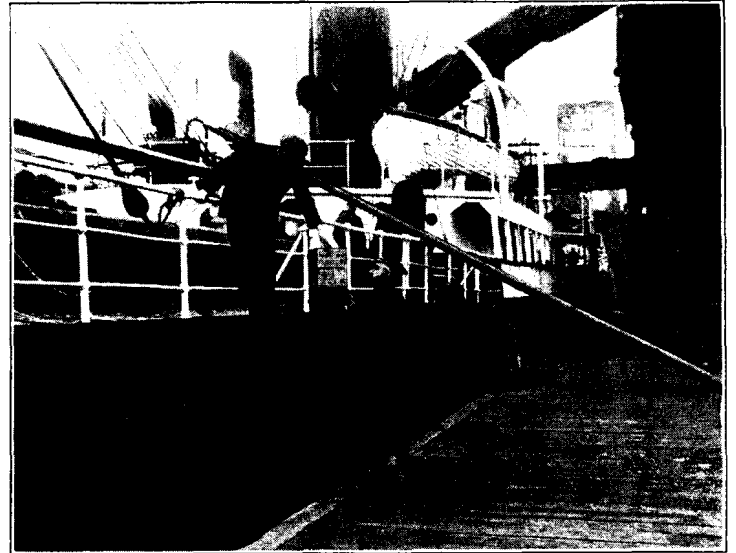


FIG. 2. PASSING TELEPHONE TO VESSEL FROM THE STAITH.

ship's agent as quickly as possible. In many cases this can be done ere the ship sails, but failing this, the account is sent within a day or two.

To facilitate the early collection of trunk fees and charges for telegrams by the Commission, particulars of the relative calls made during the previous day are telephoned each morning to the

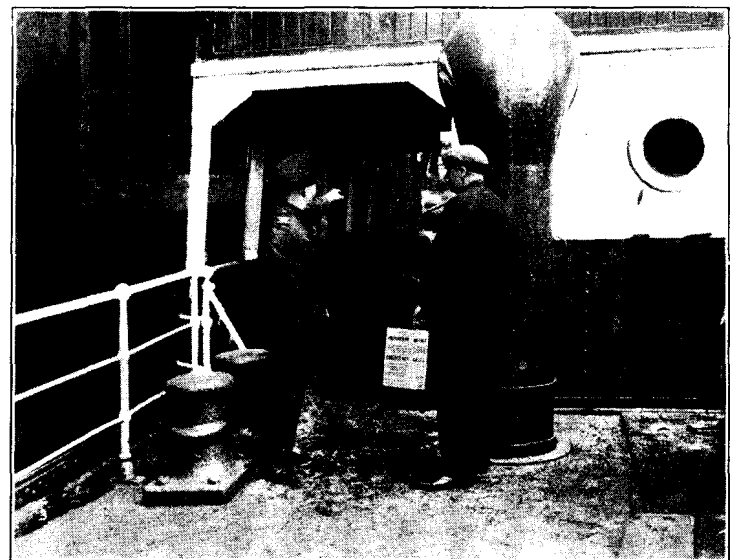
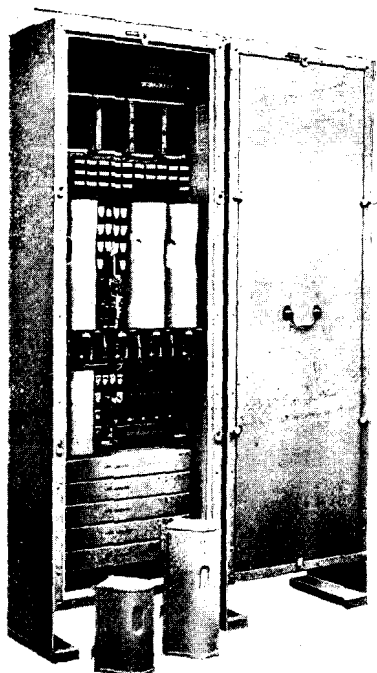


FIG. 3.—SHIP'S OFFICER GIVING INSTRUCTIONS WHERE TELEPHONE HAS TO BE PLACED. NOTE COMPACTNESS OF APPARATUS.

Commission's dock office as North Shields by the supervisor of the exchange.

As soon as a ship is berthed at one of the seven points referred to above, the shipmaster is asked by an official of the Commission whether he wishes to have telephone service on board ship. If

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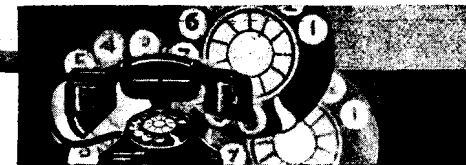
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STROWGER RELIABILITY ON THE HIGH SEAS



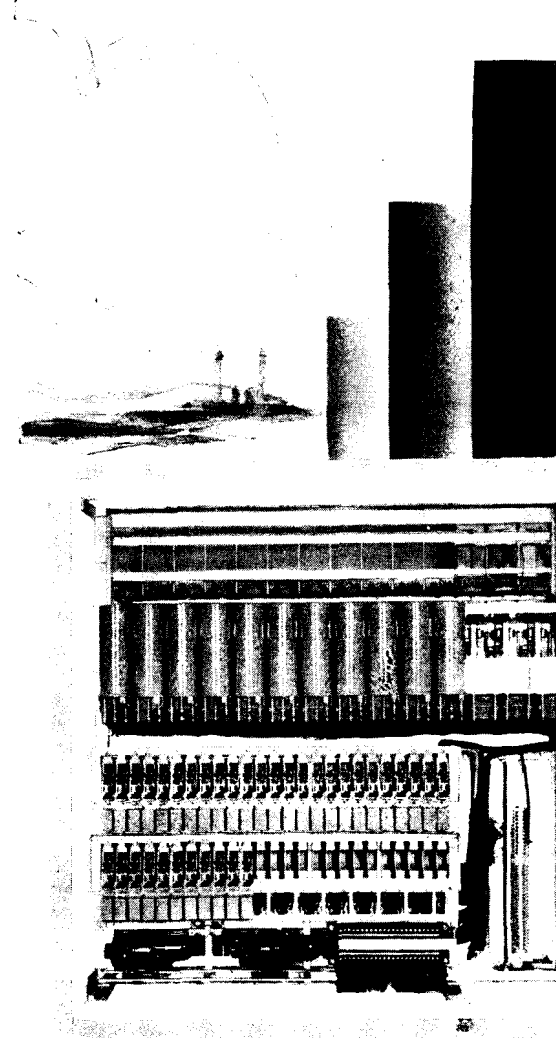
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- U. S. S. Louisville*
- U. S. S. Portland*
- U. S. S. Indianapolis*
- Capital Ships
(In Service)
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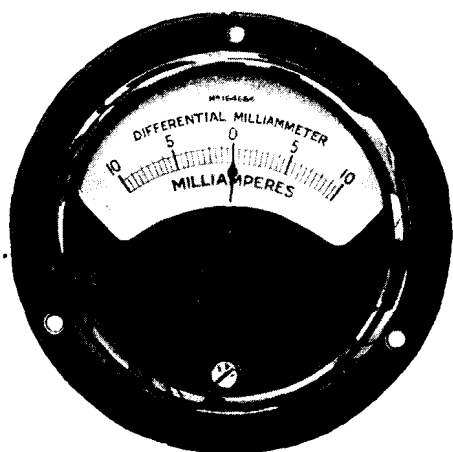
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South Africa.—South African Railways and Harbours, Jan. 4. Electric railway signalling apparatus for Salt River (Ref. A.X. 11186).

New Zealand.—Post and Telegraph Department, Jan. 26. 300 lamp jacks and 1,000 alarm fuses (A.X. 11206). Jan. 27. Telephone cords (A.X. 11202). Jan. 28. 100 automatic dials (A.X. 11201).

Commerce Reports states that there is a growing market for radio apparatus and sets in Spain. In Valencia district crystal and earphones have become popular. In that of Seville the demand is increasing, but more than half of sets are of crystal variety. In Barcelona two and three valve sets are increasingly popular.

J. J. T.

the reply is in the affirmative, it is a matter of only a few minutes to make the necessary connexion.

Figs. 1 to 5 show the box containing the telephone on the staith, the various operations gone through and a call being made upon a connexion being set up.

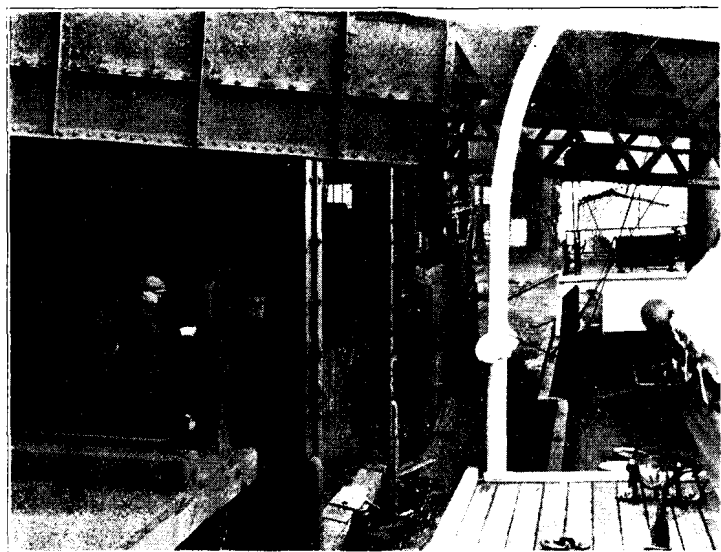


FIG. 4. SHORE CONNEXION SHOWING CABLE TO VESSEL. NOTE PREVENTER STOPPER ON CABLE TO SAFEGUARD SHORE PLUG CONNEXION FROM BEING PULLED OUT AND BROKEN.

The various staiths are served by open wires from the appropriate underground distributing pole and the wires are terminated on a socket (Fig. 4).

The Tyne Improvement Commission is to be commended for its pioneer work in placing the world within reach of ships

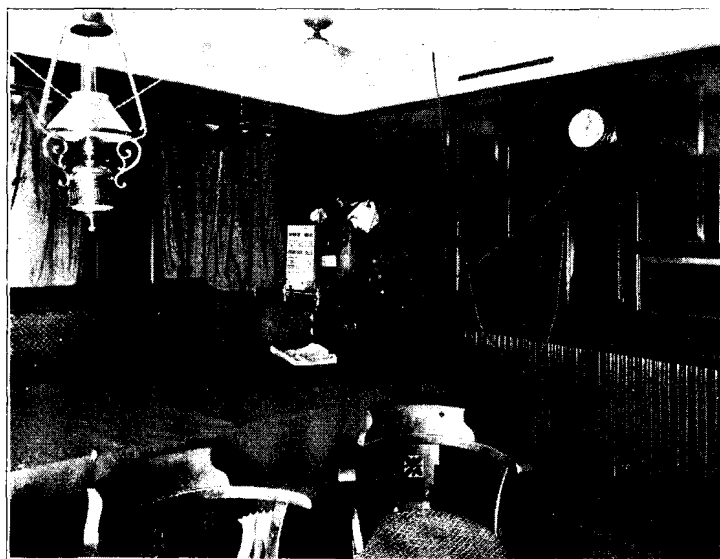


FIG. 5. TELEPHONE IN USE IN VESSEL'S CABIN. NOTE LEAD OF CABLE DOWN THROUGH VENTILATOR.

using their docks and staiths, and the good use already made of the service encourages the Commissioners to consider further extension of the facilities to other parts of the River Tyne.

Mr. Richard Aughton, General Manager, and Mr. H. J. Moscrip, Assistant General Manager, of the Commission, have taken a keen interest in the provision of the service and my thanks are due to them for the excellent photographs which have been taken specially for the *Telegraph and Telephone Journal*.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office System at Oct. 31, 1931, was 2,022,501, representing a net increase of 2,438 on the total at the end of the previous month.

The growth for the month of October is summarised below:—

Telephone Stations	London.	Provinces.
Total at Oct. 31, 1931	725,641	1,296,860
Net increase	1,086	1,352
Residence Rate Subscribers		
Total	186,445	290,747
Net increase	353	236
Call Office Stations (including Kiosks)		
Total	7,413	28,908
Net increase	56	113
Kiosks		
Total	2,607	9,090
Net increase	22	135
Rural Railway Stations connected with Exchange System		
Total	17	2,017
Net increase		11

The total number of inland trunk calls in August, 1931 (the latest statistics available) was 10,039,718, representing an increase of 182,896 (1.9%) on the total for the corresponding month of the previous year. Outgoing international calls in August numbered 39,561 and incoming international calls 44,553, the increases over August, 1930, being 1,823 (4.8%) and 1,384 (3.2%) respectively.

Further progress was made during the month of November with the development of the local exchange system. New provincial Exchanges opened included the following:—

- Abson (Bristol), Appleton Roebuck (York), Bishops Nympton (South Molton), Brean (Burnham-on-Sea), Chartham (Canterbury), Chadlington (Chipping Norton), Cockwells (Penzance), Caldbeck (Carlisle), Fern (Aberdeen), Foulsham (Fakenham), Great Barford (Bedford), Helmsdale (Aberdeen), Kintbury (Reading), Lockton (Pickering), Longhorsley (Newcastle-on-Tyne), Longdown (Exeter), Morton (Bourne), Mursley (Aylesbury), Oakwood Hill (Brighton), Plumpton (Penrith), Rockcliffe (Dalbeattie), Shirwell (Barnstaple), Rattlesdean (Norwich), Stewkley (Leighton Buzzard), Starcross (Exeter), Scaynes Hill (Haywards Heath), Tackley (Oxford), Thurton (Norwich), Turves (Peterborough), Winceby (Horncastle), Withington (Cheltenham) (all rural automatic); Bristol: Central, North, South, West, Bedminster, Easton, Kingswood, Stoke Bishop, Westbury-on-Trym, Whitechurch (all automatic); Dorchester (manual):

and among the more important provincial exchanges extended were:—

- Caterham, Douglas (Lanark), Newark, Northwich, Oxted, Woking (all manual).

During the month 73 new overhead trunk circuits were completed, and 75 additional circuits were provided by means of spare wires in underground cables.

QUESTIONS ON TELEGRAPHY, TELEPHONY, ELECTRICITY AND MAGNETISM.

XI.

DESCRIBE any method with which you are familiar, of governing the speed of a Baudot distributor.

A prize of a book will be awarded for the best answer, which should reach the Editor by Jan. 31. The correct solution will appear in the March issue.

SOLUTION OF QUESTION IX.

The best solution to Question IX was sent in by Mr. A. M. Rodmell, "Telegraphs," P.O. Hull, who described the working of the "G" relay. A very creditable paper, however, was received from a student in Montreal. The "G" relay is being introduced more generally for telegraph work so that the following full solution may be of value to our subscribers in that service.

The maximum working speed of a telegraph circuit may be increased by either of the following methods. A, using a shunted condenser at the receiving end of the line circuit. B, adopting the "Bridge" system. C, introducing a repeater at the centre of the KR (capacity \times resistance) of the line. D, using a special type of relay for reception.

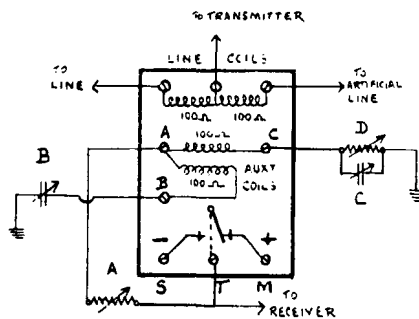
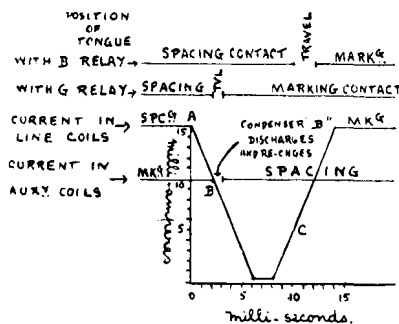


FIG 1



* FIG 2

Method A cannot be used for duplex circuits. B necessitates the use of high voltages. C is expensive. The modern Post Office practice, therefore, is to use a relay standard "G" by means of which the working speed may be increased by 50% or more as compared with the same circuit equipped with a standard "B" relay. The "G" relay owes its efficiency to additional windings on the cores: these are known as the auxiliary coils. The line and auxiliary coils, also the apparatus joined to them are shown in Fig. 1.

In the absence of a current in the line coils the tongue of the relay would vibrate due to the following conditions: The tongue of the relay is shown making contact with M of the relay, joined to the positive battery. The condenser joined to terminal B would be charged positively and immediately afterwards a steady current flowing A to C, through the shunted condenser circuit would produce a spacing effect upon the relay and the tongue would leave the M contact. At this instant the charge in condenser B is free and discharges in the direction BA, AC, through the shunted condenser, imparting an impulse to the relay which completes the transit of the tongue to S. The condenser B is now charged negatively from the battery connected to S; this charge, in effect, increases the impact of the tongue upon S. The steady current in the direction AC is now in a marking direction and the cycle of movements described is reversed. The tongue of the relay therefore vibrates between contacts S and M, the rate of vibration depending upon the values used in the A, B, C and D units.

Now consider the normal working conditions. If the circuit is worked by teleprinters, and both are at rest, there will be a steady current in the artificial line circuit, holding the relay tongue to M, and a steady current A to C in the auxiliary coil tending to move the tongue of the relay to S. The resistance values in A and D are adjusted until the magnetic effect of the current in the A to C coil is slightly less than the effect of the current in the artificial line circuit. The moment the latter current weakens, however, the current in the auxiliary coil is effective and controls the tongue. The auxiliary current thus anticipates a change of conditions in the line circuit and results in an earlier and quicker transit of the relay tongue with a firmer impact at the end of its travel.

The gain in contact time may, perhaps, be explained better by showing the conditions on a somewhat exaggerated scale, Fig. 2. Where circuits contain inductance and capacity, the rise and fall of a current occupies a definite time interval. In the case illustrated, let this interval be 6 milli-seconds. Let the spacing current in the line coils of the relay be 15 mA., and the opposing current in the auxiliary coils become effective at 10 mA. When the distant station is spacing, the conditions will be as shown at the left of Fig. 2. A spacing current of 15 mA. from line will control the tongue against the 10 mA. in the auxiliary coils. If, at the point marked A, a reversal of the line current begins, the time interval taken to fall to zero and rise to full marking value would be 14 milli-seconds, allowing 2 milli-seconds for the transit of the distant transmitting lever. Assuming that the marking current would control the relay tongue at point C on the marking curve, and that the transit of the tongue occupied 2 milli-seconds, in the absence of a vibrating circuit the marking contact would not be reached until 12 milli-seconds after reversal of the line current. With auxiliary coils in use, the 10 mA. in the auxiliary coils would take control at point B; allowing 1 milli-second for transit of the relay tongue, contact with the marking stop would be made 3 milli-seconds after reversal of the line current, a gain of 9 milli-seconds. The signal-shape is, therefore, restored somewhat, to correspond with signals transmitted, and higher speeds are obtainable.

For exact values, see "The Gulstad Relay," by S. S. Richardson, D.Sc., the *Journal of the Institute of Electrical Engineers*, August, 1922.

C.T.O. NOTES.

Promotions. Messrs. F. W. Dare, Asst. Supt. to Supt. (Lower Grade), E. Colliver, Asst. Supt. to Supt. (Lower Grade), L. A. Cherrington, Overseer to Asst. Supt.

Retirements.—Messrs. T. W. Jones, Supt. (Higher Grade), E. F. Bing, Supt. (Lower Grade), G. C. Farthing, Asst. Supt., W. C. Hunt, Asst. Supt., E. N. Rayner, Overseer (Cable Room), A. E. Crane, Telegraphist, J. L. Munro, Telegraphist (Cable Room) and Miss K. E. Cairns, Supervisor.

Obituary.—We regret to have to record the sudden death of our old and esteemed colleague Harry Gray. He was taken ill whilst on duty and passed away a few hours after admittance to Guy's Hospital.

To Mrs. Gray and her son we extend our deep sympathy.

C.O.D.O.C. The "Centels" Operatic, Dramatic and Orchestral Club presented "The Ghost Train" on Thursday and Friday, Dec. 3 and 4, at the Cripplegate Theatre. This crook thriller play lends itself to sustained excitement and its thrills were very much enjoyed by an appreciative audience. It is difficult to allot praise or blame where all the cast give of their best but Julia Price, taken by Miss Blodwyn Pugh, was well done. She had our sympathy when portraying Julia as a nice woman demented by the horrid dream of the ghostly tale round which the play is built, but when she came out in her true colours and as a female American crook with her propensity to shoot to kill and her horrid slang, our feeling was: ough; how nasty. Toddie Deakin was well portrayed by Robert Cooke. He made us think he really was a harebrained idiot at first, but we appreciated him as a detective in the end.

Miss Bourne (not forgetting the hidden parrot) seemed to be quite natural in the hands of Miss Turtle (I wonder if the young lady does relish a good heady drink). This young lady seems capable of taking the audience into her confidence when she twinkles at them.

But one and all helped to make the play go with a swing and we really had a bad night and dreamed of rumbling trains and singing ghosts.

The Operatic Section will present "The Pirates of Penzance" on Tuesday and Wednesday, Feb. 9 and 10. All well-wishers please note the dates. Further details next month.

Lecture. Mr. G. T. Archibald, Deputy Controller, repeated his lecture, which he had given before the Post Office Telephone and Telegraph Society, on the subject "American Influence on British Telegraph Practice," to the staff on Wednesday afternoon, Dec. 9. There was a large gathering of the staff, who were thoroughly interested. Mr. Geddes put up some points for consideration in an able speech from the staff side. There is no doubt that Mr. Archibald's lecture has cleared the air of a lot of misconceived ideas and the discussion which followed should prove fruitful of a better understanding of the difficult time through which the telegraph service is passing and the need for grasping all practical ideas for its betterment.

STAFF SALESMANSHIP.

I. THE STAFF SALES SCHEME.

BY CHAS. MARLAND (*London Telephone Service*).

ALL business men and business women, as they develop the business faculty, now realise that the selling side of an organisation (be it a small shop or a large multiple concern, a Lipton's or an Imperial Chemical Industry) is the very life-blood of the business. All depends upon orders coming in to keep other departments fully employed, and whilst the selling side is a distinct and separately organised branch in any big business (just as it is in our Contract Branch) yet every employee who is worth his salt will do all he can to encourage orders, or in other words to increase the good will of his firm. That, as I take it, simply is all we are asked to do. Material is provided in the booklets, of course, for the more energetic and ambitious people who may actually enjoy as a hobby the study of a local directory, the making out of a list of their friends and tradespeople and then a walk and a talk with such, along the lines laid down in the booklet. You can easily imagine the quick response that would come, say, from a butcher who was told by one of his own customers that his business would be doubled in 12 months if he had a telephone installed and that *she* would often phone him an order. Or of a father of two or three sons being asked if he could afford to be without a telephone, when Miss Dash had one at her house and had danced once or twice with one of those sons.

The arguments in favour of the telephone service are, of course, almost innumerable, but they will appeal only to people who have related the cost to the cost of other necessities. Concerts, holidays, new clothes, &c., may not be so essential to a family as to be in touch by telephone with all the members of the family at all times, or to be accessible to the many people who wish to speak *to you*. In this sense the telephone is an index of your capacity for friendship or of the extent of your sociable spirit.

The greatest argument of all is, I think, that the telephone does keep you in touch with home, if your interests or artistic appreciations take you often away from home or keep you in the city. Even at a midnight ball you can easily ascertain "are the children all right."

As in the case of the railway companies, the provision for its own employees of the service or commodity produced or served by a firm at a reduced price is quite a usual thing in business. I would like the Department to provide all its servants with a telephone at a reduced rental, and to arrange for payment of rental by deductions from wages or salary, because I think that would induce many to test the pudding for themselves and then their efforts with friends would be much more effective. The large percentage of resignations for marriage need not be a deterrent because, once having tasted the sweetness of the pudding, young wives would not be induced to give it up.

I have spoken of canvassing, but the scheme is not primarily to encourage canvassing. It is an agency scheme, using as agents for recommendations and introductions the thousands of Post Office employees throughout the country. Just imagine! Day staff 8,574, night staff 1,379—9,953 in L.T.S. One order a day from each of these would result in a tremendous increase. It would warm the hearts of the new Postmaster-General and everyone at Cornwall House.

It is not required, as I understand it, that everybody should go canvassing. It is desired that everyone shall give it some thought. To turn over in one's mind the different people of one's acquaintance and ask—would he not have the telephone if I suggested it or if a Contract Officer called. Then you look it up in the Directory, to see if he is already there, and, if not, make a note of it for the next time you see him, or fill in the postcard specially prepared for such cases.

For example. There's my window cleaner, he's doing jolly well by the look of him lately (better, even, than if he were a Civil Servant). I'll tell him he will get more orders and probably secure the big drapers' orders if he is on the telephone.

There's the secretary of our choral society—however can he manage to organise all his concerts, &c., by writing letters. I'll bring it up at the next committee meeting that we pay half the cost of a telephone for him.

There's our friend "Scribe," the journalist, opposite, who comes rushing home after a night's work anxious about his new-born baby. He's not nearly so anxious now, since I got him to have the telephone.

There's young Dr. Bills, who comes on our Sunday morning walk, just setting up his new practice. It only wants one more word to convince him that he must have an extension to his bed-room.

There's "Woolley," the children's garment factor, in the city. Tell him that you wanted him several times of an evening all of a hurry; it was too far to walk round to his house and you have a call box outside your door and he will say "All right! Send a Contract Officer round."

There's "Mr. Rule," the school-master, wife delicate, away all day; busy as an organist and choir conductor at night and Sundays. The telephone has been a blessing to him since he saw that it was not a luxury but a necessity for his wife as well as for himself.

It is not the cost that matters after once you have got it into your annual expenditure. It's the security it affords to all the household—at home and abroad.

The late Lord Morley said the art of living was to be, to do and to do without. You cannot judge the value of the telephone by doing without it. It is not a fair judgment. As I heard Mr. Gandhi say the other day, "Values need to be re-assessed." Ask that mother the value to her nerves of an inward call she received the other day from her 10-year-old son lost in the city, and who eventually found himself at his father's office. His father might say £40 a year spent on running a car was a luxury well earned. His mother would declare £7 a year spent on having a telephone was a necessity as well as a luxury she could not do without. You will find when once you and the other members of your household have faced up to it and started to include the £6 10s. with school fees, season ticket, &c., out of the £200—£300—£500 as the case may be, that you simply cannot do without it.

I have detailed these cases just as examples of what avenues may be open to different people when once it has occurred to them or they have given it a little thought. There are many others. These are from my own experience.

The point is—all the staff should be told, first the Assistant Supervisors, then the telephonists, that it is a workable, practicable scheme—that it will cost them nothing—only a little thought and just a few words are all that may be required. The first month's results which have been circulated show that the Traffic Branch will not be lacking in its imagination nor in its good will towards the scheme. Bring the subject before the staffs at your staff meetings. Get those who have obtained orders to discuss how they did it and to pool their ideas.

Some may reply: This is all very well if one already had the telephone installed, whereas the majority of those to whom the appeal is made are at present without it. The answer to that is "why not buy your own wares?" Not every household may warrant it, but to many the £7 or £8 a year would be money well spent in supporting one's own industry and in enjoying its facilities. Middle-class homes are the very ones to which the Post Office is urging this appeal. Lonely housewives in suburban villas with a dog, wireless and a telephone would, I fancy, say that the telephone was the link they valued most.

So please pass it on in this sporting, businesslike spirit of good will and enterprise. The results will be a continuously growing service creditable to all who are in it.

One more suggestion—especially to those who are keen—equally applicable to Contract Officers to whom the suggestion is offered—ask yourself (if you already are yourself a subscriber) or any other subscriber with whom you are on friendly terms—whom among my friends (or his friends, as the case may be) does he or I often wish to speak to if only they were on the telephone. Who, also, among my neighbours and friends would be most likely to respond and become a subscriber? Then make 2 lists: either write or call and speak to them yourself or alternatively send the names to a Contract Manager.

I do not remember having seen this suggestion made in the Letters of a Contract Officer to his Son or elsewhere, but I think it would be very fruitful. Remember there are, it is computed, 44,000,000 telephone-less people in Great Britain and Northern Ireland. That's the field for our endeavour. An uncle in Northern Ireland would be quite a good subject for one's first attempt in a letter.

There is just one other word. Officially there are many ways in which new lines can be secured—too many to enumerate now, but obvious to the different officers whose work brings them the opportunities, e.g., Traffic Officers calling re-disputed accounts or complaints—many an additional line can be secured by a judicious word with the subscriber or with a P.B.X. operator who will say she needs them. If a busy record shows it to be necessary it is, of course, an easy matter. When negotiating a change of number for auxiliary working—an extra line for safety's sake—so that no calls shall be lost, can also sometimes be proposed and agreed to.

I.D. Officers, alert for this possibility, will refer N.E. cases for special enquiry as to the adequacy of the subscriber's installation or ask the subscriber herself if he would like that aspect of his service investigated.

Section Supervisors A or B may also be in a position sometimes to give a clue to such a case if only it is actively present in their minds. Observation Officers also have a good chance of finding out and should be asked specially to report such cases at once.

Connexion clerks and testing telephonists in less degree, but occasionally also may be able to provide the Chief Supervisor or Traffic Officer with an opportunity for getting a subscriber to be amply equipped with telephones for his business or private life instead of being just under equipped.

What I want to emphasise is that we must pass the scheme on to the staff with all the interest and encouragement possible, precept and example, good will and recommendation.

The nation is calling for loyalty, intensive effort and enterprise.

Some firms are calling for dismissals, others are voluntarily working longer hours.

The Post Office calls for interest, intelligent, good-natured co-operation at a time when the economic odds are against the growth and development in a movement which is designed and will secure the appreciation and credit of the whole community whom it serves.

This is, however, essential—each individual, as in the days of a greater national crisis, must just do his or her bit in all good faith.

II.—BY A TELEGRAPHER.

The fact that the nation was in the throes of a mere General Election did not deter me from entering the staff telephone salesmanship campaign on that hectic day. Shopkeepers were more or less in a critical mood. I thought a shining countenance might, perhaps, assist to brighten the outlook. So it was in a happy, but not boisterous atmosphere that I strolled into a baker's shop. With a smile I asked the proprietor if he was on the telephone.

"No, I'm not," he snapped.

"Are you considering the installation of an instrument, sir?"

"No, I must see how business is first." (It was a new establishment.) "It's very poor at present."

I sympathised. "And yet, perhaps the very reason is because your competitors are on the telephone. You see, sir, many private people in this locality are becoming subscribers. They find the telephone a valuable asset in saving time—which, as you know, is *money*. The instrument is mostly used for the purpose of communicating with tradesmen. And the bakery at the corner of . . . Road is no exception."

He began to show more interest. I was getting warm.

"What is the fee?" the baker asked.

"£2 per quarter, sir. May I leave a card?"

"Thank you. Well, I will see about it."

"Shall I, or perhaps another Contract Officer, call again—say in about a month?"

"Yes, the position will perhaps be improving. I shall then be able to give you a decision."

"Thank you, very much. Good morning, sir. I trust your business venture in this district will be a prosperous one. I'm sure (with an appreciative glance around the shop) that your efforts deserve it."

It will be noticed that the words "Post Office" were entirely omitted, and that no personal reference whatever was made to my position or myself. Interest is to be cultivated in the telephone—not in me. I got straight to the point. The fact that an order was not obtained did not depress my spirits. But thinking that the possibility warranted notification, so that touch could be maintained, H.Q. was informed. As an indoor duty precluded a definite promise to call again personally, the next best thing was to pass the word along.

Unfortunately we are not in the same position to get into, and maintain contact with the public as are our colleagues of the outdoor staffs. But we can find time to help lay the foundation upon which to build a possible order. For instance, I discovered that, although the head office was on the telephone, many branches belonging to certain firms were not similarly equipped. Strange! Surely there was room for canvassing here. So, because my duty commenced at noon, which fact prevented further progress that day, a report was immediately mailed to Waterloo Road. On the following day a similar case presented itself, and headquarters were again informed. One can only hope that an order materialised. I sometimes think that making these discoveries is more exciting than actually placing an order.

Believe it or not, I was recently the recipient of a handsome compliment. My destination was a hairdresser's (sometimes known as a tonsorial artist's) establishment. Within a few moments of making my introduction, the proprietor commenced a tirade against one of his neighbouring competitors.

"She is on the 'phone," he said. "She takes a lot of my custom. And look at her mouldy show!"

"May I suggest, sir, that very possibly the lady being first in the field with the telephone is responsible for your loss of business. Why not combat it? You *must* move with the times."

"My boy," he replied, patting my shoulder, "you're a wonderful canvasser."

May I be excused a glow of pride! But checked myself from a fall by reverting to the interest of furthering the permanent-waver's business.

"Don't you find, sir, that young ladies use the telephone for making appointments with hairdressers? Of course, you know that your customers pay for those calls. That is the most interesting feature—a prospective appointment costs you nothing, except an initial outlay of £2 per quarter. And that expenditure, I submit, is as good an investment as any cash spent on advertising. May I leave a card please?"

He thanked me, and promised to think it over. With a smile I said "Good morning," and hoped that his business would look up in future. An extended hand for me to shake, proved that there was something worth while in this canvassing business.

Without fear of contradiction, I can say that, in every instance, my advances have been received with the utmost courtesy; and if upon entry it has not been apparent, I have always succeeded in raising a smile before departure.

THE ART OF SELLING.

By W. J. B., Newcastle-on-Tyne.

Appropos the recent letters "From a Retired Contract Officer to his Son" which have appeared in the *Telegraph and Telephone Journal*, let me tell a secret: we don't carry little brushes!

We each have our own individual ways of doing and saying things, and each may be equally successful, providing that the difference is in detail only. For instance, I am not the father of any Contract Officers, but I have earned my living by selling various things in various places during the last 12 years.

My interpretation and presentation of practical experiences and observations (no fairy stories or undue exaggerations, tho' a little licence is always permitted to commercial travellers, e.g., "Knights of the Road") may interest a little, provide a little food for thought or remind us of things and principles we know but are apt to overlook at times.

All of us become a little rusty, less alert, less positive sometimes, and interest flags: then a bright day, a pleasant smile from our senior, someone shows a little happy understanding, or we win over that difficult prospect and we become once again our normal efficient (I hope) selves, so completing the cycle.

The shorter this, which we'll call "negative stroke," the better for everyone, employers and employees alike. That is one of the reasons, you will notice, why large organisations and firms of standing and repute do all they can to keep people healthy and happy. I won't enlarge on the various ways and means adopted because they are well known, and I'm getting away from what I want to say.

How many of us remember that by far the greater part of all our knowledge comes through the sense of sight? For this reason I would like to suggest that all Contract Officers be supplied with a small model telephone with detachable dials, as near the real thing as possible. Imagine the added interest of a prospect who can be shown something or his wife be encouraged to buzz the dial around a few times to gain confidence.

I've sold fire extinguishers on "commission only" and know how helpful a model fire extinguisher proved, and incidentally what it cost me in orders I failed to get on the days when I omitted to take it with me. It was carried in my hip pocket, and never once failed to attract attention when placed before my prospect, which, by the way, brings me to "point of contact," but before proceeding let me say that the technicalities of making a model telephone would be left to those better able to design one—the engineers.

To establish at once, or as quickly as possible, a point of contact with the person you are interviewing is the first move in the game, and makes selling possible. How interesting to walk into a prospect's home, office or shop, and seek a point of contact—it is almost like a game at a party—but much more real and profitable. His wireless set may be old and dilapidated, you may not be seriously interested about his golf or his politics or his pedigree dog or how long it took his car—or his choice of a holiday resort, or what he did instead. His funny story (that you heard some few years ago) should make you laugh and tell him one he hasn't heard.

The fact that he *desires* to talk or to listen means that opportunity is knocking at your door—draw him in gently, relieve him of his signature, and be thankful that you happened to know something which enabled a point of contact to be made.

If business was all that two people discussed, selling would be done by post, which means that a chap who sells ought to be at least more animated than a postage stamp—he costs more.

To be reminded of these things doesn't hurt us, and often makes the selling hours more fruitful.

A friend I had coffee with the other day discussed "Golden Selling Hours" . . . but I'll have to leave that for another time.

OBITUARY.

ON Nov. 29 last there passed over very peacefully, after three months' confinement to the house, Mr. Cecil Baines, in his 75th year. Born in 1857, Mr. Baines entered the old Electric and International Telegraph Company office as West Strand in 1869 and retired at the age limit in 1917 with the rank of Overseer. Mr. Baines will always be remembered as a particularly quiet, conscientious, regular and punctual officer. He was a nephew of the late Mr. F. E. Baines, C.B., formerly Inspector-General of Telegraphs, Asst. Secretary, P.O., and Inspector-General Home Mails Branch. Cecil was a friend of Sir H. C. Fischer, Sir W. Preece and Mr. R. W. Johnstone, who have all pre-deceased him. He wrote at least two books, one on "Hampstead," accepted by Queen Victoria, and "The Mail Coach." Cecil was a great walker, and in his earlier days generally tramped a clear 14 miles each day in his journey to and fro to the C.T.O., where all his service was spent on the night staff. Mr. E. L. Hilton represented the Retired Officers at the funeral in the Great Northern Cemetery, New Southgate, on the 3rd ult.

J. J. T.

REVIEWS.

"A Catalogue of British Scientific and Technical Books." Published by the British Science Guild. 754 + xxi pp. Price 20s.

It is now-a-days almost impossible for anyone who may be interested in some particular branch of science to keep abreast of the flood of new books which are published in connexion with every such branch, and it is quite impossible to hope to maintain touch with the books published in other branches, which, nevertheless may have important bearings on the particular department in which the reader is specially interested.

The present volume enables this difficulty to be met. It presents, carefully classified in sections and sub-sections, particulars of no less than 13,915 books dealing with subjects ranging over the whole field of pure and applied science. Easy reference is provided for by a classified list of contents at the beginning of the book, and by a name index and a subject index at the end.

The work of preparation has been undertaken by a special committee of the British Science Guild, under the chairmanship of Sir Richard Gregory, the Editor of *Nature*.

The catalogue should prove extremely useful to anyone who needs a clear and reliable guide to any section of scientific literature.

"Wireless." By L. B. Turner, M.A., M.I.E.E. Published by The Cambridge University Press. xvii + 528 pp. Price 25s.

In 1921 the author of the present book published an outline treatise on wireless telegraphy and telephony which was a most useful contribution to the technical literature of the subject and which we reviewed in our issue for April in that year. We concluded that review with the remark that if Mr. Turner could produce a larger treatise on the same lines, but going more fully into the subject, it would meet with a warm welcome.

The larger treatise has now been written, and it fully comes up to the expectations raised by the earlier work.

The whole subject of wireless telegraphy and telephony, with the exception of picture telegraphy and television and of high frequency measurements, is dealt with. After an introductory chapter on the general question of the transmission of energy from one point to another across a connecting medium, wave motion and some special features of wireless telegraphy as a signalling system, there follow chapters on electromagnetic radiation, the propagation of wireless waves round the earth with the theory of the Heaviside layer and the experimental methods used in its investigation, closed and open oscillatory circuits and the theory of coupled circuits, the various methods used for the production of high-frequency currents, and the detection of high-frequency currents.

The next six chapters deal very fully with thermionic valves, their general properties and their uses as amplifiers, oscillators, and rectifiers. Especially useful is the information given concerning the modern valves provided with more than one grid.

The following three chapters deal with Telephony, transmitting and receiving antennae and the various special aerial arrangements designed for directional transmission and reception.

The book concludes with three chapters dealing respectively with the distribution of high-frequency current in conductors, filters and atmospherics.

The treatment of the whole subject, which is in Mr. Turner's well-known lucid style, is brought thoroughly up-to-date. The book is very fully illustrated, there being 342 line drawings in the text, together with 31 beautifully reproduced photographs of wireless stations and equipment. It should be on the shelves of every serious student of the subject.

LETTER FROM A CONTRACT OFFICER TO HIS FATHER, THOS. E. L. SERVICE.

II.

Dear Father,

I feel that the sub-heading of my letter should read "From the Sales Promotion Department to the Research Department," both vitally necessary to every business organisation.

Like my colleagues, I have surveyed my ground, factories, works and small potential subscribers, to be in readiness for the hoped-for time when business gets going again. The first move will come with the selling department of the "Contracts," and we are awake to possibilities.

A finer point of our work is getting subs to withhold recording their N C on apparatus; and in this respect I, like my colleagues who have large subscribers on their grounds, know it would not be prudent to visit the secretary or directors just now, as with the large subscriber I have in mind there exists to-day approximately 15 extensions in empty rooms, and such has been the position for a year now: just holding on awaiting the boom of British trade. A discussion with the secretary of this firm might bring the recording of N C for these extensions. My last interview was four months ago, when the person interviewed was desirous of recording N C on these extensions: "My face shall not be father to the thought."

It is a matter for congratulation that the returns show a steady percentage increase of stations, though the cessments may seem high, and withdrawals few. The British telephone is more than holding its own during the world crisis.

With the continued pressure for more "call offices" (no comparison with the U.S.A., please), cannot the guaranteed amount of the annual takings be brought to a lower level, bearing in mind the large increase of kiosks and call offices during the past two years? Logically, the takings of "call offices" should not drop with an increase of the same, the public becoming more telephonically minded, but we must adapt ourselves to the prevailing conditions.

It was my fixed intention not to mention the word commission again: my point is commission on all orders is proper to that exchange area, or Contract Officer working that ground, irrespective of where the order is negotiated. The agreement would be passed to the respective Contract Office (after quoting to installations) and commission awarded. No more time wasted fighting commission cases, writing reports, &c.: how thankful our D.C.M. and H.C.O.'s would be.

I feel that all Contract Officers would welcome this, and does not C.1 cover half this point, that orders for another area where Contract Officer holds a C.M.58B card, but which are negotiated at the Head Office of a company in another area, are proper to the officer holding the C.M.58B card?

Does intensive canvassing pay these days, after following round the ——— Carpet Cleaner man? It is possible to make 15 consecutive calls in one road or street, and get one answer to your knock or ring?

With small potential subscribers it is better to persist with the judicious canvassing, which is the noble art of most Contract Officers.

Direct mailing of literature to subscribers, as evidenced by the number of Controller's cards returned from the rendering of October accounts, was a huge success.

A scribe once stated that the ideal representative should have the following qualities:—

- Knowledge of self and other people.
- Knowledge of your goods and prices.
- Knowledge of general business matters.
- Personal cleanliness, attractive bearing and neat dress.
- Ability to listen well and talk well.
- Ability to get the customer's point of view.
- Ability to concentrate.
- Good memory, self-control, tact, patience, loyalty to employer, honesty, energy, courtesy, thoroughness, persistence, ambition and confidence.

Excellent, no doubt, but in his closing remarks he did mention that to his knowledge that this man has yet to be found.

Yet we may aspire.

My extension in parallel is calling her Daddy, so with the thoughts uppermost in my mind that while languishing in the precincts of Gray's Inn Road, I am not forgotten by the denizens of that house in Cornwall, nestling amid the sunshine of past achievements, I draw my letter to a close.—Your affectionate Son,

X. TENSION SERVICE.

GLASGOW DISTRICT NOTES.

New Feature.—Observant readers of this column will have noticed a subtle difference in our heading last month, when we changed from "Glasgow Telephone Notes" to the above. This was done in anticipation of an alteration which we are now able to announce. Arrangements have been made with the Glasgow Telegraph Branch and with the Superintending Engineer, Scotland Western District, for this column to include notes relating to the activities of these two branches and not to be confined to commercial telephone matters. We can now, therefore, justly use the heading of "Glasgow District Notes."

Public Lecture.—During an interesting lecture on "The Organisation of the Post Office," given on Nov. 19 by the Postmaster-Surveyor of Glasgow to the Institute of Public Administration, Col. Westbury mentioned that, since the London "detector van" campaign, the number of wireless licences issued in Glasgow had increased to the record average of 150 per day. For the consciences of Scotsmen to be rendered uneasy to this extent shows how far-reaching can be the effects of such a raid.

"Bright Spots" in the Office Routine (No. 1).—We must confess that the final endorsement in the following correspondence was promptly censored, but we quote the original:—

"The Stores Branch.

"Could you please supply one dozen propelling pencils to replace 7 broken and 5 lost.

Supervisor."

"The District Manager.

"With reference to this requisition, perhaps

(1) the unserviceable pencils will be returned, please, and

(2) you will please say how the loss to the Department of five pencils should be borne.

Stores Branch."

"The Stores Branch.

(1) Herewith.

(2) With fortitude.

District Manager."

Miss M. D. Wells (Writing Assistant), of the Traffic Branch, left us on Nov. 20 in order to get married. She was given a fitting send-off by the Office Staff, who, at a small tea party held in her honour, presented Miss Wells with gifts of cutlery, &c., for which her friends had subscribed.

Glasgow P.O. War Hospitals Entertainment.—The staff of the Douglas Telephone Exchange were in charge of the arrangements when a social evening was provided at Erskine Hospital on Nov. 27. The entertainment opened with whist, and very handsome prizes were provided, it being particularly pleasing to observe that the first two prizes went to bed patients playing by proxy. Tea followed, but the good things provided being nice as well as good, it is hoped that "number nines" were not the order of the following day. The floor being cleared, an hour was then spent in tripping the light fantastic toe (if such a term applies to Eightsome Reels and Highland Schottisches). The honours of the evening were carried through by Miss Mortimer and Mr. Hunter who, in a little speech at the close, attributed the success of the evening to the organising ability of Miss Jean Wood.

Scotland West Engineering Department Golf Club.—A very successful and interesting year's play has concluded with the club growing in numbers and enthusiasm. Although defeated by our colleagues in the Scotland East District at Whitecraigs in May, and by the Glasgow Electric Club at Fereneze in September, we look forward to next year's games with confidence. The trophy presented by the Civil Service Sports Council (Western District) was won by Mr. G. Chalmers. This is the second time that a member of this club has been successful in winning this trophy. The Cameron Cup, presented by Major J. Cameron, O.B.E., for annual competition on a handicap basis and held for the first time in 1930 by Mr. A. Thomson, of Paisley, was won this year by Mr. W. Lang. Thomson made a bold effort to retain the cup, but was defeated in the final round.

Engineering Department Saving Associations.—The staff was recently addressed on the general advantages of Savings Associations. The difficulty of finding any source from which savings can be extracted in these days rather handicaps the formation of such an association, but it is understood that the optimists of the Office Whitley Committee are exploring the possibility.

Resignation on Account of Marriage. Miss E. McBean, Ibrox Exchange.

On Diaries.—Tom Sawyer attempted a diary, but nothing happened during three days, and so he abandoned it.—(Twain.)

When we enjoy most, we have least to tell. . . . I look back on this year as on a sunny spot in the valley . . . and I have nothing to record.—(Galt.)

I have ever found that the happiest portions of existence are the most difficult to chronicle.—(Lever.)

What I remember, I actually see in pictures; but what my memory chooses to discard is as far out of my reach as the smoke of last year's fires. I've worked at my memory from the day I was weaned, not bein' enough educated to know 'at the proper way is to put your memory in a diary—and then not lose the diary. I've missed a lot through not gettin' on friendly terms with books and diaries earlier in life; but then I've had a lot o' fun with my memory to even things up.—('Appy 'Awkins.)

To those whose lives are largely occupied with the study of motives of human actions and with the actions themselves viewed in the light of their antecedents and their consequences, nothing can be more instructive than a full, consecutive diary in which, over a period of years, events may be watched growing out of those that went before and in their turn, developing their consequences and elucidating the motives of the actors. Such a diary is a synopsis of human life.—(Freeman.)

Late at the office entering my journal for 8 days past, the greatness of my business hindering me of late to put it down daily, but I have done it now very true and particularly, and hereafter will, I hope, be able to fall into my old way of doing it daily.—(Pepys.)

Let me be careful to confine my moralizings to my note-books.—(Bagshot.)

BIRMINGHAM NOTES.

Birmingham Telephone Society.

THE third of the series of lectures arranged for this session by the committee was held on Dec. 11 last, when a paper was given by Mr. A. G. Cooper, Assistant Traffic Superintendent, on "The Introduction of On Demand Trunk Working."

The chair was taken by the Postmaster-Surveyor (Lt.-Col. W. T. Brain).

The paper was greatly appreciated and an interesting discussion followed.

The usual entertainment which followed the lecture was, on this occasion, arranged by Miss Vitty, of the Birmingham Trunk Exchange.

The next paper will be given on Jan. 19 next, by Miss A. B. Straughan, Higher Clerical Officer, Accounts Section, on Trunk and Local Ticket Work.

Sport.

Ladies' Hockey.—The Civil Service Ladies' Hockey teams continue to be successful in their games.

On Nov. 21 one of the hardest games of the season was played and terminated in a win for the Civil Service Ladies by three goals to two.

On Nov. 28 the Yardley Road P.M. side were defeated at Yardley by three goals to one. In this game the vice-captain unfortunately broke one of her fingers, and her energetic services will be denied to the team for some weeks.

On Dec. 5 a draw, one goal each, was the result of the game with the United Yeast Ladies team. This match was marred, however, by an unfortunate accident to one of our visitors, who, we understand, is making satisfactory progress.

A real good win was accomplished on John Wright's ground, the result being 3 goals to nil.

The Bell Athletic Ladies' Hockey Team.—As well as the Civil Service Ladies' Hockey side the Birmingham Central Telephone Exchange have quite a good side playing under the above name, and while this side has not been quite so successful as the C.S.C. Ladies the remarkably fine Saturday afternoons which we have been experiencing have been thoroughly enjoyed in hard-fought games.

On Nov. 21 the game with Digbeth G. L. B. was drawn, 4 goals each.

On Nov. 28 the game with Guest, Keen and Nettlefolds Ladies' second eleven was also drawn, two goals each.

On Dec. 5 King's Heath Wesleyans defeated the "Bell" by four goals to one, and on Dec. 12, after a good game, the Wesleyan & General Assurance Ladies' second team won by four goals to two.

LEEDS DISTRICT NOTES.

When the Halifax Chamber of Trade decided to advertise the "Town of many Trades," by holding an industrial exhibition during the Halifax Civic Week, Oct. 10 to 17, it was felt that the occasion was one which might also provide a stimulus to the development of the telephone service. The Exhibition Committee were, therefore, approached with the proposition that if space could be given, the Post Office would undertake to provide an exhibit which would in itself be an attraction to visitors to the Exhibition. The suggestion was accepted, and a space 18 ft. by 6 ft., scheduled in the Exhibition space catalogue at £22 10s. 0d., was generously placed free of



HALIFAX INDUSTRIES EXHIBITION, OCT. 1931.

charge at the service of the Post Office. The automatic demonstration set was installed as the principal exhibit, and Contract, Engineering, and Traffic Officers co-operated enthusiastically in decorating the stall and in staffing it during the period of the Exhibition. More than 44,000 people visited the Exhibition which was kept open for a further three days after Civic Week was over, and approximately 60 demonstrations on the automatic set were given daily. Part of the stall was so arranged that enquiries could be answered and interviews conducted by the Contract Officers in attendance. The success which attended their efforts was reflected in orders which were received for:—

- 21 Exchange Lines.
- 8 Extensions.
- 77 H.M.Ts.
- 2 Plugs and Sockets.

representing in all an annual rental value of £177 10s. 0d. Much propaganda was also carried out, and approximately 10,000 kiosk folders, and 20,000 other items of advertising literature were distributed. It was a source of satisfaction that the telephone stall was regarded by the Exhibition Committee as one of the most interesting in the Exhibition, and as an expression of their appreciation the Committee presented to the Department the photograph which is reproduced above. The following letter was also received from Mr. Neaverson, the President of the Halifax Chamber of Trade:

"DEAR SIR, Before the Exhibition closes I should like, on behalf of the Chamber to express to the G.P.O. how much we appreciate the efforts put forward by the Telephone Department on 15th inst.

"The exhibit has created considerable interest among the public—the working of the Automatic Telephone being particularly interesting.

"We are pleased to learn that so many new subscribers have been made, as of course the more subscribers the more use is the telephone to members of the Chamber of Trade, and it was this fact that was in our thoughts when we approached you offering the stand.—Yours faithfully,

(Sgd.) S. NEAVERSON, President."

The West Yorks District Discussion and Social Circle held its first Staff Dance and Whist Drive for the present season at the Metropole Hotel, Leeds, on Dec. 5, when a gathering of 280, which included Lt.-Col. Jayne, D.S.O., O.B.E., M.C. (Postmaster-Surveyor), Mr. Murray (District Manager) and Mrs. Murray, Mr. Bownass (Asst. Postmaster) and Mrs. Bownass, spent a most enjoyable evening. The Whist prizes which were presented by Mrs. Murray were won by the following:

<i>Ladies.</i>		<i>Gentlemen.</i>	
1st.	Mrs. Foxcroft.	1st.	Miss McCarmick (playing as a gentleman),
2nd.	Mrs. Bailey.	2nd.	Mr. Mills.
3rd.	Miss Hullah.	3rd.	Mr. Batchelor.

The Committee are to be congratulated on the success of their efforts. The next Whist Drive and Dance which is to be held on Jan. 15 is being eagerly awaited.

Obituary.—It is with much regret that we have to announce the deaths of two officers of the P.O. Engineering Department, i.e., Mr. W. H. Hardaker, Chief Inspector (West Yorks Internal Section); and Mr. F. S. Cook, Unestablished Draughtsman (Bradford Section).

Mr. Hardaker, whose decease was caused by internal trouble, had not been in good health for some time, but had only been absent on sick leave for about a fortnight, when he passed away on Nov. 2 in his 56th year, leaving a widow and four children. The interment took place at Undercliffe Cemetery, Bradford, on Nov. 5; a representative number of colleagues and friends from all P.O. Departments being present.

The death of Mr. Cook took place with tragic suddenness on Nov. 11, due to a ruptured blood vessel. Mr. Cook who was only 23 years of age, had carried out his normal duties apparently in good health on the day in question, and was on his way home when he collapsed in the street and expired whilst being taken to the Infirmary. The funeral—which was attended by a number of officers from the Bradford Sectional Engineer's Office—took place at Coley Churchyard, Halifax, on Nov. 14.

The sympathies of all are tendered to the relatives in their sad bereavements.

TWO NOTABLE RETIREMENTS FROM THE CABLE ROOM.

NOTWITHSTANDING the serious calls upon the purse of the Foreign Telegraph Staff of the C.T.O., by the Chancellor of the Exchequer, that staff had evidently determined that the departure of Mr. J. Pratt, Asst. Superintendent, upon reaching the age limit, could not possibly be permitted to pass without some worthy expression of goodwill from that body. The same spirit inspired similar treatment of Mr. Nathaniel Rayner, of whom more later.

As regards Mr. Pratt, this found tangibility at a smoking concert held at "The Ship," Ivy Lane, E.C.1, on Nov. 27 last, when Mr. Pratt accepted a plain white and sealed envelope amid the cheers of a good crowd of his well-wishers. Owing to the last moment inability of Mr. J. G. King, Senior Supt., to be present, Mr. P. J. Halls, that stalwart of the Fortels Sports Club, naturally proved a worthy substitute and was followed by others, who also paid well-earned tributes to the high esteem in which Mr. Pratt was held by all who had worked with him for these many years.

Space precludes the possibility of detailing the excellencies of the musical programme, but the high standard will best be judged by the mere mention of the artistes: *Piano*—Messrs. L. Dinsmore, A. Hancock, Fred Charrosin and Mr. Raymond. *Vocalists*—Messrs. R. Pamment, Chris. Oberst, Chas. Phillips, Walter Norley and Philip Edsall. *Comedian*—Mr. Jack Barker. *Symphony Orchestra*.—Messrs. Steeple, Tyrell and Nye.

It was Mr. N. Rayner's (Natty) own quiet, retiring temperament which alone prevented him from so publicly receiving a similar memento from his colleagues. The Cable Room will be the poorer by the adieux of these two officers to the retired list, and it was a curious coincidence that the age limit should thus so closely associate two multi-lingual members of the supervising staff. Apart in temperament, they were at one in their desire and practice of complete willingness to help any colleague in a language difficulty, let us say, a knotty point in French Grammar, Spanish, Portuguese and Hebrew!

J. J. T.

NORTH WESTERN DISTRICT NOTES.

Presentation to Capt. F. H. Woodrow.—Members of the District Manager's and Sectional Engineer's staffs met on Nov. 6 at the District Office to bid farewell to Capt. F. H. Woodrow, who had been promoted to Traffic Superintendent, Class I, and transferred to the Sheffield District.

The District Manager, Capt. H. A. Berry, on behalf of the staff, presented Capt. Woodrow with a walnut compactum wardrobe and a Treasury note. Before doing so, the District Manager referred to Capt. Woodrow's genial



CAPT. F. H. WOODROW.

personality and his extensive knowledge of the North Eastern District; and expressed the opinion that his departure would be felt not only in the District Office but throughout the district.

Mr. J. McCormick, Traffic Superintendent, Mr. W. Garrow, Chief Clerk, and Mr. F. E. Adams, Contract Manager, spoke in support and on behalf of their respective staffs wished Capt. Woodrow every success in his new post.

In returning thanks Capt. Woodrow regretted that his promotion necessitated leaving York, where his service had been a happy one over a number of years.

SOUTHAMPTON NOTES.

ON Nov. 21 Mr. R. Williamson, Traffic Superintendent, Class I, left us to take up a similar position at Brighton, as he wished to live nearer his daughter.

A large number of his colleagues assembled in the Traffic Section to wish him good-bye. Mr. O. G. Lee, District Manager, presided, and said he regretted that Mr. Williamson was leaving. The District Manager spoke highly of the good work Mr. Williamson had done in the District and in eloquent terms referred to the valuable assistance which had always been forthcoming.

Messrs. J. W. Stelling, Traffic Superintendent, Class II, and H. R. C. Hickish, Assistant Traffic Superintendent, supported the District Manager, and said the whole staff would feel the loss of his help and advice which was available at all times.

As his friends throughout the country know, Mr. Williamson is a bowls enthusiast and we thought it would add to his pleasures by presenting him with a set of woods as testimony of the regard in which he was held.

Mr. Williamson left for Brighton in the early afternoon and was surprised to find his brother Traffic Officers waiting on the platform to bid him "Adieu."

Mr. W. H. Kynaston has taken up duty in the District, and we extend to him a very cordial welcome. We are sure that he will be happy with us.

Mr. W. A. Wolverson, Assistant Traffic Superintendent, has left us to take up duty on trial as Assistant Surveyor, Class II, at Ipswich. He carries with him the best wishes of the whole of the staff at Southampton.

LONDON ENGINEERING DISTRICT NOTES.

Introduction of Demand Working to Birmingham.

THE "Demand" service to Birmingham, by means of which subscribers in the London Telephone Area can obtain subscribers in the Birmingham Local Fee Area while waiting at the telephone, was successfully introduced on Saturday afternoon, Nov. 28.

All calls for trunks are received on the combined record and demand positions on the 5th Floor, G.P.O. South, and circuits to Birmingham Central and Midland are multiplied over these positions. These circuits are divided into groups and the multiple is equipped with a visual idle indicating device which operates as follows: Each circuit is equipped with an idle indicating lamp which shines through a small hole in a translucent strip. The first idle circuit in each group shows as a small circular spot of light through the strip and when this circuit is taken up the light is transferred to the next idle circuit. In addition to this equipment, each position is fitted with a "chargeable time indicator." This consists of a translucent strip on the face of the multiple, one indicating lamp on the key-board and one starting, stopping and reset key per cord circuit. A call is timed on by the operator throwing the key to the start position: the actual chargeable time at any stage of the call can be displayed on the strip by restoring the key to normal. The indicating lamp glows 12 seconds before every three minutes during the progress of the call to enable the operator to inform the subscriber accordingly and at the expiration of 18 minutes the same lamp flashes. If it is desired to time the call beyond 18 minutes the key is thrown to reset and then to start. Facilities are available for carrying out a rapid routine of the chargeable time indicator on each cord circuit.

The calling equipments for the incoming circuits from manual and automatic exchanges are ancillary over the positions. In the case of calls from manual subscribers, it is necessary to reverse the connexion to the "B" multiple in order that the subscriber's switch hook may control the supervisory of the answering cord on the demand positions. The demand positions are equipped with a multiple of circuits to a plug-ended transfer position in Trunk Exchange (3rd floor) working on a straightford junction basis. The demand operator inserts the answering cord of another cord circuit into one of the circuits to this position and thereby obtains access to the transfer operator. The plug of the circuit on which the demand operator is calling is then inserted in an outgoing junction to the manual exchange concerned and the manual "B" operator is told to "overplug" on the calling number. The connexion via the "A" operator to trunks is then dropped. In the meantime efforts have been made to obtain a free circuit to Birmingham and if successful the demand operator completes the connexion, gets the two parties speaking and times the call on.

Line Plant.

In connexion with the extension of plant in Molesey Exchange area, additional cables were required across the River Thames. Instead of augmenting the existing route over Hampton Bridge, which is near the boundary of the exchange area, it was decided to adopt a more direct route by laying three pipes in the river bed. The work involved the use of special machinery for cutting the trench in the river bed and for putting the pipes into position after this had been done. Pipe and driving apparatus, together with the services of a diver, were necessary during some stages of the operations.

L.E.D. Amateur Sports Association.

Athletics.—Civil Service Cross Country Championship.—The L.E.D., winners in 1929 and joint holders with the Air Ministry in 1930, just failed to complete the hat trick "over the country" on Saturday, Dec. 12.

The course was over 5 miles of bad land at East Molesey, and provided a very severe test for the runners.

H. G. Verney (Birmingham P.O. and Birchfield Harriers) led for the first 2 miles, closely followed by A. J. Norris (Savings Bank and Poly Harriers) the Marathon runner, followed by G. W. Tolley (L.E.D.). At 4 miles C. C. Noakes (Fuel Research) and A. A. Cutler (Inland Section) were 3rd and 4th with Tolley 5th and J. C. Robbins (Natural History Museum) 6th, closely followed by G. P. Wilson and C. E. Green, both L.E.D.

Norris took the lead at 4½ miles and, never being extended, won easily, followed by Cutler, with Verney 3rd, Robbins 4th, Noakes 5th and Tolley 6th.

The team winners were P.O. Stores, who, with 5 men in the first 15, ran an excellently judged race.

Team Placings.—(1) P.O. Stores (Thomas 6, Punnell 10, Welch 11, Crowe 12, Lane 15), 54 points; (2) L.E.D. (Tolley 3, Wilson 7, C. E. Green 8, R. J. Green 18, C. E. Cheyney 28), 64 points; (3) Air Ministry (17, 21, 24, 27, 33), 122 points; (4) C.T.O. (13, 19, 25, 29, 47), 133 points.

E. Gomersall, Esq., O.B.E., M.L.E.E., President of the L.E.D. Amateur Sports Association, acted as starter and referee, and presented the cup and medals to the winners at the conclusion of the race.

Association Football.—In the third round of the Civil Service Cup L.E.D. are drawn away to Reading. This tie will be played on Jan. 20.

Friendly matches have been arranged with Queen's Park Rangers on Dec. 17 and with Brentford on Jan. 6.

Table Tennis. Museum and Ministry of Health are first and second respectively in the Second Division of the Civil Service League, both teams having suffered one defeat only in seven games.

Social. The third dance of the season will be held at the Princes Hall, Kennington Road, on Jan. 11, 1932. Tickets may be obtained from the General Secretary, A. W. Kelly, Denman Street. Phone, Hop 8000.

SCOTLAND (WESTERN DISTRICT) NOTES.

THE Contract Officers of the Scotland Western District spent a very happy evening at Dinner, in the Grosvenor Restaurant, Glasgow, on Friday evening, Nov. 20, 1931. Mr. W. Groves, Contract Officer (Class I) was in the Chair. The "Salesmen" were honoured by having as guests, Mr. Thyne (District Manager), Mr. Dunn (Staff Officer), Mr. Brodie (Contract Manager), and Mr. Craig, Traffic Superintendent, Class II.

The Toast List was a very good one, and racy speeches was the rule of the evening. Much of the success obtained in this District can be attributed to the splendid feeling which exists between Principals and Staff. Mr. Thyne, in a very witty reply to "The Telephone Service," paid tribute to all sections of his District, but particularly eulogised his "Salesmen," and spurred them to even greater effort. The whole programme was sustained by the Contract Officers themselves, from the entertainment to the art work on the menu cards.

THE DEPARTMENT OF PROGRESS.

BY J. E. R. WATSON.

(Article read at Contract Officers' Conference.)

IN the whole realm of nature, past, present and future, progress was, is, and shall be. Progress is life; one cannot exist without progressing, provided we know in which way we are progressing, rightly or wrongly. To progress in a wrong way vouchsafes an inevitable end, personal or impersonal. To progress in a right way is a never ending goodness, to which we should attach our interests and affections.

It can truly be said of a nation, organisation, department, or individual, that progress starts at home, that kingdom within the very mind. In our mind we settle the fate of thoughts good or bad and act on them; we think what we will do or not do; we create the yea and nay of all things, and sometimes build specially for ourselves obstacles such as doubt. Doubt begets fear, which is actually an absence of true knowledge or truth. If we knew the job, that is, the truth about it, or if we knew ourselves better, there would be no doubt or fear: consequently progress goes into a higher gear. Could we bring ourselves to realise the demonstrable ability at the disposal of our mind, and with the courage of conviction carry it out, life would be, as it was, Divinely authorised. There comes, unfortunately for the human side, the buts and ifs that form the shadows of life. Nevertheless the fact remains and is in evidence by the fruitage of our labours, what can be done when in our minds we affirm the ability to do. The mind is the all-in-all authority; it is up to us to know it by the demonstration of progress.

Remember, the service of the Telephone, that which is the bread for our body, was originally food for the thought. The Telephone was first a thought in the mind: the thinker seeing it was good, demonstrated his thought, or said, "Let there be light," and there was light, for we now see the Telephone although with our physical eye. It is with the light of our understanding that we are conscious of it.

Think rightly. Thoughts manifest themselves and reflect like thoughts. A smile begets a smile, a grouse begets a grouse.

A salesman needs to make careful mental preparation for his daily work. Few business men have as many temptations to become mesmerized, particularly on the subject of delay and obstruction, as has the salesman. We must be prepared to reject the subtle arguments of delay. Fear of failure makes failure seem real. We must repel this by mental preparation. Modern practice tends towards so-called high-pressure salesmanship, which has the effect of making the prospective subscriber an antagonist on the checkerboard of business. The genuine subscriber should be a friend, certainly a business friend. No salesman would, in his right mind, wish to sell anything to a subscriber that would make an enemy of him. The sale must be at least as much in the subscriber's interests as in the salesman's interests.

We need to guard our thought against a false basis of approach to our prospects. We need to stand porter at the door of thought. The alert, wide-awake salesman has much to give; he reflects the abundance of ideas and helpfulness. The more he helps, the greater becomes his store of helpfulness. His work is not to go and get, in the language of the high pressure sales manager, but to go and give. The salesman who gives much will usually have little worry about income.

Millions of men and women are to-day believing in an unfavourable business situation. More, perhaps, than any other of the hundreds of similar times in business history, has this particular period been recognised as mental, a matter of mind, the mind of nations.

The salesman who goes about with fear that no one will buy, is mesmerized. It is like trying to drive a car full speed ahead with all the brakes set for an emergency stop. If a salesman believes that his order depends on a person or that a particular person is arbitrary, unreasonable, and unfair, as well as inconsiderate and discourteous, he reverses his own right to freedom,

he admits false limitations or at least thinks so. If we do not admit these thoughts, they do not exist so far as we are concerned. Each one has the right to expect courtesy and fairness; this end is attained by recognising good and denying any reality to discourtesy and unfairness. Each may know that he is doing work that needs to be done and expecting results that need to be manifested. Only good can come from work well done. If any suggestion of failure tempts one, it should be denied entrance to thought.

The joy of living is to know that you are progressing, the joy of progressing is to know that you are living. Progress is born in the mind, thought, the causation. Stand porter at the door of thought; herein is the department of progress.

LIVERPOOL NOTES.

AN event unique so far as Liverpool is concerned took place on Dec. 4 at the Liverpool Head Post Office. This was the presentation to Miss Ruth Seers, lately Asst. Supervisor, Class II, at the Trunk Exchange, of the Imperial Service Medal. Miss Seers, whose retirement after 44 years of zealous and unblemished service was recently commented on in these notes richly deserves the honour conferred upon her. The Postmaster-Surveyor, Lt.-Col. Kempe, M.C., in the presence of a representative gathering of the staff pinned the medal on Miss Seers' coat after having, in an appropriate speech, congratulated her on having earned such a distinction. Miss Seers expressed her pleasure in reply and thanked the Postmaster-Surveyor and other speakers in a simple and unaffected manner.

A pleasing ceremony took place in the Contract Office on Saturday, Nov. 28, when Mr. R. W. Crew, Contract Officer, Class I, was presented with a gold watch to mark the occasion of his promotion to Contract Manager, Norwich District. The presentation was made by Mr. W. E. Gauntlett, District Manager, after Mr. Urwin, Contract Manager, had spoken of Mr. Crew's service and abilities. We wish Mr. Crew every success in his more responsible position.

Mr. A. E. Gibson, Contract Officer, Class II, Bristol, has been promoted to Contract Officer, Class I, Liverpool, vice Mr. Crew. It is a coincidence that Mr. Crew was promoted from the Bristol District also.

A hearty welcome is extended to Mr. Gibson.

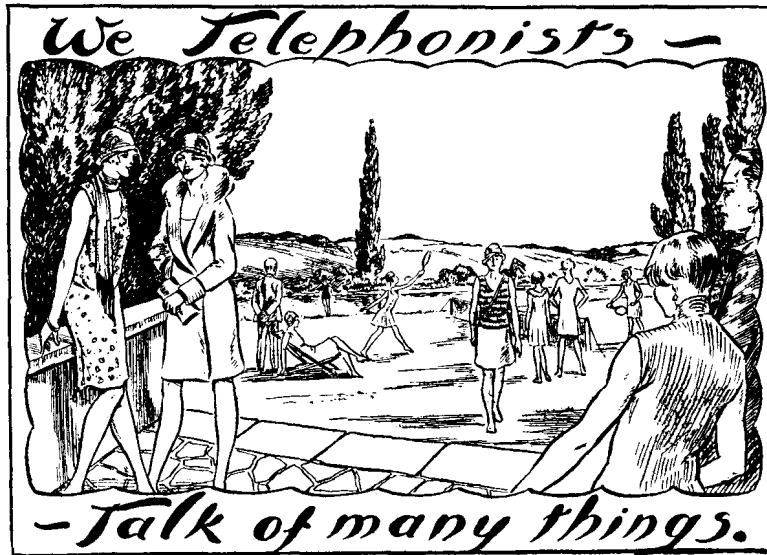
On Friday, Dec. 11, Mr. Geill bade farewell to Liverpool to take up his new position at Colchester, to which reference was made in last month's issue of the Journal. The occasion was taken to present him with a farewell gift. Mr. Geill has for some time coveted a particular piece of furniture, and in his own words "the generosity of his colleagues had made it's acquisition possible." During the course of the function, which consisted of a high tea and smoking concert, a number of speakers, including members of the clerical staff associated with the Traffic staff in work and in the gift, testified to Mr. Geill's unflagging energy and his admirable qualities in his official and his social life. For many years he has been chairman of the Central, Bank, and North Exchanges dining club, a position which he has held since its formation on a self-supporting basis, and it is largely due to his energy and foresight that the club has proved socially and financially successful. The presentations, which included a portable gramophone from the dining club, were made by Mr. W. E. Gauntlett, who voiced the general goodwill and congratulations of the staff and their best wishes for Mr. Geill's future welfare.

The Liverpool Post Office Choral Society held a Whist Drive in the Head Post Office on Nov. 20. It is learnt with regret that this Society, which for so many years has discoursed sweet music on various occasions has decided to disband. It has performed with distinction more than once in Liverpool's most beautiful (though still unfinished) Cathedral and the Philharmonic and St. George's Hall. In these days of economic stress most choral societies are finding it difficult to make ends meet and as the Post Office Society was faced by a gradually increasing debit balance it was thought advisable to wind up its affairs. Various social functions are being arranged to raise the necessary funds to meet the deficit and it is hoped that all interested members of the staff will help to make them both successful and profitable.

We are sorry to have to announce the early retirement on medical grounds of Miss A. E. Holgate, a Shorthand-Typist in the District Manager's Office. She took with her the best wishes of her friends for her better health in retirement, and these were accompanied by tangible expressions of their good feelings in the shape of a fireside chair, reading lamp and oak coffee table. Other momentos were given by individual and more intimate friends.

We trust that relieved of the irksome duties of official life, her health will improve and allow her to enjoy her leisure to the full.

On Nov. 30 the District Manager, Mr. W. E. Gauntlett, was the guest of the St. Helens Rotarians at their luncheon, when he took the opportunity of giving them a description of the St. Helens and Prescot automatic telephone exchanges which will be opened for service in those centres early next year. The talk was listened to with great interest and a number of interesting questions by the members were dealt with by Mr. Gauntlett. The Postmaster of St. Helens, Mr. D. Stirling, who is a member of the Rotary Club, and was present at the luncheon, was instrumental in bringing about the meeting, which will no doubt assist towards the success of the inauguration of automatic telephoning in the important industrial areas included in the scheme.



A Good Time Coming.

I RAN into Appollyon Blippe the other day—oh, quite an old friend, but so frightfully awkward to introduce to anyone. Directly I mention the name Appollyon they smile, and when I add Blippe they just smile louder. Of course, his parents ought to have known better than to call him Appollyon, and I could never understand why his mother married into a family named Blippe. And, I may add, he's exceedingly particular about the double-p-e. Naturally he is known to all and sundry as Polly. He has a further handicap in life, but strangely enough, on the day I met him it was giving him a great deal of pleasure. I remarked to him that he was looking very happy. "Yes," he said, "I am living in the future at present." "Well," I said, "so long as you're not living for the present in the future, so well and good, because I am not giving any presents any more at any time." "Oh, I say," he said, "don't talk like that—what about my birthday on Feb. 29 next? I haven't had a birthday since 1928, so you simply must give me something." "Oh," said I, "so that's what's making you so bright, is it?" "Yes, rather," he said, "—well, wouldn't you be bucked? It's all very well for such people as you who have a birthday regularly every year, and no questions asked, but"—here he faltered a bit—"mine are so rare that people forget them and so far I've only had ten." At the sound of his emotion my economic resolutions broke down and hastily cramming a Rate Demand Notice (Final) into his hand, I hurriedly bade him adieu. Later in the day I thought of him again and I wondered whether, after all, he had not been deceiving me in order to batten upon my generosity. So I looked up a 1932 diary, and sure enough he was right.

Yes, 1932 is Leap Year, when—so it is said, but I don't really believe it—all the single girls leap after the lads of their choice and all the chosen lads leap skilfully out of the way of all the single girls who leap after the lads of their choice, who, in turn, leap skilfully out of the way—well, anyhow, I think it's only a yarn. Furthermore, and moreover, and by way of compensation there are 53 pay-days in the year, but there may be a catch in it somewhere, for I see that one of them falls on April 1. Yes, I thought there would be—Christmas Day falls on a Sunday, so we shall only get 51 Sundays. Well, anyhow, there's a good time coming, but it's a good time coming.

PERCY FLAGE.

Brixton Exchange.

On Saturday, Dec. 12, a party from Brixton Exchange visited the Queen Mary's Hospital for disabled men at Roehampton, in order to take their usual Christmas gift.

They were met by the Matron, who very kindly provided tea, and afterwards conducted them round the Hospital.

The Misses W. Ratcliff, Bartlett and Elliott entertained the men in two wards with songs and music. Some of the patients joined in the choruses.

We were able to leave our customary gift of £10 to be used by Matron for additional comforts. The money is appreciated and can be used by her to greater advantage than gifts in kind. Some of it is used in distressing cases to pay the fare of a wife who would otherwise be unable to visit her husband.

Every visit to the hospital makes the staff more keen and enthusiasm is never lacking for our "Tommy's Fund."

A. M. D.

Downland.

A peaceful scene; so near to the town, yet so far from the maddling crowd." Cottages nestling between tall, stately trees reveal a view of the Farthing Downs; shaded lanes lead away over to Chipstead; and hilly pasture land on either side of the main Brighton Road form the surroundings which beautify the daily task. The interior of the exchange commands a panorama of Surrey; from the switch-room the spire of what appears to be a country mansion is seen; and in the field adjoining it a number of labourers toil.

Pure, keen air enters in by the numerous windows; the sun retires behind the gathering clouds; a howling, whistling sounds assails the ear, and the emergency staircase doors are flung violently open. I walk towards them and see signs of an approaching storm. An officer joins me; he volunteers the information that the edifice we see in the distance is the Mental Hospital at Cane Hill, and the workers in the field are some of the patients who are partially cured. An indefinable sadness overtakes me; I shut the doors on the building with the spire, the afflicted workers, and the howling, sighing wind.

"Will you come out for a walk? We want to show you the poppy field we have found." Thus am I addressed a few days later, during lunchtime. I accept the invitation; we stroll up the hill by the side of the exchange, pausing now and then to admire the exquisite loveliness of the countryside.

Then we reach the poppy field. Oh! that I had the speech of the Psalmist, or the pen of a Tennyson, to describe it. Part of the field is on high ground, which slopes gradually down to where the haymakers, in perfect rhythm, are loading their carts; the Downs, rising and falling on every side, form a powerful setting to the enclosed picture; while upon them cattle graze contentedly in the warm sunlight. "Better are those things which are finished by nature, than those finished by art." Wild flowers grow in abundance, especially poppies; memories intrude upon my thoughts; the bloodstained fields of Flanders, and those afflicted workers in that other field. Again that elusive sadness.

Then, in spirit, I see a grief-stricken father with his child. A stranger meets them; he becomes assured of the parent's faith in the recovery of his son, and commands the devil in the boy: "I charge thee, come out of him."

I turn thoughtfully away from the poppy field. Why cannot we have a strong faith in the conquest of mental illness? "There is no darkness, save ignorance"; and we, in our ignorance, spend colossal sums of money in maintaining fine buildings—virtual prisons—while, if we devoted half that amount to research work, we could enable our medical men to say, with the Great Physician: "Come out of them."

* * * *

Some weeks elapse; I return to Downland for a short stay. It is Armistice Day. Poppies—the emblem of blood—are sold in the highways and the market-places; a solemn duty it is to wear those scarlet tokens of sacrifice. The eleventh hour comes; I rise to conduct the Great Silence of Remembrance for the lost sons of our race; the busy world is hushed, silent and still are those who rest beneath the poppies on the fields of Flanders.

In spirit I stand beside the grave of one who lies asleep—murdered by the Gods of War—then I seem to live again the glory of that summer's day, when I stood in silent contemplation, watching those quiet hills. Gone is the summer glory; but in its place is a new autumnal beauty. Gone is that elusive sadness, and in my soul is born a strong, eternal hope.

The Silence ends, we resume our work. But what is our work? Go again to the poppy field; the leaves, falling from the trees, cast a golden mantle over the slumbering earth; the wild flowers and shrubs are dying; but the emblems of blood are there no longer—they have departed; for, at the eleventh hour "Nation shall speak peace unto Nation; and there shall be no more war."

G. M. T.

Service Cameo No. 2 is held over till next month, owing to lack of space.—(ED.)

The Local Grocer.

It was a miserable street. When the sun shone brilliantly on the promenade it seemed to spare a few of its feeblest rays to warm that dark district—when the rain fell moderately in the adjacent square it seemed to rain furiously in that part of the town. The very wind seemed to bear it a grudge and used to roar and howl with all its might round the crow-infested chimneys and creaking gables there. How the several scattered trees on one side of the pavement existed in such an atmosphere was rather a wonder, yet they were the only interesting things in this bleak road and were singularly the only things that succeeded in getting people to settle down there.

At the corner of the road stood the grocer's shop in just the right position to attract all childish eyes as the youngsters tripped to and fro to school. He was an enterprising grocer and spent so much time in displaying apples-on-the-stick, ever-lasting chewing-gum packets, delicious licorice bars and stretchable toffee-sweets, all at the ridiculous price of a half-penny each, as to be a veritable fairy godfather to all the local children. They loved him. It was quite a usual occurrence to see dozens of children after school hours loitering round the door of his store: he always had a job for one of them and the usual reward of some delicious sweetmeat. Often he employed them to clean his windows, to sweep the floor, to transport all the vegetables displayed outside the door into the shop, to carry parcels of goods to his customers, &c. there was always something to be done.

In the quiet mornings and afternoons when the children were in school, Isaacs, for that was his name, occupied his time making his depot as attractive as possible. Each morning, equipped with a thick solution of whitewash, he used to write elaborate announcements on the windows of his apartments. "Fresh home-grown garden peas 2½d. per lb." seemed to be his favourite one, and really gave the place an air of distinction while it lasted, which was not for long, for as soon as the children's eyes beheld these freshly painted inscriptions they converted them into all manner of queer sayings by altering some letters. These doings, though rendering his work valueless, amused rather than angered old Isaacs.

With grown-up people, too, he was a great favourite. It was said that it was his stall alone that induced people to visit that dreary street. Sometimes it almost hummed with the pitter-patter of the feet of his many customers and their busy chatterings as they discussed with one another outside his shop the various new kind of goods which Isaacs was adding to his wares. He sold bootlaces, cabbages, potatoes, grocery, and one could always rely on him to have a reel of cotton or any other such small article which one would not expect a grocer to sell.

There are great lamentations in Bleak Street, Isaacs is dead. Unknown to all he had been suffering from a serious malady and in the night he expired. His life history no one knows. He seemed always to have lived at the corner of Bleak Street. There were rumours that he had a wife and child somewhere—in Africa or India—but what they are doing there no one knows. A certain old man says that his wife was a flighty miss who ran off with a soldier in the Indian Army, and another that she wished to visit her native land before she died—and left him. All are agreed, however, that she is a heartless hussy to have left him in his declining years. It is an agreed fact, too, that he loved to please the children because he often thought of his own little boy: indeed, tears have been seen in his eyes whilst he has been regarding them. And now Bleak Street will become even more bleak. The shop has been sold: it is to be converted into a house—before long Isaacs will be no more than a memory—a mere reminiscence.

V. G. T.

A Panegyric.

Bear with me, gentle Editress,
While I relate to you
The reason I now effervesce,
Where erstwhile I was blue!

I feel inclined to dance and sing
Or gambol on the turf—
Like to the frisky lambs in spring
Or Mermaids in the surf!

I am so filled with ecstasy
I should not be at large!
But here's the reason for my glee
I've just met PERCY FLAGE!!!

That man of moods most mystical—
My punster of the past
Our high priest of the whimsical
Materialised at last!!!

This revelation may inspire
Contributors like me
Anon to string the tuneful lyre
(to wit, our friend D. D.).

For many moons I have been dumb—
My muse in durance vile—
But now my Inspiration's come,
And life's once more worth while!

With verses plain or polyglot
I'll ply you day and night
What's that? You bar this tommy-rot?
Ah, well—perhaps you're right!!

C. A. S.

Happy New Year.

I wish all my readers a Happy New Year,
With lots of enjoyment and loads of good cheer,
And everything added that anyone lacks,
A rise in the bonus, a fall in the tax.

I wish all my writers more strength to indite,
That month after month for the column they'll write,
With this for their guidance they cannot go wrong—
"Resolved—each exchange will send *something* along."

And one other wish in conclusion I'll mention—
May great things result from the London extension,
Appointments, promotions, an outlook quite clear—
A quite unmistakably Happy New Year.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North) London, E.C.1.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

THE business transacted by the Contract Branch during the month of November resulted in a net gain of 2,875 stations.

The number of orders obtained up to the middle of December for hand-microphones had reached the considerable total of 76,714. On Jan. 1 last the number was 13,428.

Since the introduction of coloured hand-microphones in May last, orders have been received for 174 of these instruments.

A special Christmas leaflet was distributed in the weeks immediately before Christmas to about 180,000 selected addresses. The leaflet is appropriately printed with the words "Spend wisely this Xmas," and it is hoped as a result that the telephone army has been considerably augmented and that members of the exchange staffs were busily engaged extending "Seasonal Greetings" on behalf of the Postmaster-General to a large number of newcomers.

The progress of the "Staff Salesmanship Scheme" continues, and since the end of September, when the scheme commenced, up to Dec. 12, the result of the efforts of the London staff in the various departments has been as follows:—

	No. Ordered.	No. Ordered.
Exchange lines ...	165	Hand-microphones ... 579
Extensions ...	137	Extension bells ... 40
Private wires ...	2	Coin boxes ... 6
Plugs and sockets ...	19	Miscellaneous ... 61

The appeal of the telephone to the householder for domestic and social purposes has been emphasised many times, and wives in particular realise this more quickly, perhaps, than husbands.

During a recent court action a reference to the telephone induced a learned judge to make the following remark:

"The telephone is a very useful provision which enables ladies to talk without being interrupted."

This is a psychological feature which might be worth remembering by our "staff salesmen," and recalls a 17th century English proverb.

"While the word is in your mouth it is your own: when 'tis once spoken 'tis another's."

One of the most successful staff gatherings held for some time, assembled in Cornwall House on Thursday, Dec. 10, to hear an informal talk on Line Plant Economics, by Mr. J. N. Hill, of the Technical Section, Superintending Engineer's Office. The meeting was arranged by the Contract Branch, and upwards of 250 members of the staffs of the Contract and other offices were present.

Mr. Taylor, Principal Clerk, Contract Branch, who presided, said he had no doubt that much useful information would be forthcoming for the information of those immediately in touch with the public.

Mr. Hill illustrated his talk with many interesting lantern slides and dealt with a highly technical subject in an interesting and non-technical manner.

The methods employed in arriving at the most economical layout of plant were illustrated, and the meaning of the term Annual Charges and their relation to line plant costs were demonstrated by several interesting slides. The value and necessity of development forecasts were dealt with, and various considerations involved in the most economic planning of new exchange areas were explained.

Later Mr. Glenny, of the Development Section, occupied the chair, and in response to an invitation many questions were fired at Mr. Hill which widened the scope of the talk. These were replied to at some length by Mr. Hill.

The Deputy Controller, Mr. Pink, thanked Mr. Hill for his interesting talk, and referred to the responsibility of the staff in making a financial success of the telephone business.

How I Saved a Line.

I found myself in the company of a business friend who was engaged on the task of retrenchment.

Well, he said, it seems to me that I can save several pounds yearly by reducing my telephone installation. One line and a few extensions will amount to a saving of several pounds per annum.

The following conversation ensued :—

“Is your business decreasing?”

“Well, No!”

“I suppose you hope to increase your business?”

“Of course, most certainly!”

“Your telephone is an essential part of your business?”

“I agree, I could not do without it. In fact, the business transacted by 'phone is now greater than ever.”

“Have you examined the risks consequent upon an inadequate service?”

“No. I am only thinking how I can economise.”

“But is it wise to cut expenditure at the risk of reducing your income?”

“That would be foolish, of course.”

“Yes, and it would be suicide to stop the channels along which your business flows. The result would be that your customers would drift elsewhere. Remember, your clients would soon tire of being told that Smith is engaged and will decide to try Brown, then all is lost. Now I can give you an instance of . . .” &c., &c.

Notice to cease has not yet been given and I don't think it will be.

London Telephonists' Society.

The meeting on Dec. 4 attracted a very good attendance, including visitors from the Engineering Branch, whose curiosity had been roused by the Mystery Debate promised.

The audience found the chief performers in the debate hidden from view behind a large screen on which was depicted a very realistic scene representing a ship sinking by the stern in a tempestuous sea—the work of Miss Gray, telephonist, at Metropolitan.

The President, Miss Redmond, opened the proceedings by asking the audience to imagine that a number of members of the London Telephone Service were passengers on a ship which was sinking, and that for the safety of the remainder one must be thrown overboard. Each would be allowed to plead for his or her life by representing the importance to the good of the Telephone Service of the grade represented. The different members of the service represented were :—

A Supervisor.	A Service Superintendent.
A Night Telephonist.	An Engineer.
Accounts and Contracts.	A Headquarter's Traffic Officer.
A Telephonist.	

The claims made by the various officers caused much amusement, each presenting cleverly composed contributions, the witty references to various typical subjects being quickly appreciated by all. The proceedings were punctuated by agonising S.O.S. signals in Morse on a particularly raucous buzzer. As the last passenger was presenting his case for a further lease of life, a cabin boy (familiar as “Terry”) hurried to the captain to inform him that a stowaway, who called himself a subscriber, had been found on board. In consequence of this, a further heart-rending plea had to be heard, which moved the audience to the verge of tears (of laughter).

When the principals had all delivered their defences, a champion for each was found amongst the members of the audience, and each supporter made a contribution fully maintaining the high level of skill and wit which had been shown by the original pleaders.

The arrival of a rescue ship, in answer to the distress signals, saved Miss Redmond from the embarrassment of consigning to the waves even one of the able debaters, and after a very hearty vote of thanks had been proposed by Mr. Pink, and seconded by Mr. Wright, the passengers, duly labelled, filed out to the front of the screen, where their appearance was greeted with a roar of applause.

The meeting then dispersed in a spirit of great enthusiasm after what was, in the view of many, one of the most successful evenings the Society had had for some time.

Battersea Exchange Social-Dance.

An enjoyable evening was spent at the Battersea Town Hall on Dec. 2, when a social-dance was held in aid of the local poor children's Christmas tea fund.

About 50 couples took the floor and, for once in a way, the ladies were not in an overwhelming majority, there being a liberal sprinkling of males, both official and “attached.”

Visitors were welcomed from Cornwall House, the E.C. District, the Stamford Dramatic Society and numerous exchanges, Macaulay, Prospect, Putney and Hop (to name a few) being represented.

The fact that appreciation was freely expressed of the steps taken to ensure comfort and pleasure reflects credit upon the organising committee, and where all concerned co-operated so successfully it is difficult to allocate particular praise. Mention must, however, be made of the untiring energy of Miss Stallan (the “Chairman”) and the monologues of Miss Hatherly, which provided a pleasing interlude to the dancing, as did also the vocal contributions of Mr. Swindell and Mr. Rowe, two of the visitors. Mrs. Hearn (Battersea) brought her little daughter, Peggy, who presented a delightful picture of youthful freshness and charm. The only juvenile member of the company, this little lady quickly settled down to her own enjoyment of the dancing and the admiration of her elders.

In the absence of Miss Searle, who was regrettably away on extended sick leave, Miss E. D. Stevens (Paddington) officiated as “Chief-Supervisor-off-Duty” with marked success. The Battersea staff equipped themselves well as is their wont in both social and official activities, and, as a result of their enterprise, it is anticipated that a large number of local poor kiddies will be entertained in the near future.

The refreshments, which were on a generous scale, were most efficiently prepared and served by a willing band of helpers drawn from the Dining Club Committee and their friends, and up to the time of going to press the return of written and verbal complaints is nil.

Mr. L. D. Saunders was the M.C.

Personalia.

Resignations on Account of Marriage.

Assistant Supervisors, Class II.

Miss M. E. Eastlake, of Victoria.

Telephonists.

Miss D. M. German, of New Cross.	Miss B. M. Dew, of Clerkenwell.
.. L. E. Tigwell, of Rodney.	.. D.G. Glenister, of Clerkenwell.
.. M. Buswell, of Walthamstow.	.. D. A. Mason, of Regent.
.. J. King, of City.	.. T. J. Hastings, of Victoria.
.. K. Digby, of Toll “A.”	.. H. L. George, of Trunks.
.. R. M. Wilson, of Toll “A.”	.. N. A. Clark, of Holborn.
.. M. Barnes, of Toll “A.”	.. V. E. Ellard, of Holborn.
.. A. M. Monk, of Esher.	.. W. C. Hume, of Metropolitan.
.. R. M. Goodall, of Tudor.	.. E. M. Roberts, of Speedwell.
.. D. K. Luke, of Tudor.	.. E. L. Faulkner, of Speedwell.

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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCIV.

MR. B. L. BARNETT.

MR. B. L. BARNETT is reported to have won distinction as a mathematical scholar at Cambridge: but he wears his scholarship lightly, and anyone less "domish" it would be impossible to imagine. It is recorded also that he served as Brigade Signals Officer throughout the War, was twice mentioned in Despatches and gained the Military Cross for gallantry in the field. There is, indeed, something in Barnett's personality that recalls most of the few things about the War that one would wish to remember. It is certain that he applies in his present work the lessons that he learnt as a Brigade Signals Officer—the lesson of organising a small but important piece of work and organising it in relation to the other parts of a vast machine, the lesson that an order is most likely to be obeyed when not only its meaning but its purpose is appreciated by those to whom it is given. Although he certainly does not envisage the



relations between the Post Office and the public as warfare, he often refers to telephonists, counter clerks and postmen as the "front-line troops": and he gives them the sympathy due to the men in the trenches from one who knows what trenches are like.

He entered the Post Office in 1920, and served his apprenticeship to the Telephone service, in the Buildings Branch, where he maintained co-ordination between the many bodies responsible for the planning and erection of telephone exchanges, at a time when the machinery of consultation was less fully developed than it is now. By a natural transition he was transferred to the Telephone Branch in 1922. After a time he came to be employed on the trunk services: and in 1930, when the Imperial and Foreign services had grown to such an extent as to be a Principal's duty in themselves, the new duty, which became part of the Overseas Telegraph Branch, was assigned to him.

He has acquired a wide experience of the telephone

(Contd. on p. 93.)

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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FEBRUARY, 1932.

No. 203.

FACILITIES FOR TELEPHONES IN NEW BUILDINGS.

THAT the luxuries of yesterday became the necessities of to-day is a commonplace, and an instructive sociological study could be made of gradual additions to the conveniences of standard middle-class dwelling-houses which half a century has rendered necessary. The bathroom ("h. and c.") which was a novelty in the 'eighties, has, we hope, long ceased to be regarded as one. It is no longer an addition; it is part of the original structure of almost the smallest houses. The introduction of gas into the home does not now mean serious interference with walls and ceilings by the Gas Company's employees: houses have long since been built with gas-pipes already led in. At the present time a small garage is rapidly becoming a *sine qua non*, and is amongst the favourite lures of the estate agent, whilst the classic "4 min. from station" is no longer an indispensable watchword. Then again, the advent of the telephone in the more modest middle-class homes has lessened the need for propinquity to shopping centres, and permits the enjoyment of comparatively rural solitude unspoiled by that sense of isolation from friends and urban facilities which was formerly the penalty of living outside a town area.

Every modern builder, therefore, when developing "estates," besides providing his householder with a warm bath and possibly a garage, besides ensuring that his gas or electric light will be led in without tearing-up floors, should see to it that the telephone can be installed without disturbing or disfiguring the new building. With the aim of encouraging this progressive attitude, the Post Office has recently issued a booklet treating of the provision of facilities for telephones in new buildings for the guidance of architects, surveyors, engineers, builders, and others concerned.

The book which was prepared with the assistance of the Royal Institute of British Architects contains very full information on the subject illustrated by many useful diagrams. It deals not only with flats and dwelling-houses but also with large business blocks and hotels.

While the necessity for careful planning of the future telephone lay-out in large structures is obvious, such necessity though not so clamant is very real in every class of new building. With the great expansion in domestic and social telephone development which is anticipated, we imagine that the last and smallest section of the book is perhaps not the least important. It is at any rate an interesting sign of the times that the small dwelling-house comes into consideration in a project for ensuring co-operation between architects, builders, and the Telephone Administration.

HIC ET UBIQUE.

WE are told that amongst the many questions asked by children at the Young Peoples' Telephone Exhibition was "What is a wrong number?" A strangely unsophisticated child, surely, and one who never reads the lighter columns of papa's daily paper.

It is instructive to see *Telephony* (of Chicago) taking to task subscribers "who peremptorily demand that rates be reduced without knowing the facts—that is without knowing whether or not the company is financially able to reduce rates without seriously crippling the service. In most cases those who demand rate cuts do not see the other side of the question." The same remarks changing "company" to "Post Office" are applicable on this side of the Atlantic. The people who advocate such radical reductions in telephone charges never venture to suggest that the railway fare, say to Scotland, should be reduced to about 5s.

Early in this year it is expected that the permanent Winnipeg—Calgary section of the trans-Canada trunk line will be completed and a direct all-Canada route will connect Atlantic and Pacific. The Winnipeg-Vancouver line was opened on a temporary basis on Dec. 14. The links between Winnipeg and Montreal and Toronto (and thence eastward) already exist.

A bill was placed before the Spanish Cortes in December, proposing that the Spanish telephone system (which was sold to the Spanish National Telephone Co., a subsidiary of the International T. and T. Co. in 1924) shall be restored to State ownership.

According to *Telephony* the Spanish Government expects to avoid the penalty of 115 thousand dollars, payable for annulling the contract, on the ground that the contract was the outcome of "an illegal arrangement" between the late American ambassador and the late dictator of Spain. It is further suggested that the Spanish State will encounter serious obstacles in attempting to take over the company's material, as the rights for the automatic system are in American hands, which, it is said, will not sell. Altogether some interesting developments may be expected.

Sir Kingsley Wood, the Postmaster-General, speaking last month at Birmingham, said the Post Office hoped to introduce in a few months a remarkable new service which was the result of the work and skill of British inventors. It was known technically as the Teleprinter Exchange Service. It was talking in print, and was somewhat of a modern miracle. It might well prove to be one of the most important systems in modern business. The

new method would enable letters, reports, or any kind of message to be typewritten automatically between the offices of any two telephone subscribers, at any distance from one another, who had teleprinter machines installed. The typist in one office would type the message, and it would be printed simultaneously on both machines, so that both subscribers would have a complete typed record of all the communications exchanged. The speed at which the message could be sent was that at which the average typist worked. It was gratifying to know there was a remarkable safeguard against wrong connexions. After ringing up the desired subscriber the caller wishing to send a message would be able to press a key on his machine, called the "Who are you" key, and the distant machine would at once transmit back its own exchange and number. He hoped the service would be available to London subscribers by the spring and to subscribers in the Provinces by the summer.

"One hears so much about the incompetence of the Post Office, and particularly the telephone service," says "Critic," in the *New Statesman*, "that it seems only fair to record one's own favourable experience. During the last twelve months I have had installed in my house (1) electric light, (2) a wireless set, (3) the telephone. The two first were undertaken by private firms and I had endless trouble and disappointments. The electric light company always took three weeks longer than they had promised. The wireless set was delivered two weeks after it had been promised and then immediately blew up because the engineer had assumed that my main was alternating, when in fact it was direct, current. Contrast this with the telephone service. I applied just before Christmas to have it installed in a country house. All I had to do was to fill up a printed form—no correspondence, no interviews. The installation necessitated a new wire for about a mile. Work began on the Tuesday after Christmas. On Thursday an inspector arrived and politely apologised for the delay. By the following Monday I could telephone."

PROGRESS OF THE TELEPHONE SYSTEM.

THE net increase in stations for the last two months of the year 1931 was 9,089 and 7,947 respectively, bringing the total number of telephone stations in the Post Office system at Dec. 31, 1931, up to 2,039,537.

The following gives a brief review of the growth of the telephone system during the year 1931:—

	TOTAL NO. OF STATIONS.		INCREASE.	
	At Dec. 31, 1930.	At Dec. 31, 1931.	No.	%.
London	703,232	730,826	27,594	3.9
England and Wales (excluding London)	1,058,266	1,104,540	46,274	4.4
Scotland	171,684	178,122	6,438	3.7
Northern Ireland	24,508	26,049	1,541	6.3
United Kingdom	1,957,690	2,039,537	81,847	4.2

Residence Rate Stations at Dec. 31, 1931, numbered 226,156 in London and 332,288 in the Provinces, the total of 558,444 representing an increase of 35,846 or 6.9% for the year. The increase in business subscribers' exchange stations for the same period was 41,994 or 3.1%.

The total number of call offices (including kiosks) at Dec. 31, 1931, was 36,759, or 2,904 (8.6%) more than at the end of the previous year. The London total was increased from 6,608 to 7,557, and the Provincial total from 27,247 to 29,202.

Of the net addition of 2,904 call offices for the year, 2,467 (85.0%) were installed in kiosks. At Dec. 31 last, kiosks in London numbered 2,690, and in the Provinces 9,470, giving a total of 12,160, which represents a 25% increase for the year.

During the year 1931, 201 new rural exchanges were opened, bringing the total number opened under the development scheme authorised in 1922 up to 1,750. In addition to the 1,750 exchanges open, there were at the end of the year 153 further exchanges in course of construction.

The number of rural party line stations working at Dec. 31, 1931, was 8,474 as compared with 9,402 a year previously. Many such lines are being replaced by exclusive lines in connexion with the opening of rural automatic exchanges.

Further progress was made during 1931 in connecting rural railway stations with the telephone exchange system, the number of stations connected at Dec. 31, 1931, being 2,045, as compared with 1924 at the end of 1930. All the new circuits provided during the year, except 6, were call office circuits.

The number of effective calls originated during the year 1931 is estimated at 1,410 millions, or 59.5 millions (4.4%) more than the total for the year 1930.

At the time of going to press, the final results for the last three months of 1931 in respect of trunk calls were not available, and the year's figures will be given in a later issue. Particulars of the September traffic which have not yet been quoted are as follows:—

The total number of inland trunk calls dealt with was 10,595,757, representing an increase of 352,964, or 3% on the September 1930 figure. Outgoing international calls numbered 52,426, and incoming international calls 59,087, the increases over September, 1930, being 7,240 (16.0%) and 10,703 (22.1%) respectively.

Further progress was made during the month of December, 1931, with the development of the local exchange system. New Provincial exchanges opened included the following:—

- Orpington, Staines: Longford and Sale (both automatic): Altnaharra (Lairg) Barkway (Royston, Herts), Brendon (Barnstaple), Bampton (Penrith), Bainton (Stamford), Brampton (Beccles), Brigstock, (Kettering), Beamish (Newcastle-on-Tyne), Barbreck (Oban), Barnham Broom (Norwich), Crosswell (Cardigan), Castor (Peterborough), Dalmellington (Ayr), East Stour (Shaftesbury), Exford (Taunton), Gilberdyke (Hull), Holbeton (Plymouth), Kincardine (Alloa), Lower Peover (Knutsford), Lacock (Chippenham), Lulsgate (Bristol), Langney (Eastbourne), Muir of Ord (Aberdeen), Memsie (Aberdeen), Manley (Warrington), Overseal (Burton-on-Trent), Oakley (Bedford), Papworth St. Agnes (Huntingdon), Plaistow, Sussex (Horsham), Ramsden (Oxford), Southend (Campbeltown), South Cockerington (Louth), Tillicoultry (Clackmannanshire), Talybont (Aberystwyth), Treffgarne (Haverfordwest), Upwey (Weymouth), Uppington (Chester), Wymeswold (Loughboro), Whissendine (Oakham), Weyhill (Andover) (all rural automatic):

and among the more important exchanges extended were:—

- LONDON—Enfield, Pinner.
- PROVINCES—Ascot, Ashstead, Bearsden, St. Albans.

During the month 73 new overhead trunk circuits were completed, and 79 additional circuits were provided by means of spare wires in underground cables.

(Continued from p. 91.)

service, and—what is even more valuable—a clear grasp of what the public expects from it. His ready sympathy enables him to appreciate quickly the other man's point of view; he does not conclude that a complaint is unreasonable because it is unreasonably expressed. The sympathy that enables him to see his ends helps him also to gain them: he wins his way by force of a lovable personality, unquenchable zeal, and a great store of patience. He is a willing listener to other people's problems, and the advice he gives is always helpful and decisive. There is no "sick fatigue" or "languid doubt" about Barnett.

On Saturday afternoons throughout the winter he journeys to one of the more distant of the London suburbs and there acts as referee in a Rugby match. A cynic might wonder what satisfaction he gains from so cold and damp an occupation: but Barnett is a standing disproof of cynicism.

THE INLAND TRUNK SERVICE.*

By H. TOWNSEND, *Secretary's Office.*

DURING the last few years several papers have been read to the society which dealt with various aspects of the Inland Trunk Service. As long ago as 1924 Mr. Trayfoot, of the Headquarters Traffic Section, gave a very interesting summary of the history of the service, including the London Toll service, together with an account of the problems on the operating side as they stood at that date, and of the elastic system of routing calls by means of zone centres and group centres, which is, of course, an important part of the permanent structure of the service. More recently Mr. Griffith, of the London Telephone Service, on his return from a visit to the United States of America, described to the Society the salient features of trunk service in North America, and the discussion which followed his paper covered a fairly wide range of our current problems in this country. Most of you will also have read in the *Telegraph and Telephone Journal* a series of articles on Long Distance Telephony by Mr. Darby, of the Headquarters Traffic Section, which deal more fully than is possible in one paper with the application in this country of the principle of "Demand Working," or, to be more accurate, with the extension of that principle, which has been practised by us for very many years on comparatively short routes, to the main long-distance arteries of telephone communication. Sir Henry Bunbury has also touched on specifically trunk service problems in papers read to our Society dealing with the broader subject of Telephone Finance; and, finally, in a paper read to the London centre of the Institution of Post Office Electrical Engineers last October, Mr. Elston, of the Engineer-in-Chief's Office, has dealt with what is known as the Trunk Telephone Reorganisation Plan, that is, the systematic application throughout the service of the newest technical developments in regard to problems of speech transmission.

I am not going to-night to cover the ground dealt with by any of these authorities. On the contrary, I assume that everyone concerned with the trunk service, either has read or will read the papers I have mentioned. Nevertheless, when I was asked to read a paper to you on the subject of the Inland Trunk Service, my reaction of trepidation was not due to any fear of lack of material, but, on the contrary, to the difficulty of covering the ground in the time available without remaining "in the air" for the whole of the hour's journey. What I want to do, if I can, is to give you an outline picture, with one or two insets in rather more detail, of the administrative problems of the service—that is to say, of the problems facing what, in the case of a commercially organised service, would be called the management—and of the lines on which these problems are being tackled. Before getting down to that, may I give one word of combined apology and warning in a general way? It is always rather hard to state an administrative problem in general terms: that is unless one gives more detail than there is room for in a paper of this sort. On the one hand, unless one emphasises the difficulties, one is liable to give the impression that the solution is obvious to unaided commonsense—that the problem is the kind of thing that "only" has to be stated fairly to be answered straight off by any reasonable person. On the other hand, if one does bring out the hidden snags on which the offhand common-sense man always crashes, one may lead people to think that one is dealing with the sort of practical question which has no scientific answer at all (e.g., for lack of precise or comprehensive data), and which one must deal with by tossing up a coin, and coming down firmly on one side or the other according to one's bias. (For example, I have known amateurs propose to deal thus lightheartedly with rate questions). If I can manage to convey to you, especially to those of you who are experts, and who share every day in the work of framing expert advice to the management on one class of trunk service question or another, my own firm conviction that our administrative problems are neither obvious nor insoluble, but, on the contrary, that they are difficult, but soluble in as strictly scientific a sense as that in which any practical problem can be said to be soluble, my aim will be realised.

I will begin with an academic question—or, should I say, a judicial question—what is the Inland Trunk Service? Obviously, part of the telephone service, but what part exactly?

Telephone service differs from many other public utilities in that it begins, in a new country, as a local service. Exchanges are started in towns, at first independent of each other. Then the problem arises of linking up the local systems—i.e., of providing subscribers with trunk service. The trunk service is simply, therefore, that part of the telephone service which is not local service; and its object is to give clear, rapid and inexpensive telephone communication between any two people not in the same locality, but each already having a telephone at his disposal, connected to a local exchange—or to a local network of exchanges if he lives in what the local telephone authorities know as a multi-office area.

Fig. 1 gives a summary of the data of our problem—a map of Great Britain and Northern Ireland showing the telephone development in more or less local groups. It is obvious from the map that five-sixths of the two million telephones in this country are agglomerated in six or eight main areas—London and the S.E. Counties (952,000 telephones), Birmingham and the Midlands industrial district (101,000 telephones), the very large industrial district of Lancashire and Yorkshire (332,000 telephones), the Midland Valley

of Scotland (107,000 telephones) and some of the rather smaller industrial districts including South Wales and Northumberland and Durham; to these must be added the more or less rural districts, including their towns, comprising in all nearly 400,000 telephones. In this country, therefore, the problem of trunk service has two aspects; first, the short-distance trunk service, the problem of connecting any two telephone subscribers within the same "industrial" area, but not in the same locality; secondly, the long-distance service, that is the connexion of two subscribers in different "industrial" areas—these, very roughly, correspond to what are known in the S.E. of England (but not elsewhere) by the separate names of Toll and Trunk service respectively; finally, there is the special problem of meeting the needs of subscribers in the "rural" areas, whose requirements in the matter of trunk service are in this country rather exacting.

It is well to have a picture, also, of the orders of magnitude of the actual communications over various distances which are involved, but do not forget that, in the long run, the demand depends on the supply, i.e., on how far we have been able in each case to meet it, or—better still—to anticipate it, by good trunk service. Fig. 2 shows the percentage of non-local calls made annually in the inland system over various distances (measured radially). The figures are obtained from a sample analysis of about a million tickets.

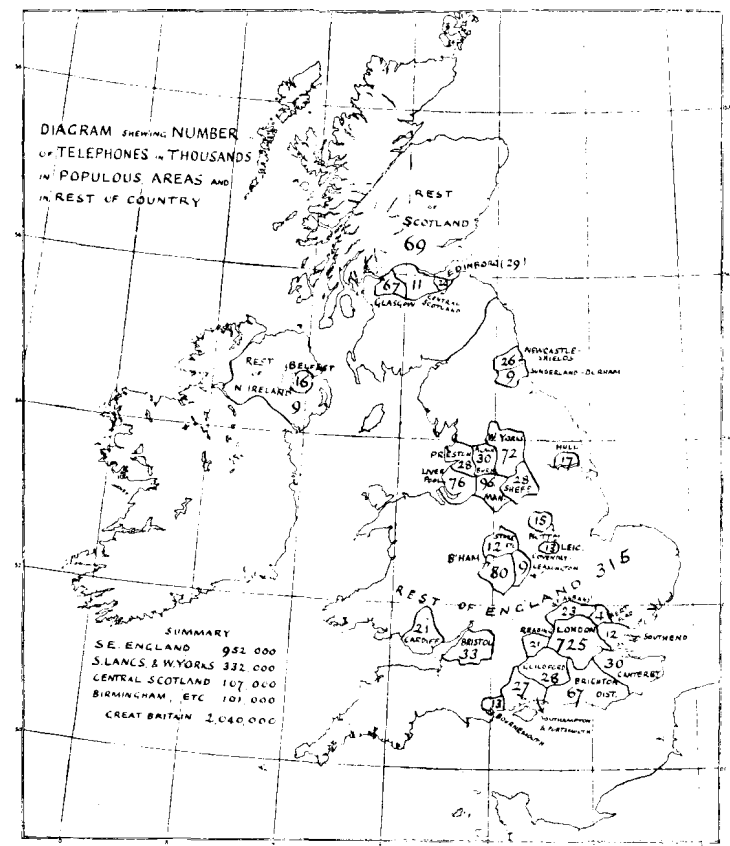


FIG. 1.

a 1% sample, that is to say, of a year's traffic; such an analysis has recently been made at least annually and there is evidence that the sample is adequate and typical. (It would take me too much into detail to produce the evidence, so I must ask you to accept it.) The statistics obtained from these analyses are very valuable and throw a great deal of light on many of our practical problems. Indeed I have been tempted to go on talking about them for the rest of the time—but this is a paper on the Inland Trunk Service as a whole, not on its statistics, which is really a subject in itself. I should like to mention, however, that the analyses show how the duration of a trunk call varies with the distance and with the time of day, and also give separate information about the rapidly growing personal call service.

I want to invite your attention to two points. First, the figures at the lower end of the distance scale, which are naturally the largest, are arbitrary. We have included subscribers' ordinary calls costing 3d. or over, and coin box and call office calls costing 5d. or over, and excluded the others as part of the local service. This element of arbitrariness is not merely due to our choice of statistics and to the special extensions of the local fee areas in London and the four largest provincial towns; it is in the nature of things that it is not possible to define a "locality" scientifically, and there must, therefore, be a margin of debatable ground between local and "trunk" service. The practical importance of this is that it makes it very difficult to frame reliable figures for the trunk service as a whole. So much depends on what you reckon as local or non-local. In particular, it is not possible to compare reliably trunk calling rates in one country with another; nor have costs been satisfactorily apportioned between the trunk and the local services. Taking

* Paper read before the Telephone and Telegraph Society of London.

the particular line of demarcation selected for the analysis there are roughly 120 million non-local inland calls a year, bringing in about £5½ millions annual revenue—roughly one-quarter of the whole telephone revenue—and there is—very roughly—40 million pounds' worth of specifically non-local capital plant—roughly one-third of the telephone capital plant as a whole. But of course non-local calls use also local plant, including the subscribers' rented installations. I mention these rough figures merely to give an idea of the order of importance of the trunk service as a part of the whole telephone service, figures for which are available to you in the Commercial Accounts, and to bring out the fact that capital charges are probably relatively even more important in the trunk service in relation to current charges than they are, *at present*, in the local service (I don't suggest that this will last).

DIAGRAM OF PERCENTAGE OF CALLS FALLING INTO EACH CHARGEABLE DISTANCE STEP.

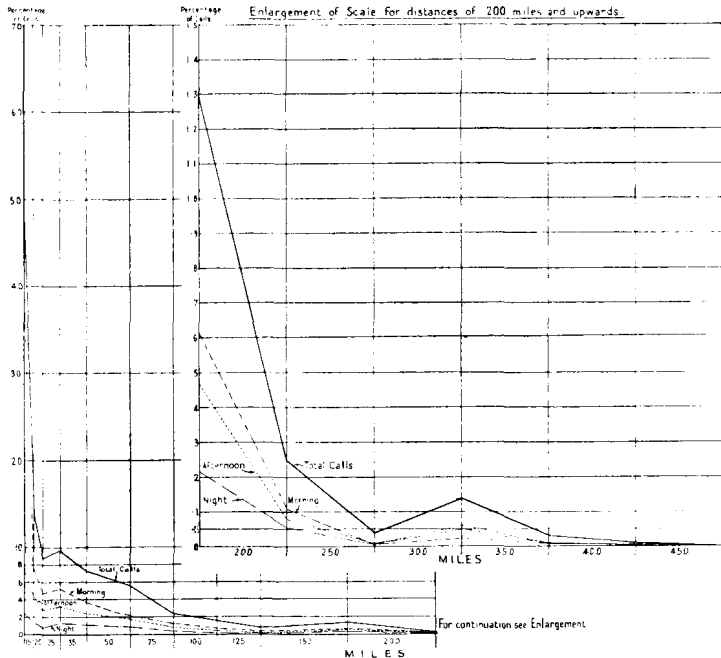


FIG. 2.

DIAGRAM OF PERCENTAGE OF CALLS FALLING INTO EACH CHARGEABLE DISTANCE STEP (SEPT. 1929).

Before I get on to the second point brought out in Fig. 2 I want to give you a correspondingly rough general idea of the rate of growth of trunk traffic and revenue as a whole. Fig. 3 shows a graph designed to do this. Of course, the rate of growth of traffic over different distances is not the same, and its variations as indicated by the statistics to which I have referred, call for separate treatment and are themselves of great significance. The main point, however, is that, in spite of very unfortunate trade conditions, the service is a steadily growing one, and its economics, both on the cost side and on the demand side, are therefore quite different from those of a stationary service. I want to say a word now about the demand side. (I will come to the cost side later.) Trunk calls are of so many different kinds—the demand for trunk communication is so essentially composite—that I find it necessary when thinking about practical problems in regard to demand, to classify them in some rough kind of way and I suggest the following, not as a scientific classification, but as a rough grouping which I have myself found useful. A scientific classification may prove possible in time, but it is very difficult, owing to the great variety of types of demand for trunk service.

The first class of traffic covers roughly calls on financial or produce exchange business, the characteristic of which, from the point of view of the caller, is that each call represents an actual or potential business transaction, the profit on which may be expected to be large compared with the charge for the call. The demand for this class of call (which over long distances is relatively important) is naturally very inelastic for short periods, and it is, moreover, subject to violent fluctuations from causes outside the control of the service. Either a boom or a slump on the Stock or Produce Exchanges produces a sudden flood of additional long distance calls which disappears equally suddenly when the boom or slump comes to an end and is followed by "dull" conditions. For example, when the Stock Exchanges reopened after we came off the gold standard, the trunk traffic on some routes rose at once for a week by 30%; when credit dealings were stopped, it fell immediately to "normal." Service improvements and rate reductions on a long view encourage this traffic, like any other traffic, but they cannot be expected to produce *immediate* financial results.

The second class of traffic which I have in mind consists of personal communications on business between heads of firms, branch managers of large firms and so on. This demand, like the financial-business demand, is inelastic in regard to rate reductions, but it is more elastic in relation to

improvements in transmission—trained clerks will do Stock Exchange business for their firm over a bad line but their principals will not speak over it themselves if they can help it!

The third class of demand is for conversations about minor business deals, which are normally done by telegraph because it is cheaper, but which nevertheless are of such a kind that they can be facilitated by, at all events, the occasional use of the telephone trunk service. I believe that our afternoon differential tariff has materially encouraged this class of traffic over the longer distance routes (I shall come back to this later) and I am quite sure that good transmission and service have done so and will continue to do so.

The fourth class of traffic can be described generally as "social calls." Since this traffic depends primarily on personal habits, and this is a very conservative country, the demand for social calls is very inelastic indeed for short periods; on the other hand, it is, I think, more elastic than the other kinds over a long period, both in regard to rates and in regard to service and transmission improvements. I shall have another word to say about this later.

To go back to Fig. 2. The second point brought out by it relates to the relative volume of traffic over different distances at different times of the day. The figures at once suggest two problems of management. First, how to attract more traffic over the longer distances and, secondly, how to attract more traffic in the slack hours—that is, the "peak" load problem.

As regards the former, the figures show the obvious influence of geographical conditions which cannot be altered (e.g., the peak in the 300-350 miles group, caused by the traffic between the London region and the Edinburgh-Glasgow region); but they do not show the effect of the measures taken to stimulate specifically long-distance traffic. On that I have only time to make the general point that experience suggests that the introduction

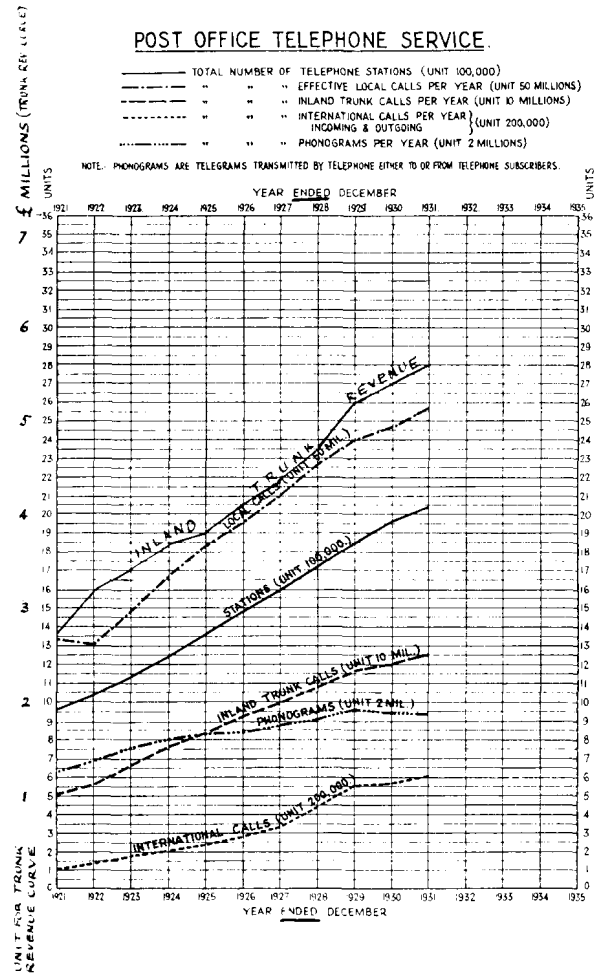


FIG. 3.

of a high standard of transmission is usually effective in attracting traffic fairly quickly; the reduction of delays, however, has not in the past produced a *quickly* measurable effect. It is too early, of course, to estimate the results of the "demand" service on the longer routes; but in the London Toll area, where an *equally* speedy service has been given for nearly 10 years, the completion of connexions on demand has undoubtedly contributed materially to the exceptionally rapid growth of short distance non-local traffic as a whole, and we may reasonably hope for similar results on the long main routes. The effect of the progressive rate reductions which have been effected during the last 10 years is also difficult to measure; but it

can be stated definitely that the substantial reductions in the rates for calls over distances of more than 200 miles which came into effect two years ago have attracted at least enough new traffic to pay for themselves. This is, indeed, probably an understatement. It must not, however, be supposed that trunk rate reductions normally pay for themselves quickly—experience shows definitely that this only happens in quite exceptional circumstances.

As regards the "peak" load problem, the diagram shows what, I think, is not very generally recognised, that a very considerable measure of success has already been achieved by this Administration in attracting afternoon traffic over long distances. I think there is no doubt that this is due to our system of differential rates, which goes distinctly further than that of any other country. Of course, that does not mean that the peak-load problem is not always with us. It exists in every public utility, and, indeed, in every industry using heavy capital plant, but I do not think that any method other than differential rates has ever proved much use.

(Someone may suggest, as an alternative method, the invention and development of bye-product business. But the invention of such new business depends, not on the management, but on its technical advisers; where the management comes in is in developing it, when it has been invented, by suitable bye-product prices, so that this, after all, is only another case of the differential rates problem. Our teleprinter service over sub-audio phantom circuits is a case in point, and illustrates very clearly the principles governing one aspect of the relations between the problems of the technical experts and those of the administration—but that is by the way.)

The results of the differential evening tariff are less obvious than those of the afternoon tariff, but I believe, nevertheless, that on both long and medium distances it has already had, and is likely to continue to have, a material and increasing measure of success. Fig. 4 shows the variation, between 1922 and 1930, in the percentage distribution of the longer-distance

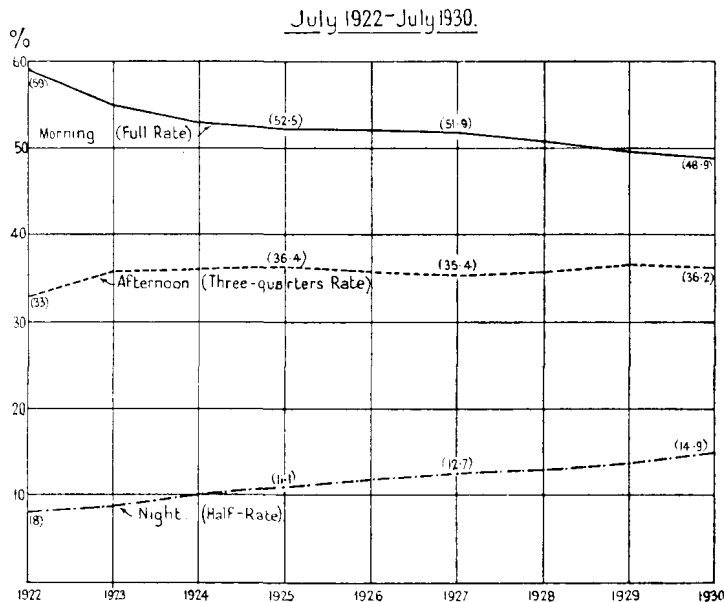


FIG. 4.

PERCENTAGE APPORTIONMENT BETWEEN MORNING, AFTERNOON AND NIGHT, OF TRAFFIC CONTROLLED AT TRUNK EXCHANGES.

trunk calls (only) between the morning, afternoon and night chargeable periods. The steady increase in the *proportion* of long distance calls made at the half-rate after 7 p.m. is obvious; you will remember that a graph of the *actual* increase would look still better (as is shown by the previous diagram giving the rate of increase of the total traffic)—but I show the percentage change because it is that which bears on the peak load problem. It is difficult to produce scientific evidence on a point like this, but there is reason to think that the habit of first occasionally and then regularly making trunk calls in the evening to friends and relations in distant or fairly distant parts of the country is slowly being formed among our residential subscribers.

At the moment, however, the main economic problem in the trunk service (excluding *very* short distance calls) is, I think, not so much the peak load problem (important as that is) as the problem—analogue in some ways but essentially different—of obtaining traffic for spare line plant. I think it cannot be too much emphasised that the development of repeated cables as the standard method of trunk communication—what the engineers call the abandonment of the copper basis—has radically altered the position in this respect. Originally trunk communication was by means of overhead lines which could be added to one by one, at least up to the point at which the pole route was full. In these conditions the best financial results were obtained by filling each line separately (at least after the first one or two on the route), and the delay system of operating was almost inevitable, probably quite inevitable, since it was, in fact, adopted at that stage in every

country (including America). As soon as cables began to be the standard type of line plant (and in this country the proportion of line-mileage, local or trunk, in cable was a year ago already as much as 82%) the unit was no longer the line, but the group of lines constituting a cable (with any associated loading and repeater equipment) and on the main routes this group tends to get larger and larger, e.g., the new London-Birmingham cable has 350 pairs of wires. (On the spur routes the replacement, by relatively small cables, of open wires has the same effect.) In such conditions you get a characteristic difference between the long-period and short-period economies of the system. Over a long period the "peak" load factor remains of the same relative importance, although, since each line or, rather, each line-mile tends to become cheaper, a worse distribution of the traffic load can, if necessary, be afforded. But on a short view, since nearly the whole capital expenditure for all the lines in the new cables—whether in use or spare—with the corresponding annual charges for maintenance and depreciation, has to be met from the outset, what is urgently required is to obtain as much traffic as possible for each cable, taken as a whole, so as to reduce the proportion of spare to working line plant. This factor, together with the progressive cheapening of *new* circuit mileage, points strongly to a more rapid standard of service, which is, of course, now in sight.

But there is very much more in it than that. I find the general point which I want to make about the economic conditions of supply of trunk service rather difficult to put; but perhaps the discussion after the paper will bring it out. I will try to approach it in this way. Where you are providing service by means of capital plant which it is for technical and economic reasons necessary to lay down in large units—and the inland trunk service, of which the basic unit of plant is the repeated cable, is a typical example of a service provided under these conditions—the economic consequences of every decision taken depend essentially on the *future* rate of growth of the service and on the *future* reductions in the cost of a unit of supply.

I am told that this point is not very clear, so I will give two examples. My first example is deliberately over-simplified for the sake of clearness, but it is nevertheless typical. Suppose you are thinking of putting into service, or of leasing, an extra circuit from among the spares in a given cable. What will the decision to do so cost? In the former case, there is, of course an additional operating cost, but this is a small matter, if it is a long distance cable, compared with the plant cost; and in any case it can easily be reckoned and allowed for. The important point is: What is the annual plant cost of the decision to use the circuit instead of letting it lie spare? Now, the *average* annual cost of a circuit in this particular cable is, of course, got by dividing the annual charges on the cable as a whole (interest, depreciation and maintenance) by the number of circuits in it. This is a perfectly real cost, entering necessarily into the commercial accounts for the excellent practical reason that the balance sheet would not balance if it didn't: it is in no sense fictitious. Its amount depends to a large extent on the kind of cable—if it is an old cable with a small number of circuits using heavy copper wire, the average cost of a circuit will be high. If it is a modern cable with many (lighter) circuits this cost will be lower. Among other things, it will depend on whether the wires in the cable are of, say, 20-lb., 40-lb. or 70-lb. copper. But, although, as I have said, this average circuit cost is a perfectly real cost, it has no bearing on the cost of the decision to put another circuit into use. The annual plant cost of *that* decision is a differential cost, namely, the difference between the annual cost which you will incur if you do it, and the present annual cost, which, of course, you will go on incurring, even if you do not do it. The annual cost of the existing cable enters as a whole into each side of the subtraction sum and thus cancels out. In fact, the cost and characteristics of the *existing* cable, the weight of copper in its wires, &c., are irrelevant to the decision—they do not determine, or even affect, the cost of the decision at all. What does determine it? To reckon this, you must visualise its real financial effect. Now, what the decision really does is to make you commit yourself to laying a *new* cable over the route earlier than you otherwise would have done. This is a present financial commitment, though it will not materialise till the future; and its cost is a real present cost, which (like any other present cost) can be expressed as an annual cost, and it is this last cost which is the real cost of your decision. (It is the increased annual premium, so to speak, payable, on account of the shortening of the life of the cable caused by taking up the extra circuit, for the endowment assurance policy on which you are relying to meet the contingency of the cable's death when it occurs.) Its amount obviously depends on two *future* dates—namely, the date when the existing cable will be full up with traffic if you do put the extra circuit into use now, and the (later) date when it will be full up if you do not; and it equally obviously depends on items of *future* expenditure, namely, the cost of renewing the cable on either of these future dates. Now these future dates clearly depend on the rate of growth of traffic, and the cost of future renewal of the cable—it would be more accurate to say "renewals"—clearly depends on future variations in the cost of a unit of supply. The cost of a decision of this sort, therefore—and as I have said, I have chosen it as typical sort of decision—cannot be calculated *at all* except on some sort of *hypotheses* about the future rate of growth of traffic and the future cost of a unit of supply. Any calculation, purporting to give the cost of the decision, which does not contain two such hypotheses is wrong. Further, the cost of the decision does not depend on the cost or make-up of the existing cable—it makes no difference to your cost whether you are taking up 40-lb. copper wires or 70-lb. ones—unless, and here is the point, you are going ultimately to renew the cable by one of the same type. It follows that if the circuit taken up is of an obsolescent type, any calculation of the cost of taking it up which takes account of its type is wrong.

Of course, accountants who deal with this sort of thing are familiar with my point; but to others, I want to stress the obvious unsoundness of calculating the cost of any decision on the assumption that you are going to renew obsolescent plant by similar plant.

In case the argument in my first example, which is certainly a little complicated, should strike anybody as academic (although I can assure you that it is the recognised accounting method), I have chosen my second example so as to show how the point I am trying to make is consistent with common sense. Suppose you are thinking of diverting all the circuits on a route—say London-Belfast—from one cable of old type, of high average circuit cost, to another cable of modern type, with lower average circuit cost, or *vice versa*. Do you save anything, or incur any cost, by the transfer? Obviously not, for the operating costs are the same, there are no immediate plant costs, and you are not committing yourself to any additional plant costs in the future. (If the route to which you transfer the circuits becomes full up while there are still spare circuits in the other one, you would obviously transfer the traffic, or some of it, back again to the old route, rather than lay an additional cable on the new route). Thus the sound method of calculating the cost of the decision, that is, by estimating the present value of the future financial commitments which it involves, leads to the common-sense conclusion that a mere reversible transfer of traffic from one route to another is financially immaterial.

But if, on the other hand, you were to work out the cost of the decision to transfer the traffic by means of *existing average* circuit costs, so many circuits at £x a circuit released in one cable against the same number of circuits at £y a circuit taken up in the other, you might get a most enormous difference, and be led to the paradoxical conclusion that the handling of your London-Belfast traffic will cost you many thousands of pounds a year more if you continue to route it for a time via Manchester than it would if you routed it via Liverpool. I am not suggesting, of course, that anyone would for a moment accept so absurd a conclusion; but I do feel that there is a danger, in cases where the conclusion may not be so obviously wrong, of basing arguments, consciously or unconsciously, on premises which are equally unsound.

Does everyone, for example, realise that if two cable routes similar in regard to spare capacity, future traffic loads and future replacement costs, are supplemented by the same number of overhead open wires, of heavy copper in one case and of light copper in the other, the cost—if any—of scrapping the overheads (neglecting the credit values of any alternative use or the credits for their scrap value) is the same in the two cases?

Costs, from the administrative point of view, are essentially a guide to action; but the practical danger, I fancy, of the kind of costs which might lead to conclusions which are obviously absurd, is that they may be used as a guide to inaction! Anyhow, either use would be equally wrong. In fact, as Sir Henry Bunbury observes in his recent book on "*Overhead Costs*": "Cause and effect are economic, rather than accounting conceptions. Accountancy aims at recording and demonstrating facts." He goes on to say, in effect, that what the management is immediately concerned with in taking its decisions is the effects which those decisions will cause. At the time of taking the decisions, these effects are not facts but estimates; and the two must not be confused.

To get back to the trunk service, I have been trying to illustrate the point I was endeavouring to make, namely, that the economic consequences of every decision taken depend essentially on the *future* rate of growth of the service and on the *future* cost of a unit of supply.

However hard it may be to estimate the future degree of success which may attend our efforts to get higher traffic figures and lower costs; however doubtful, for example, may be the attractiveness of a more rapid service and better transmission over a particular route; however tentative may be one's best estimate of the volume, elasticity and geographical incidence of the public demand for a new service (such as teleprinter service or personal calls) to be provided by the basic trunk telephone plant, and however great the risk of error attending action on estimates of this character: it is *not open to the most conservative of us, however much we might like to do so, to cut the gordian knot by postulating static conditions, which some minds find more attractive because they make for easy calculation. The static view is easy, certainly, but unfortunately it is almost always wrong. The estimated growth of traffic and reduction of supply cost must certainly remain to some extent doubtful, or, if you prefer it, speculative, however conscientiously one may try to make the estimates reliable by a thorough study of such data as are available, and by such large-scale experiments as are possible in order to provide more data. But action taken on a careful estimate of the weight of these essential factors is always more likely to be right than action on the assumption that there will be practically no growth, and no reduction in supply costs. The static assumption is not merely speculative but almost certainly wrong, and action based on it is correspondingly certain to be wasteful—which is not at all what conservative minds intend. I want to emphasise as strongly as I can that it is the *safest* course, as well as the most businesslike, not to assume, in order to get conservative estimates, that growth and working economies can be neglected for purposes of calculation, but to spare no pains to find out what the traffic and the costs are really likely to be, and to act only on estimates so framed. Please don't misunderstand me; I am not criticising conservative estimates; I am only pointing out that what I have called the "static" assumption is, as a method of getting conservative estimates, fallacious in theory and seriously misleading in practice. It is the *future* costs (and traffic) which count; and to say that they are speculative is to use a truism to beg the question.*

In regard to costs, what is relevant is the future costs of what we are selling; and this is no longer the use of copper wires, to be priced by the pound avoirdupois, but something quite different. American radio men, I believe—I mean the broadcasting people—say they sell air. What they really sell, or rather lease, is an even less substantial commodity, namely, the use of non-localised frequency bands in the æther, and the unit of this commodity is a frequency-band of given width. Similarly, we speak of leasing wires, or providing the use of them for the public trunk service; but what we are really leasing or using is not wire at all, but frequency-bands in the æther localised round our cables, the unit being one speech-frequency band along the cable route in question, and its value to the public, of course, depending, as I said at the beginning of the paper, on the two people at each end having telephones connected to local exchanges, which can be joined up by the use of one such localised frequency-band—commonly known as a trunk "circuit."

The cost-economics of telephone line-plant under modern technical conditions is set out in some detail in the report of a committee—the Committee on Private Service Tariffs—which recently framed a general revision of the rates charged for leasing private circuits of all kinds. This report has been printed and distributed, and is generally accessible for the use of anyone who wants to go further into these rather fundamental issues. I will not therefore go into details, but I will take an example of cost-reduction—I have already illustrated the other factor, traffic growth—from one of the tariffs recommended in that report—viz., that known as Tariff A, which provides a low-speed telegraph circuit and instruments for simplex teleprinter working at low rates by means of the use—normally—in the modern star-quad telephone cables on the main routes or elsewhere, of the subaudio phantoms, separated out by filters and augmented by relays. On some of the longest routes—London-Glasgow is a case in point—it will be necessary, exceptionally, to use for this purpose channels provided by means of comparatively expensive *multiple voice-frequency* apparatus. At the time when the tariff was approved—less than a year ago—the rates proposed would not cover the cost of circuits provided by this means. But the risk was taken and I think they now will do so, at all events, sooner than was contemplated.

But that is a special case. I want at last to get down to my general point, which is this. In the conditions of supply which I have tried to outline, it is quite definitely fallacious to view proposed improvements in the trunk service as extravagances to be afforded only in times of booming traffic, or to be deferred with the idea that they postpone reductions in service cost. The fallacy I have in mind, which I want to call the "Fallacy of Standards," is rather an elusive one: I do not even suggest that it is held definitely by anyone; but I believe some kind of conception based on it, a conception which I believe to be fundamentally erroneous, still lies at the back of some people's outlook. I hope they will not mind if, in order to dig the conception out of the recesses where it lurks, I put into their mouths specific arguments from which, like myself, they dissent. The argument to which the "Fallacy of Standards" can be reduced is, I think, something like this.

"All improvements cost money; the telephone service (by means of successive rate reductions) deliberately avoids having a large surplus out of which it might spend the money; therefore it should go slow with improvements"; or alternatively, as follows: "We have now a certain standard of service; the Telephone Trunk Reorganisation Plan will lead the public to demand a definitely better standard; we have not now got a large surplus, therefore we cannot afford to encourage such a demand." I am bold enough to venture to cherish a hope that the general line of thought I have suggested, applied to the *facts* set out in the papers and articles which I have cited, will convert anyone who may still have this feeling at the back of his mind, to my own opinion, namely, that there is no reason whatever, taking all the factors into account as far as we can, to suppose that the application of the Trunk Reorganisation Plan in the manner in which it is being applied, and which I shall describe later, will lead to any increase at all in the cost of providing a saleable unit of trunk service. On the other hand, there is much to be said for undertaking measures of "rationalisation" during intervals of *bad* general business conditions such as the present time.*

* Management calls for methods which will tell it as much as possible about the behaviour of its overhead costs. To do this implies a special technique. . . . And accounting methods which make possible the intelligent study of overhead costs may provide means for large economies in the diminution of idle overhead.—(Sir Henry Bunbury, "*Overhead Costs*.")

(To be continued).

TELEPHONE SERVICE TO SOUTH AFRICA.

As we go to press we learn that a public radio-telephone service between this country and South Africa will be opened at 10.45 a.m. on Monday, Feb. 1, when the Prime Minister will inaugurate the service by a conversation with the Prime Minister of the Union of South Africa.

Communication will be available to and from all parts of Great Britain and Northern Ireland, but will be restricted initially

in South Africa to calls to or from telephone subscribers in Cape Town and in the area south of, and roughly bounded by, straight lines drawn from Cape Town to De Aar and from De Aar to Port Elizabeth (both these latter towns included).

Calls can be booked at any time, but for the present the hours of service will be 7.30 a.m. to 12.30 p.m. each week-day. (This corresponds to the period 9.30 a.m. to 2.30 p.m. Cape Town time). The service will not be open on Sunday.

The charge for a call from any place in England, Scotland, or Wales to any place in South Africa admitted to the service will be £2 per minute (minimum £6 for 3 minutes). Calls from the Isle of Man or Northern Ireland will be subject to an additional charge of 2s. per minute.

TELEGRAPHIC MEMORABILIA.

It will interest not a few of our readers, more especially those who have come into close contact with International Telegraphy and/or Telephony to learn that greetings have this year been received from:—*Belgium*. Messieurs G. De Guchtenaere and M. Fustin. *France*, Messieurs E. Montoriol (Paris), A. Tallendeau, now retired Directeur honoraire des P.T.T. (Nice), and A. Rivière (Marseilles). All three of these faithful colleagues have had the closest connexion with the development of Anglo-French Baudot working, extending well over a quarter of a century. Also from the brothers Filliatre, who with their pens have consistently and ardently contributed to good relationships between the countries of the world, with International Telegraphy and Telephony as a real rallying point at which every nation could peacefully meet. *Germany*.—Herren, Otto Arendt, Ministerial Direktor; A. Kunert Min. Rat., and Postrat M. Feuerhahn, of the German Reichspostamt Administration, Berlin, who have rendered most excellent service at International Committees and Conferences ever since 1910. Also Herr Fr. Lüschen, the courteous and helpful *direktor* of the firm of Siemens & Halske. *Palestine*.—Mr. W. Hudson, too, who is mentioned elsewhere in the present issue. One more familiar name and that of one who regularly remembers the C.T.O., namely Mr. Donald Murray, now basking in the sunshine of Monte Carlo.

An International Postal and Telecommunications Academy.—Due very largely to the energy of a retired Minister and former Controller of Posts and Telegraphs of Yugoslavia, an international academy is about to be founded, the aims of which, according to its founder Dr. P. Chotch, are broadly as follows:—(1) The academy will unite by fraternal bonds the artists, intellectuals, and research officers of the Administration of P. T. and T. and Radio, State or privately-owned or their kindred industries; (2) will create facilities for an exchange of documents, letters, &c., &c.; (3) will assist colleagues travelling abroad in their visits to the P.T. and T. buildings; (4) will publish the works, studies of its members, and advertise their inventions; (5) will study, in co-operation, the big problems of to-day regarding the services, with a view to discovery in which country proposed solutions are applicable; (6) the academy will be entirely non-political. It is hoped that further developments as to the *status* of such an academy will be available in the March issue of this *Journal*. The project is a good one undoubtedly, and we wish Dr. Chotch and his enthusiasts here and on the Continent, every success.

Personal.—Three Orders of the British Empire have been awarded to officers connected with the working and organisation of electrical public services. Firstly to Captain B. S. Cohen, M.I.E.E., Director of Communications Research, Dollis Hill, London, and a well-known expert in long-distance telephone systems. At the present moment he is actually Chairman of a Commission of the C.C.I. des Communications Téléphoniques a Grand Distance. The second O.B.E. was presented to Mr. B. Waite, District Manager, Post Office, Telephones, S. Wales District, while Mr. R. Withycombe,

director of the Electricity Department, Zanzibar, has also received this order.

“Methods and Equipment in Cable Telegraphy,” was the title of a paper read before the Institution of Electrical Engineers on Jan. 7 last by Mr. H. Kingsbury, Member, and Mr. R. A. Goodman, Associate Member. It was a paper somewhat unique in its outlook from an engineer's point of view, and will doubtless be quoted as an authoritative document for a long time to come. One must leave any further comments on this very welcome contribution until our March issue, if not then, later.

Bart's Hospital.—Recently meeting one of the Governors of St. Bartholomew's Hospital, in the person of Mr. A. Edwards formerly Deputy-Controller of the C.T.O., the writer was staggered to learn of the present incubus of debt which at the moment weighs down the benevolent activities of this centuries old institution of Rahere, with which the C.T.O. has for so long been associated, and to which the staffs of the latter department have so splendidly supported in bygone days.

An Echo of the Faraday Celebration.—One is glad to note that the Council of the I.E.E. has passed a resolution placing on record the satisfaction and appreciation of the Institution of the part taken by Colonel W. A. Vignoles as the originator and for the unsparing way in which he inspired others to assist him. The Council also expressed the thanks which it considers the electrical industry owes to the Council and staff of the British Electrical Development Association, and congratulates all the organisations and individuals who were responsible for the different exhibits and demonstrations.

AUSTRALIA.—Broadcast receiving licences increased in every State of the Commonwealth in October last. There were 5,536 cancellations, 9,116 new licences. Total for entire Commonwealth 330,179. *Church Broadcasting Station*.—The project of the Council of Churches, according to *World Radio*, for the erection of a church broadcasting station, has reached the stage at which the transmitting plant has been ordered. It will be situated at Sydney and known as 2CH. It will be one of the highest powered “B”-class stations, 1,000 w. in aerial, frequency 1,210 kc. *Beam Telegraph Service*.—The Amalgamated Wireless (Australia) Ltd. chairman stated that careful estimates showed that the beam service for telegraph messages had saved £650,000 since the inception of the service. Professor T. H. Laby, dean of the faculty of science at Melbourne University, has been appointed Chairman of a Committee in Victoria to investigate the problem of induction interference with the broadcasting services. Similar investigations are being made in France (see below), though both of these countries appear to be somewhat late in the field.

CANADA.—The Judicial Committee of the Privy Council began the hearing on Dec. 11 last of an appeal by the Attorney-General for Quebec against a judgment of the Supreme Court of Canada, relative to the power of the Canadian Parliament to regulate and control radio communication. Quebec claims provincial rights to limit Parliamentary jurisdiction.

New Canadian Radio Station.—According to *World Radio*, the Canadian Marconi Company announces that programmes from station CFCF will be simultaneously rebroadcast by short waves from a new transmitter in the Marconi transatlantic beam wireless station at Drummondville, Quebec, approximately “55 air miles” from Montreal. It is expected that the new transmitter will be “tied in” with CFCF during the entire sixteen hours eventually. At present the period will only cover 11 p.m. to 5 a.m. (GMT). The call letters are to be VE9DR.

FRANCE.—The French Government has lately appointed a special Committee to inquire into, and report on, disturbance to radio reception caused by industrial and domestic electrical installations. The London *Daily Telegraph's* special representative in Paris informs us that the chiefs of the Paris Prefecture of Police are devoting their attention to the perfecting of their wireless equipment. Five specially constructed cars are to be fitted out

for the use of the latter department, while all cars used by police inspectors for touring the streets are to be equipped with receiving sets. *Radio Apparatus Duties.*—The Federation of French Wireless Industries is taking steps to protect its interests in view of the wireless material coming from abroad. Members are also recommended not to repair foreign goods or to manufacture goods or to manufacture apparatus enabling such goods to be adapted to French requirements.

GREAT BRITAIN.—The *Daily Telegraph* understands that the B.B.C. "contemplates constructing in Broadcasting House a special television studio, to be equipped with Baird transmitting apparatus." The above authority goes on to say that, "this is a sequel to the announcement made recently by the B.B.C. that it had initiated discussions with Baird Television Ltd. to explore the possibility of more active participation in the production of television transmission." Three years ago, or thereabouts the P.M.G. gave permission for the use of a B.B.C. station for experimental television transmissions outside broadcasting hours. *The Repertory Theatre*, at Birmingham is the first in these islands to have a permanent broadcasting studio. "It is fitted," says the *Electrical Review*, "with the latest form of echo-preventing boards, and a central microphone, a control room being located a short distance away." Special attention is to be given to the broadcasting of plays. *Radio Licences and Temporary Sets.*—The Wireless Traders' Association, the Radio Manufacturers' Association, and the Gramophone & Radio Dealers' Association and the Post Office radio authorities recently met to consider the licensing of temporarily installed sets. As matters now stand wireless dealers are compelled to take out a licence for each set they supply on approval. If the apparatus is not bought after the trial the licence is wasted.

Trawlers and Wireless.—It is stated that no less than 300 British trawlers are fitted with wireless apparatus, and the bulk if not all of these are carrying the special fittings of Marconi. It is satisfactory in this connexion to note that the Marconi Marine Company have recently agreed with the Trawlers' Federation to reduce the charges for wireless telegraph and wireless telephone equipment to all trawlers affiliated to the Federation above-mentioned, according to the number of trawlers fitted.

Electric Trolley Omnibuses and Radio Reception.—The London United Tramways recently obtained the assent of their shareholders to the use of trolley vehicles in place of trams. The result proved satisfactory in every respect, except—that the public generally in the neighbourhoods of Kingston, Twickenham, Tolworth, and the Dittons, complained that the new service sadly interfered with wireless reception. The joint efforts of the G.P.O. engineers, the B.B.C. and the L.U.T. have, however, succeeded in eliminating that trouble and riparian suburbia breathes freely once more! *The Electrical Court Reporter.*—Last month, in a Manchester police court, an entire case dealt with by the magistrate was reported by the British Blattnerphone Stille system. Nine other magistrates were present to witness the experiment, which was declared a success. It is, however, considered by experts that the adoption of the system would need considerable modifications and alterations in the court itself before the system could be finally accepted.

INDIA.—The closing-down of the broadcasting stations at Bombay and Calcutta which was to have taken place on Nov. 30 last has been postponed indefinitely. "At the same time," says the *Electrical Review*, "there are two proposals under consideration for handing over the business to private concerns." The Government of India, so it is understood, are desirous that an Indian concern should take over the two stations. The other proposal is by a prominent radio merchant of Bombay, who proposes to form a syndicate to take over the stations, while the Radio Merchants' Association, also of Bombay, looks upon an international organisation taking over broadcasting as nearer the ideal. This latter would possibly mean the Marconi I.M. Co.

IRISH FREE STATE.—The Limerick Corporation has been asked by the Radio Central Exchange Ltd., for permission to

erect overhead wires in the city for the purpose of relaying programmes from a local central station to houses without ordinary receiving sets, says the *Electrical Review*.

ITALY.—From the same electrical weekly we also learn that some interesting experiments were recently carried out in the presence of representatives of the Italian Government between Santa Margherita Ligure and Levanto (about 25 miles) of the new "Quasi"-optical ultra-short-wave radio-telephone system. The wavelength was 50 cm. (600 million cycles per second). It is apparently considered by Marchese Marconi under whose directions the experiments were made that although the range of these rays is only somewhere in the neighbourhood of 100 miles, the simplicity of the short-wave system should reduce the running costs very perceptibly, and would thus provide comparatively cheap means of communication for the inhabitants of certain small islands in the Mediterranean Sea, for example.

SCOTLAND.—As another example of the desire to establish relayed broadcasting stations, the Glasgow Corporation Streets Committee has remitted to a sub-committee the applications of two limited liability companies to establish exchanges of this type by means of wires placed across the sheets.—**SWITZERLAND.**—According to the *News Chronicle* there are 500 subscribers each in Bale, Zurich, and Berne to a similar system which, however, is only available to telephone subscribers. The system has now been in use more than twelve months. The terms are as follows:—Each loudspeaker 5 to 7 guineas, 10s. to £1 for the installation, plus an annual rental of £1 4s. This covers the wireless licence and the cost of the electric current, about $\frac{1}{10}$ th of a penny!

TRIPOLITANIA.—*New T. and T. connexions.*—In the Italian colony of Tripolitania, N. Africa, telegraph and telephone communication have recently and apparently simultaneously been established between Tripoli, Zavia, Sormam, Sabrathe, and Zuara.

U.S.A.—*Television!*—Reuter's Washington agency, in a recent communication, makes the following statement regarding television developments in the U.S.A.:—"Although television has made great strides it has not yet reached the point at which the Federal Radio Commission will recognise commercial possibilities in visual broadcasting." In its annual report the Commission goes on to say: "There has been great improvement in the quality and in the amount of detail of images transmitted, but the available number of visual broadcast frequencies puts a severe limit on the number of stations which may be operated without interference."

However, no one is apparently depressed by the report, for thus says the *T. & T. Age*: "The time is not far distant when all industry will be equipped with television telephones. . . . What an innovation this will be! Just imagine it. There are many advantages to a television telephone. It is not necessary to go into extremes about it, but when the television telephone is put on the market it is a safe bet that more than a million will be disposed of quickly and easily. . . . There is now a certainty that before another decade is passed every commercial house in the world will be using television telephones. Experiments in the laboratories reassure this prediction. Sightophony is not new, although it has never been developed along a really economic scientific basis. 'Sightophony' does not strike one as a particularly happy coinage!"

On the recent return of Mr. John L. Baird to Great Britain, it was reported in certain London papers that, "one of the largest radio broadcasting stations in New York had concluded a contract to transmit television by his system daily for five years." The "father of television," as he is called in the U.S.A. has also entered into, what is hoped will be a much longer contract, for he is by no means superstitious, as he was married to Miss Margaret Albu on Friday, November thirteenth last, and this despite the fact that he was born on August thirteenth, 1888, that his fiancée was born on August thirteenth, 1907, and they had known one another for just thirteen weeks when they signed the register!

The U.S. Department of Commerce is about to start, if it has not already done so, by the time these lines are printed, the transmission of weather maps over automatic telegraph typewriters to all air-ports in the country having this service. Page-printers are to be installed instead of tape in order that a base map, 8½ inches wide may be used, says the Asst. Secretary of Commerce.

In a disused writing desk given to the Salvation Army in Columbus, Ja., a bundle of telegraph messages were discovered bearing the dates of reception in that city of September to December, 1848. They were directed to "David Griffin," President of the then Washington and New Orleans Magnetic Telegraph Company. It was not an age of "rush" and they were written with every sign of care with pen and ink, and showed no sign of fading, neither was the paper discoloured. Brevity was not then studied for each message concluded with "Yours respectfully" or a similarly suitable courtesy.

Teletype and Police.—A teletype system linking the State Police and 46 municipalities in a rapid-alarm system, is now in full swing after a week or two's successful trial under the close scrutiny of Governor Roosevelt and the respective Governors of New Jersey and Pennsylvania. *Soap-box versus Radio.*—Certain politicians in New York City were recently somewhat disgruntled owing to the compulsory closing down of the Eugene V. Debs memorial station there, due to interference with other stations. The complainants missing the wider advertisement given by five minutes broadcasting as compared with a wooden stool at the corner of a street or in the park, opened a leaderette in a local paper with the head-line, "What is a soap-box compared with a radio station"?

The Telegraphs 75 years ago.—"The age of miracles has passed away; but science in its progress reveals ever and anon phenomena that at first sight appear truly marvellous. A gentleman well known in the scientific world, in describing the early experiments of Cook and Wheatstone, called them to their faces—maniacs! . . . But lo! a gentleman named Baggs has actually patented an invention for working electrical apparatus by a steam-engine, and promises to quicken the speed of the telegraph a thousand-fold!"—*The Times*, November 1857. J. J. T.

ACORN EXCHANGE.

NEW aspects of automatic exchange working make their first appearance in London at the Acorn Exchange, which was opened for service in January, 1932. It is felt, therefore, that a brief survey of the installation will be of interest to readers of this Journal.

The area served embraces portions of the existing Chiswick and Ealing areas, where both of the present manual exchanges are rapidly approaching their limits of capacity; relief was accordingly necessary at the present time. The new exchange has been installed with initial capacity for 4,360 lines and will open with some 2,430 transfers from the areas indicated. Further transfers from Ealing to the extent of 250 lines will be effected subsequent to the opening.

The building is located in Lexden Road, High Road, Acton, and presents an excellent example of modern telephone exchange architecture. It houses not only the automatic plant of the Acorn Exchange but also the combined auto-manual boards of the Acorn, Southall and Perivale Exchanges; the two latter exchanges are entirely separate automatic units. Each has its own separate junctions, both outgoing and incoming, together with individual numbering schemes and multiple; it is only the auto-manual board circuits which are concentrated. For purposes of staffing economy and ready night concentration these circuits are mixed over the "A" suite; the Toll circuits are, however, segregated, and full Toll control will be undertaken from the outset.

It should be mentioned in passing that the Southall automatic unit will be opened for service a few days prior to Acorn; in this instance the new exchange will embrace the whole of the manual subscribers served by the present C.B. No. 10 Exchange of the same name and has initial capacity for 1,660 lines. Perivale will follow in March of the present year; this exchange affords further relief to Ealing and will have initial capacity for 4,480 lines.

Multi-registration at all three exchanges is effected by means of a preliminary metering discrimination digit sent out from the director. This obviates the need for calls to 2nd and 3rd fee exchanges within the 10-mile circle being routed from individual levels of the first code switches, as was necessary under the previous system employed in London. Under the new system the conditions for the initial digit, that is whether there are to be one, two or three registrations, are determined on the director translation field. When pulsed out from the director the initial train of impulses prepares the circuit for registration by setting relays associated with the 1st code switch and has no effect on the routing of the call.

Straightforward junction working is also to be introduced as standard working for incoming traffic to an automatic exchange at Acorn (for the first time in London). The system adopted is similar to that recently tried out experimentally at the Tandem Exchange. Under these conditions an operator at a manual exchange provided with direct junctions will connect in the outgoing junction multiple to either Acorn, Southall or Perivale as required; the call, however, will be routed in each instance via Acorn and will be connected by means of a position finder to the headset of an operator on the "B" positions at that exchange. When this condition has been established a double buzz signal is returned to the "A" operator, who passes the number required, which is then keyed out in the ordinary manner. It will be observed that under this system the "B" operator at Acorn is unaware as to which of the three exchanges she is sending, the routing being pre-determined by the apparatus when the "A" operator selects the junction used. Material saving in "B" positions and staff is effected by this system, which may be regarded as a half-way stage on the road to direct key-sending from the "A" positions at the originating exchange.

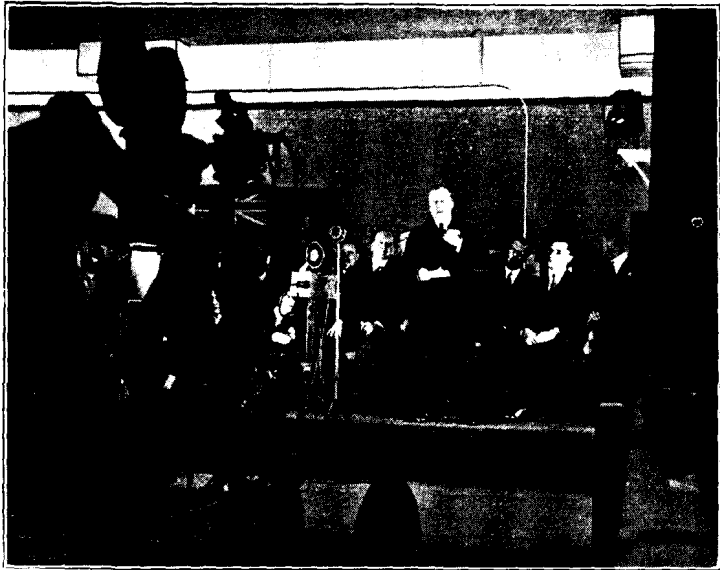
The final switches at the three exchanges are of the 200-line type. These switches are somewhat similar as regards bank arrangement to the now familiar 11/20 P.B.X. type, though different in operation. The top field consists of 10 levels of 10 double contacts per level, comprising the privates of the relative 200 lines; these are searched over by a double wiper. Beneath this field is one containing 10 levels of 10 double contacts relating to one of the associated hundreds, normally the even hundred. A similar field beneath this again relates to the other hundred. Differentiation between the two fields is achieved by a discriminating feature in the circuit. As the standard 2/10 P.B.X. circuit requires the provision of a double private, recourse has been made in the new system to the use of an arc similar to that employed in the Siemen's No. 16 switch, in order to obviate the provision of a fourth field. This arc is only fitted on units where one of the hundreds is required to give 2/10 P.B.X. facilities. In cases where such arcs are provided standard 2/10 P.B.X. facilities are given. This system results in a direct saving in the number of final selectors necessary, and is particularly suitable for residential areas. It may be mentioned that final switches of the 200-line type described will be utilised in future London exchanges except in cases where the estimated number of P.B.X. lines at the ultimate date exceeds 50% of the total.

With the 200-line finals the now familiar double-sided rack disappears, and single-sided racks have been provided throughout, together with a return to the employment of an intermediate distribution frame for cross-connexion purposes. This results in greater flexibility of distribution.

J. HODGSON.

THE YOUNG PEOPLE'S TELEPHONE EXHIBITION.

THIS Exhibition which was opened by Sir Kingsley Wood, the Postmaster-General, on Jan. 5, has been an outstanding success, having been visited by immense crowds of youngsters (and grown-ups) every day. On the first day 25,000 were given an insight into



By courtesy of the London News Agency Photos, Ltd.

THE POSTMASTER-GENERAL, SIR KINGSLEY WOOD, AT THE OPENING CEREMONY.

some of the marvels of telephony and telegraphy and the patience and resource of the willing instructors and demonstrators was taxed to the utmost. Children were given opportunities of speaking to the United States, Canada, France, Germany, and other countries,



By Courtesy of Sport & General Press Agency.

THE P.M.G. SPEAKING FROM THE EXHIBITION, SURROUNDED BY A CROWD OF YOUNG VISITORS.

and to ships at sea, and some of them endeavoured to cultivate their linguistic as well as their scientific leanings on these occasions. Apart from the idly curious, who are much in evidence in all the seven ages of man, the majority of the young visitors showed an intelligent curiosity in the subjects exhibited, and plied the demonstrators with a ceaseless fire of questions.

They had opportunities of studying every kind of telephone and telegraph instrument, of seeing automatic exchanges and teleprinters *at work*, of learning how the voice is amplified over long distances of line, of visiting a reproduction of a cable manhole, and of having an oscillogram, or photograph of one's own voice, taken. Not only did the exhibition provide excellent publicity for the telephone service, but there is no doubt that its main purpose, that of interesting the younger generation in the service and making them "telephone minded," will be achieved. To the boy and girl of to-day, the telephone will mean more than a taken-for-granted device by which some people "ring up" others. They will have learned something of its wonders and complexity. They will have learned how to use it and what it can do for them. From the comprehension of its powers it is but a short step to the realisation of its indispensability. The total attendance was 328,000.

The Postmaster-General has written a letter expressing his personal thanks and appreciation of the excellent work of all concerned in the arrangement and running of the Exhibition.

CORRESPONDENCE.

INFLUENCES ON TELEGRAPH PRACTICE.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Dear Sir,—I am sorry to have missed the opportunity of hearing such an authority on economics and advertising as "Carry On" speak at Mr. Archibald's lecture.

But was your correspondent really left out in the cold? I am not aware of his identity, but have a suspicion that this gentleman was one of the first to speak. He seems to have been gifted at the time, however, with marvellous powers of imagination (mostly of a derogatory character). Personally, I never heard anything said by any speaker which would lead one to believe that they were profoundly ignorant. And when advertising was suggested, I certainly did not get the impression that the speaker desired to see gigantic hoardings. He merely quoted advertising generally, leaving the details to follow. If we can take your correspondent's few paragraphs as the total sum of his knowledge, then he might be interested to know that W. T. G. is acquainted with a few more details relating to this highly developed science.

Of course, the advert. must be suited to the subject to which it is desired to call (doesn't he mean "compel") attention. And relationship of the cost to possibly increased income, is a point which should be understood by any senior schoolboy.

We are informed that the public must always have something to drink, but does not want to send telegrams every day. If "Carry On's" knowledge of advertising and other things is as great as he would have us believe (see paragraphs two and three of his letter in the January issue), he should know that, were it not for advertisements on hoardings, not half the quantity of beer would be sold every day; and as the reason for the advertisement is therefore to compel or enhance the suggestion that you need these things, the same might be applied to telegrams. (Our colleague surely exaggerates when he implies that the public as a whole must rely on products of the brewery to assuage its thirst.)

Every call office plate bears the superscription "Telegrams may be telephoned!" How thrilling and informative! Suppose we revert to our friend's alcoholic poster and simply display those words—"Beer can be bought in bottles!", or words to that effect, and exhibit the notice on a public-house door. What psychological value would such a superscription in such a position possess? It would be more effective to show the plate to people; not ask them to come to a telephone kiosk to see it.

Although not original, the idea of enlisting the services of the B.B.C. is good, but the lecturer would have to "put over" something more than mere vocal personality and conviction. He would have to *entertain* his audience.

"Carry On" is certain that a talk on "How to Telegraph" would be appreciated by listeners. If the subject-matter is to be confined to the limits suggested by the title, his contention is open to serious doubt.

And why only for the "occasional" person? Who's he, or she? Isn't it desired that anybody and everybody should respond? Even the younger element should not be neglected.

This gentleman with a pushful pseudonym asks, from where are we going to get the traffic? After reading that there is little likelihood of regaining traffic that has as a natural and inevitable course gone over the telephone, our problem is to make it worth while for the public to send what might be termed its incidental urgent communications that would otherwise not go at all by telegraph. One can only conclude that he cannot see much further than his nose; or perhaps has not troubled to read the opinions of others which have been published in these columns during the last two or three years.—Yours faithfully,

K Division, C.T.O. Jan. 4 1932.

W. T. LOWE.

[We think our correspondent is mistaken as to the identity of "Carry On." Ed., T. & T. J.]

TELEPHONE DEVELOPMENT OF THE WORLD IN 1930.

By W. H. GUNSTON.

(Continued from page 74.)

V.—SOUTH AMERICA.

	Population (thousands).	Telephones.	Telephones per 100 population.
Argentina (279,990) ...	11,190	290,000	2.6
Bolivia (2,507) ...	—	2,500	—
Brazil (159,959) ...	40,300	170,000	0.4
Chile (45,239) ...	4,430	47,000	0.4
Colombia (26,372) ...	—	30,000	1.0
Ecuador (4,417) ...	—	4,500	—
Peru (13,299) ...	—	14,000	—
Uruguay (29,022) ...	1,850	30,000	1.7
Venezuela (19,850) ...	—	22,000	—
Other places ...	—	5,000	—
		625,000	

The figures are based on official figures for 1929 (shown in brackets). It is possible that the increases estimated are too conservative.

VI.—AUSTRALASIA.

	Population (thousands).	Telephones.	Telephones per 100 population.
Australia (518,181) ...	6,476	512,238	7.9
New Zealand (161,323) ...	1,510.9	161,739	10.7
Hawaii (24,366) ...	260	26,000*	6.6
Other places ...	—	4,000*	—
	9,000	704,000	

* Estimated.

NOTES. Australia.—

New South Wales ...	195,079
Victoria ...	158,451
Queensland ...	62,795
South Australia ...	52,943
Western Australia ...	28,558
Tasmania ...	14,462

It will be seen that Australia's total has declined by nearly 6,000, while New Zealand was practically stationary in 1930.

VII.—DEVELOPMENT OF LARGE CITIES WITH UPWARDS OF 100,000 TELEPHONES.

1. New York ...	1,786,270	25.5
2. Chicago ...	981,325	28.7
3. London Telephone Area (London Administrative County ...)	712,493 511,292	8.7 11.9)
4. Berlin ...	517,917	12.0
5. Philadelphia ...	446,959	22.6
6. Boston ...	446,978	24.3
7. Los Angeles ...	401,807	30.4
8. Paris ...	400,528	13.0
9. Detroit ...	339,178	18.7
10. San Francisco ...	262,470	40.2
11. Cleveland ...	252,717	21.7
12. Pittsburgh ...	231,435	23.4
13. St. Louis ...	220,496	20.7
14. Toronto ...	207,218	28.2
15. Montreal ...	195,708	20.6
16. Hamburg-Altona ...	178,908	11.1
17. Washington ...	172,998	34.0
18. Cincinnati ...	166,517	22.3
19. Milwaukee ...	158,303	21.8
20. Vienna ...	155,128	8.3
21. Kansas City ...	152,751	24.6
22. Tokyo ...	151,000	4.4
23. Copenhagen and suburbs ...	150,116	17.6
24. Buenos Aires ...	149,968*	6.5*
25. Baltimore ...	138,559	17.1
26. Minneapolis ...	133,477	26.8
27. Stockholm ...	133,441	31.2
28. Buffalo ...	129,862	19.7
29. Oakland ...	128,649	28.6
30. Seattle ...	128,447	31.8
31. Sydney ...	114,630	10.9
32. Newark, N.J. ...	108,562	18.9
33. Osaka ...	101,478	4.4

* 1929.

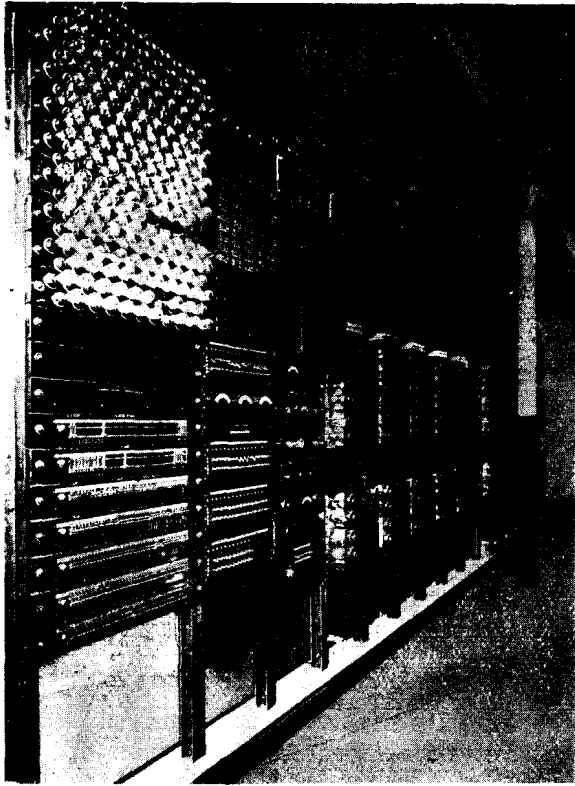
The figures for the number of telephones in London in the above table apply to Mar. 31, 1931, and those of the percentages to the census of April last. The number of telephones in Paris apply to the city proper only. To obtain a fair comparison with the London area, the number of telephones in the "banlieue de Paris," viz. 454,000, should be taken. The number of telephones per 100 inhabitants in this district is 8.7 on an old census.

VIII.—LIST OF CITIES WITH UPWARDS OF 10,000 TELEPHONES.

United States.—(The largest of these are included in the foregoing table ...)	161
Germany :—(Berlin 517,917, Hamburg 178,908, Munich 77,912, Leipzig 70,872, Cologne 69,974, Frankfurt-on-Main 68,284, Dresden 63,438, Düsseldorf 48,877, Stuttgart 46,062, Breslau 44,079, Hannover 39,060, Nürnberg 37,822, Bremen 34,174, Wuppertal 32,834, Essen 31,809, Chemnitz 30,049, Dortmund and Mannheim over 25,000, Duisburg, Königsberg, Magdeburg and Stettin over 20,000, Halle, Kiel, Karlsruhe, Krefeld and Kassel over 14,000, Oberhausen, Aachen, Gelsenkirchen, Bochum, München-Gladbach, Augsburg, Bielefeld, Brunswick, Wiesbaden, Erfurt and Münster, over 10,000) ...	38
Great Britain :—(London area 712,493, Manchester 611,152, Liverpool 56,185, Glasgow 56,100, Birmingham 52,502, Edinburgh 28,468, Leeds 21,751, Bristol, Newcastle and Sheffield over 18,000, Bradford and Hull over 17,000, Belfast and Nottingham over 15,000, Cardiff, Leicester and Brighton over 13,000, Bournemouth over 12,000) ...	18
Canada :—(Toronto 207,218, Montreal 195,976, Vancouver 74,288, Winnipeg 51,220, Ottawa 38,883, Hamilton, Ontario 30,616, Quebec, Calgary, Windsor over 20,000, Edmonton, Victoria B.C., London Ontario, over 17,000, St. John N.B., Halifax and Regina over 10,000) ...	15
France :—(Paris 400,528, Lyons 29,946, Marseilles 27,080, Bordeaux 21,013, Lille 15,116, Strasburg 14,102, Nice 14,411, Roubaix-Tourcoing over 12,000) ...	8
Japan :—(Tokio 151,000, Osaka 101,478, Kyoto 34,196, Kobe 29,562, Nagoya 28,748, Yokohama 17,174) ...	6
Australia :—(Sydney 114,630, Melbourne 95,117, Adelaide 24,868, Brisbane 24,868, Perth 16,402) ...	5
Switzerland :—(Zurich 42,750, Basle 22,885, Geneva 21,985, Berne 18,562, Lausanne 11,977) ...	5
Italy :—(Milan over 60,000, Rome 40,000, Genoa and Turin over 20,000, Naples 12,000) ...	5
China :—(Peking, Shanghai, Hong Kong (12,263), Tientsin) ...	4
Netherlands :—(Amsterdam 49,549, Rotterdam 41,457, The Hague 43,449, Haarlem 10,051) ...	4
Belgium :—(Brussels 95,504, Antwerp 37,427, Liege 20,511, Ghent 11,126) ...	4
New Zealand :—(Wellington 20,079, Auckland 21,403, Christchurch 12,786) ...	3
Poland :—(Warsaw 56,332, Lodz 13,699, Lwow 12,156) ...	3
Russia :—(Moscow 74,391, Leningrad 68,255, Kharkov 10,789) ...	3
Sweden :—(Stockholm 133,441, Göteborg 37,588, Malmö 18,735) ...	3
Czecho-Slovakia :—(Prague 38,868, Brunn 10,269) ...	2
Egypt :—(Cairo 17,547, Alexandria 11,748) ...	2
India :—(Calcutta 15,686, Bombay 13,078) ...	2
Norway :—(Oslo 47,029, Bergen 10,955) ...	2
Spain :—(Madrid 42,218, Barcelona 38,104) ...	2
South Africa :—(Johannesburg 23,111, Cape Town 17,391) ...	2
Algeria :—(Algiers 12,941) ...	1
Argentina :—(Buenos Aires 149,968)* ...	1
Austria :—(Vienna 155,128) ...	1
Brazil :—(Rio de Janeiro 44,144)* ...	1
Chile :—(Santiago 14,843)* ...	1
Colombia :—(Bogota 10,436)* ...	1
Cuba :—(Havana 52,659)* ...	1
Danzig Free City :—(Danzig 12,912) ...	1
Denmark :—(Copenhagen and suburbs 150,116) ...	1
Finland :—(Helsingfors, over 30,000) ...	1
Hungary :—(Budapest 73,768) ...	1
Ireland :—(Dublin 28,964) ...	1
Latvia :—(Riga 17,546) ...	1
Mexico :—(Mexico City 47,165)* ...	1
Netherlands Indies :—(Batavia 11,209) ...	1
Philippine Islands :—(Manilla 16,000) ...	1
Portugal :—(Lisbon 21,747) ...	1
Rumania :—(Bucarest 15,280) ...	1
Saar District :—(Saarbrücken over 12,000) ...	1
Turkey :—(Stamboul 12,805) ...	1
Uruguay :—(Monte Video 18,599)* ...	1
Venezuela :—(Caracas 10,048)* ...	1

* Figures refer to 1929.

Of these 319 cities 178 are in North America, 108 in Europe, 14 in Asia, 8 in Australasia, 6 in South America, and 5 in Africa.



G.E.C.

TELEPHONIC REPEATER EQUIPMENT

THROUGHOUT Great Britain the maintenance of commercial standards of speech transmission over long-distance lines of communication depends upon the efficiency of G.E.C. Equipment. The photograph reproduced here illustrates two-wire repeater and control bays installed in one of the principal repeater stations on the British Post Office trunk network.

THE GENERAL ELECTRIC CO., LTD.
TELEPHONE WORKS ——— COVENTRY

TELEPHONE NO. 4111.

TELEGRAMS: SPRINGJACK, COVENTRY

LONDON OFFICE: MAGNET HOUSE, KINGSWAY, W.C.2

BRANCHES AND AGENCIES THROUGHOUT THE WORLD

Civil Service Commission.

Forthcoming Examination.—Male Assistant Superintendent of Traffic (Class II) in the London Telephone Service and Male Assistant Traffic Superintendent in the Provinces, General Post Office (18-23, with extension for service in H.M. Forces).

Regulations and particulars, together with the forms on which applications must be made, will be sent in response to requests (preferably by postcard) addressed to the Secretary, Civil Service Commission, Burlington Gardens, London, W.1, giving the title of the situation. The latest date for the receipt of application forms is 3rd March.

The Telegraph & Telephone Journal

ESTABLISHED OVER 17 YEARS.

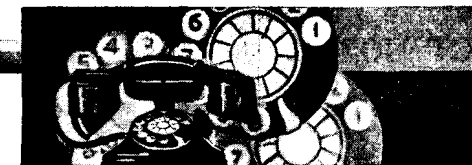
Written by and for Telegraph and Telephone Men.

Besides reaching the Telegraph and Telephone Staff of the British Post Office throughout the United Kingdom, the Journal also circulates amongst Telegraph and Telephone Directors, Managers, Engineers and others in all parts of the World.

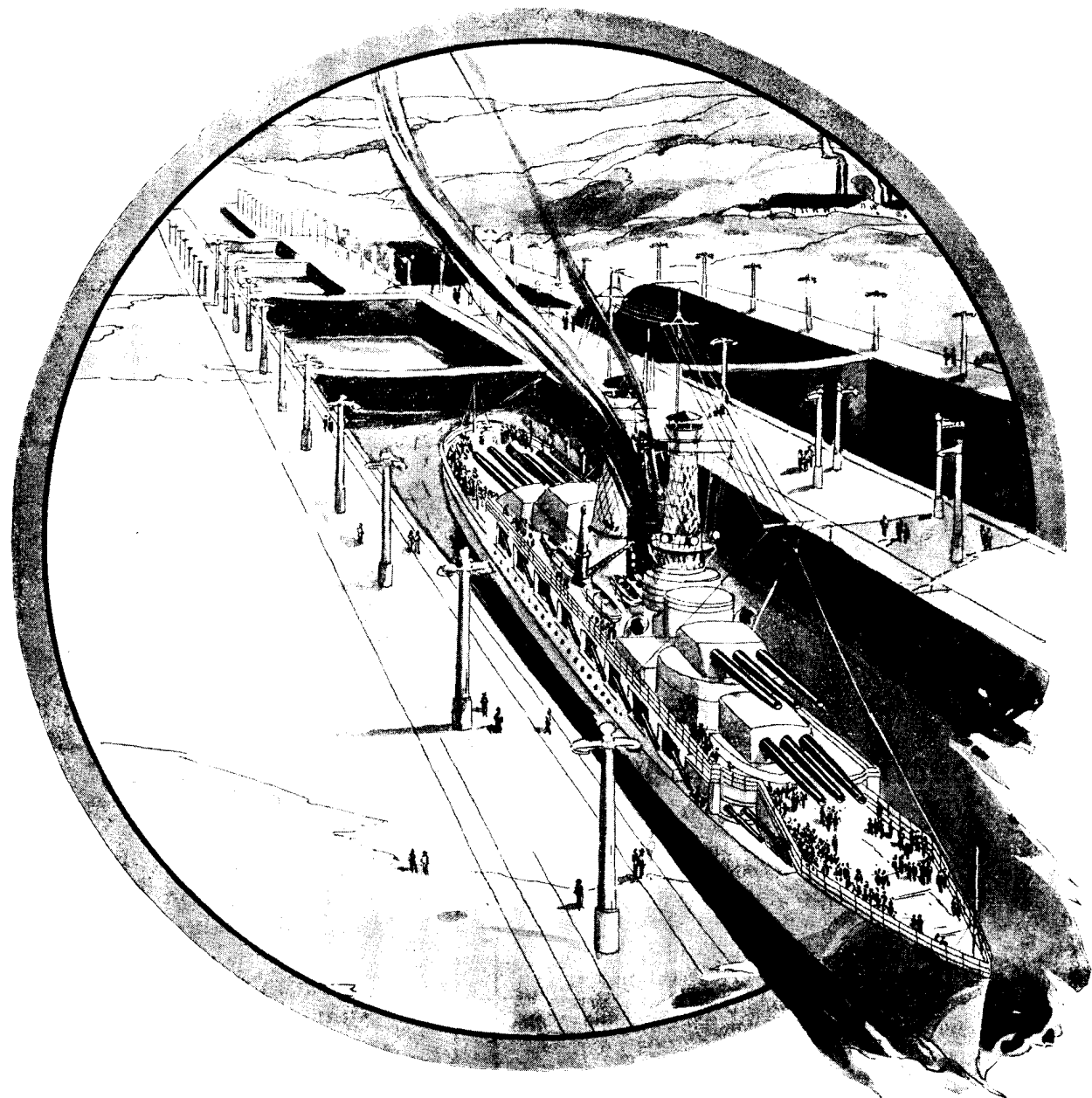
An excellent Advertising Medium for all Telegraph and Telephone Plant and Accessories.

Advertisement Agents:

Messrs. SELLS LTD., 168 Fleet Street, London, E.C.4



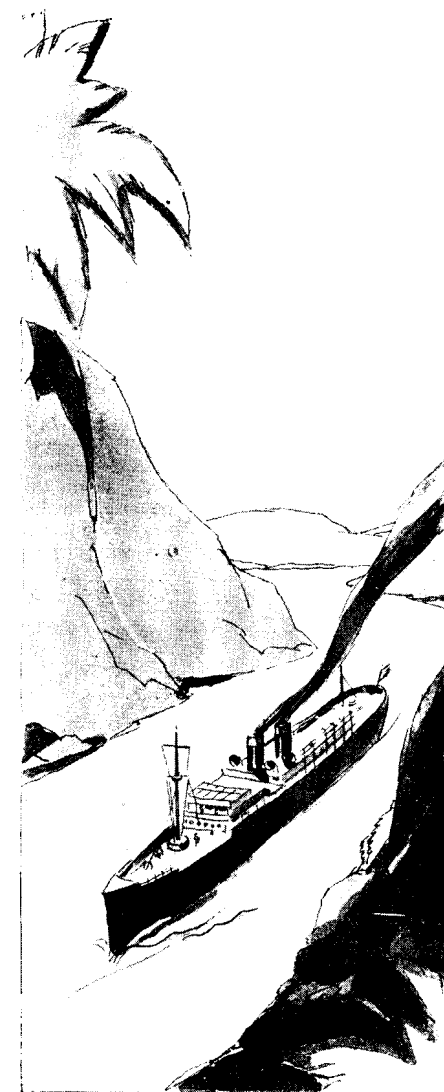
A NATIONAL ACCOMPLISHMENT IN EFFICIENCY



THE Panama Canal stands as the World's greatest monument to efficiency. It is a fit representative of this mechanical age, where new machines and new methods have accelerated production, transportation and communication to a degree undreamed of before.

Because of its enormous commercial and military importance, the Panama Canal has been provided with the most effective mechanical devices known to facilitate its functioning and to prevent any interruptions in its operation. In selecting the communication system for the Panama Canal Zone, it is highly significant that the government engineers chose Strowger Dial equipment, as the foremost exponent of rapid, accurate and completely dependable service.

While the ordinary telephone company does not require the equipment it selects to pass the rigid standards necessitated by Panama Canal Zone operation, yet the complete success with which Strowger equipment has met these unusual and difficult operating conditions, should commend it to the serious consideration of telephone executives who desire only the best.



STROWGER AUTOMATIC DIAL SYSTEMS

GENERAL EXPORT DISTRIBUTORS
The Automatic Electric Company, Ltd., Chicago
In Canada • Independent Sales and Engineering Co., Ltd., Vancouver
In Australasia • Automatic Telephones Ltd., Sydney
In Japan • Automatic Telephones Ltd. of Japan, Tokyo
In China • Automatic Telephones of China Federal Inc., U. S. A.
In South Africa • Automatic Telephones (South Africa) Ltd., Johannesburg

Automatic Electric Inc.

Manufacturers of
Strowger Automatic Dial Telephone and Signaling Systems
Factory and General Offices: 1033 West Van Buren St., Chicago, U. S. A.
Sales and Service Offices in all Principal Cities

ASSOCIATED COMPANIES

American Electric Company, Inc., Chicago
International Automatic Telephone Co., Ltd., London
Automatic Telephone Manufacturing Co., Ltd., Liverpool
The New Antwerp Telephone and Electrical Works, Antwerp
Eugene F. Phillips Electrical Works Limited, Montreal

LONDON ENGINEERING DISTRICT NOTES.

Southall and Acorn Automatic Exchanges.

THESE two exchanges, which are the first two examples of the Department's new single-sided rack scheme in the London area, were opened successfully for public service on Jan. 2 and 7 respectively. The building at Southall houses the Southall automatic unit only, all manual board traffic being handled on the Acorn manual positions, which were opened concurrently with the Southall equipment at 1.30 p.m. on Jan. 2, 1,117 Southall subscribers being transferred from the old manual exchange.

The Acorn automatic equipment was brought into service on Thursday, Jan. 7, at 1.30 p.m. by the transfer of 350 lines from Faling and 2,040 lines from Chiswick. The Keysender "B" position work on the straightforward junction system and besides carrying direct manual traffic incoming to Acorn and Southall will take manual traffic to Perivale Exchange which it is anticipated will be opened in March.

City 2000 P.A.B.X.

The above P.A.B.X. installed in Cornwall House with an ultimate capacity of 800 lines and 7 manual board positions was brought into service on Saturday, Dec. 19, 1931. The equipment which is of the standard Strowger type with Uniselectors for the extensions was manufactured by the Standard Telephones & Cables Company, the power plant being installed by the Department. Incoming service is provided by exchange lines incoming from City Exchange to the manual board, and direct dialling out facilities for the extensions are afforded by exchange lines on National connected to special repeaters at the P.A.B.X. A group of lines is provided from the manual board to Toll "A," various tie lines to other official switchboards radiate from the manual board, while direct dialling into the Official P.A.B.X. National 6321 is effected by dialling the Code 8, which routes the call direct to Official 1st Selectors.

Official P.A.B.X. Transfer of Manual Board from Central to National.

The above transfer was effected at 9 a.m. on Sunday, Jan. 3, 1932, and involved the establishment of circuits from National 6321, the new number, to the National manual board, and the transfer of level 11 Assistance Circuits, 1st Selector circuits and miscellaneous Tie Lines, &c. from the Central Exchange to the new manual board at National. Incoming traffic received at Central after the change-over from callers unaware of the new number was extended to Central over temporary tie lines between the two boards.

BIRMINGHAM NOTES.

BIRMINGHAM has been fortunate to have had a demonstration of the proposed Telex Service by means of the new Teleprinter. A model was installed for a few days in the District Manager's Office. It created great interest and demonstrations were made to representatives of the Press and of several important firms.

Promotion.

Mr. H. Jennings, Assistant Traffic Superintendent, has been appointed Assistant Inspector of Traffic, Class II at Headquarters Traffic Section.

A representative gathering assembled on Jan. 16 in the Traffic Superintendent's Office to say goodbye and good luck to Mr. Jennings, and to present him with a handsome oak canteen of cutlery from his colleagues.

In the absence of the Traffic Superintendent, Mr. C. W. Piggott, the Chair was taken by Mr. T. R. Hughes who, while expressing his regret at Mr. Jennings' departure, congratulated him on his promotion to Headquarters.

Mr. J. L. Parry, District Manager, made the presentation and referred to Mr. Jennings' high qualities and his useful work in connexion with the Automatic Transfers.

In a characteristic manner he also made humorous reference to Mr. Jennings' immediate future.

It is understood that Mr. Jennings was also the recipient of other gifts from Exchanges of which he was Exchange Superintendent.

Sport.

The Civil Service Ladies Hockey Club.—Fortune has ceased to smile on the Ladies Hockey Club, and since the Christmas festive time a series of unpleasant reverses have occurred. Injuries to the Captain and Vice-Captain have not assisted in the difficulties experienced.

The match with Friend's Hall on Dec. 26 had to be postponed and the match with the Magnet (G.E.C.) Ladies Hockey Club was lost by 9 goals to 1 goal.

On Jan. 9 Boxfoldia were defeated by 4 goals to 3 goals after a real good game.

On Jan. 16, as a vacant fixture date existed, an inter-departmental practice match was indulged in.

C.T.O. RETIRED OFFICERS: TWELFTH NEW-YEAR REUNION.

THE company of retired officers from the C.T.O. opened the year with their usual tea and talk, on the Express Dairy Company's premises Up West, on Jan. 13 last, a record attendance of 122 good men and true being present, one or two of whom had considerably passed the presumed allotted span of man by reaching four score years, and looking well at that. The names of those present, with their appropriate I.S.O.'s, O.B.E.'s, M.C., and M.B.E., would give some idea how highly the festal board was graced. Not the least pleasure of the function was the presence of two stalwarts of the "fighting" days in the persons of Messrs. C. W. Bishop and W. Davis, of the L.P.S., who, with Mr. E. L. Hilton, gave a very vivid and faithful picture of the "good old days" of the eighties and the then relationships between the staff and the Heads! As our respected "Mac," the absent golden wedding friend, would eruditely exclaim, "Eh, Mon! nous avons changé tout cela!" It is flattering and satisfactory to learn that the keeping up of old acquaintanceship is spreading in the service. Why should we not, after 40 years?

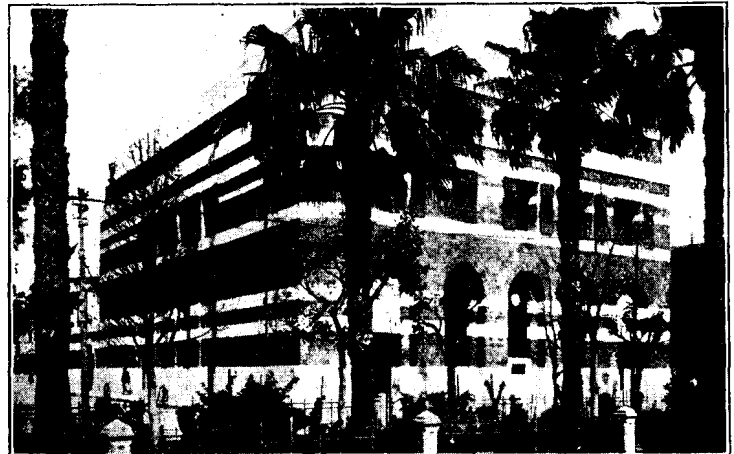
Owing to extreme pressure on space it has been found impossible on this occasion to publish the full list of those present. The unfailing James Bailey, I.S.O., as Chairman, was there, however, as also the cheery A. W. Edwards, O.B.E., while a notable event was the presence of Messrs. C. W. Bishop & W. Davis, M.B.E., of the L.P.S. The latter and Mr. E. L. Hilton (C.T.O.), by their reminiscences, reminded the gathering of the number of former "rebels" who had managed to obtain promotion! There was keen disappointment, however, at the non-appearance of the clan McEwen, understandable, though, after the gaiety of the "golden" celebration!

J. J. T.

A MORSE KEY AND A CHRISTMAS CARILLON OF BELLS.

AN old friend of the C.T.O. London in the person of Mr. W. Hudson writes from the Postmaster-General's Office in Jerusalem as follows:—

"A carillon of bells was for the first time in history set ringing by the depression of a Morse key in a telegraph office, and it happened thus:—A Canon on the staff of the Bishop of Jerusalem at 7 a.m. local time (midnight Christmas Eve in New York) depressed for one minute a Morse key in the



NEW POST, TELEGRAPH AND TELEPHONE OFFICE AT JAFFA.

Bethlehem Post Office. The current was picked by Jerusalem thence travelling to Cairo thence to the Abu Zabal (Marconi) W. T. Station, thence by wireless and landline to the belfry of St. Thomas' Church, New York, where it was caused to operate the mechanism producing the carillon. It is understood that the carillon was broadcast from the American capital where it was also reported that the arrangement had worked quite successfully." Mr. Hudson was also good enough to send us the view of the new P. T. and T. Office at Jaffa built with local brown and white stone.

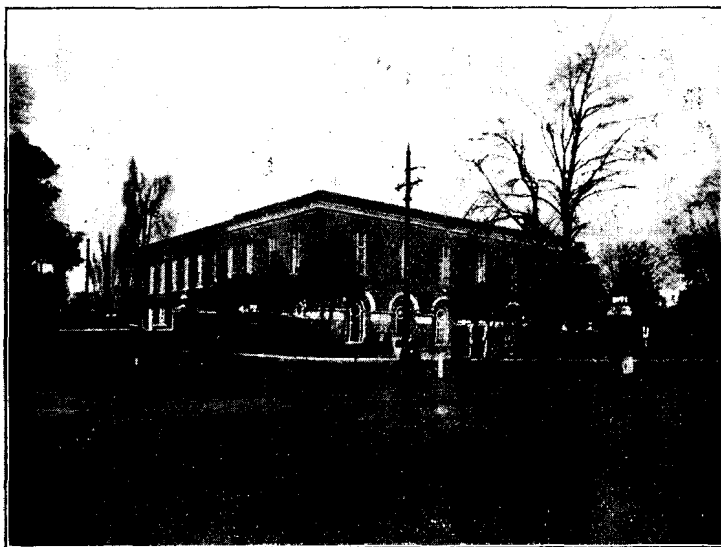
MANCHESTER AUTOMATIC SCHEME.

BY F. WOOD (*Assistant Traffic Superintendent*).

OPENING OF SALE AND LONGFORD AUTOMATIC EXCHANGES.

WITH the opening of Sale and Longford Automatic exchanges, at 1 p.m. on Saturday, the 12th December, the network of the Manchester Director System was thus extended from the busy area of "Cottonopolis," across the River Mersey, to the quiet of Cheshire. Sale has been described as the key that unlocks the door from Lancashire to Cheshire, for through Sale runs the main Chester Road. It is of interest to note that Sale is stated to have derived its name from its first Rector, Willielemus de Sala, who is said to have been a crusading knight concerned in the capture of the town of Sala, in North Africa, when returning from Palestine.

Longford Exchange serves the Stretford area which adjoins Sale, but is on the Lancashire side of the River Mersey. Owing to the numerical equivalent of the first three letters of Stretford being the same as that of Rusholme, the name Longford instead of Stretford was adopted.



SALE. NEW POST OFFICE AND TELEPHONE EXCHANGE.

Both exchanges serve areas chiefly of a residential nature and are the first automatic exchanges of this nature to be associated with the Manchester scheme.

The Sale Automatic exchange replaced the C.B. 12 exchange of that name, and serves approximately 1,560 subscribers. Longford involved the conversion of Longford manual exchange (which was working hypothetically on Trafford Park Exchange) and the transfer of a number of subscribers' and Call Office lines from Urmston, Chorlton and Trafford Park manual exchanges, making a total of about 550 lines. In order to simplify the arrangements, the coin box circuits which were proper to Longford and were working on the three latter exchanges, were transferred piecemeal during the week following the main transfer.

In both cases the Automatic exchanges are housed in newly built Post Offices. There are no manual boards and the exchanges are therefore served by Manchester Toll.

The equipment at Sale has been installed by the General Electric Co., Ltd. and that at Longford by the Standard Telephones & Cables Ltd.

AUTOMATIC SWITCHING PLANT.

The chief items of the switching plant consist of:—

	Sale.	Longford.
Lineswitches (Ordinary) ...	2,830	840
Lineswitches (Coin Box) ...	95	40
1st Code Selectors ...	96	49
2nd Code Selectors ...	38	28
1st Numerical Selectors ...	139	105
2nd Numerical Selectors ...	100	53
Final Selectors (Ordinary) ...	203	61
Final Selectors (PBX 2-10) ...	17	18
"A" Digit Selectors ...	15	10
Directors ...	24	18

The first and second code and first numerical selectors at Sale are of the 200 outlet type, while at Longford the first and second code and all subsequent selectors, including final selectors, are 200 outlet switches.

It is interesting to record that single-sided racks have been used at Longford, which is, I believe, the first Director exchange in this country to use this type of assembly.

The following table indicates the grouping of the line switches and final selectors:—

Equipment.	No. Groups.	Switches per Group.	Type of Equipment.
Sale— Lineswitches ...	{	1	Coin Box.
		4	Ordinary & P.B.X.
		2	Do.
		6	Do.
Sale— Final Selectors.	{	1	2-10 P.B.X.
		29	Ordinary.
Longford— Lineswitches	{	1	Coin Box.
		2	Ordinary & P.B.X.
		2	Do.
Longford— Final Selectors.	{	1	2-10 P.B.X.
		1	Do.
		1	Ordinary.
		4	Ordinary + Ordinary.

The respective numbering schemes are:—

	Initial.	Ultimate.
Sale ...	1000-3999.	1000-8799.
Longford ...	1100-2099. 2200-2299.	1000-3199.

POWER PLANT.

The power equipment at Sale comprises main batteries, charging sets and ringing machines, each in duplicate. The batteries are of the D.P. Battery Co.'s manufacture and each consists of 25 cells, having a capacity of 700 ampere hours, the boxes being sufficiently large to provide an ultimate capacity of 1,500 ampere hours. The charging machines have an output of 220 amperes at 57 volts. It may bring back to some readers of the *Journal* pleasant memories of "cos ϕ ," if I mention, here, that in order to bring up the power factor to the value required by the Local Supply Authority, static condensers have been installed. Two ringing machines are provided, one being arranged for operation from the public main supply and the other for operation from the exchange battery. Provision is made for the automatic change over from the supply driven machine to the battery driven set in case of failure of the former.

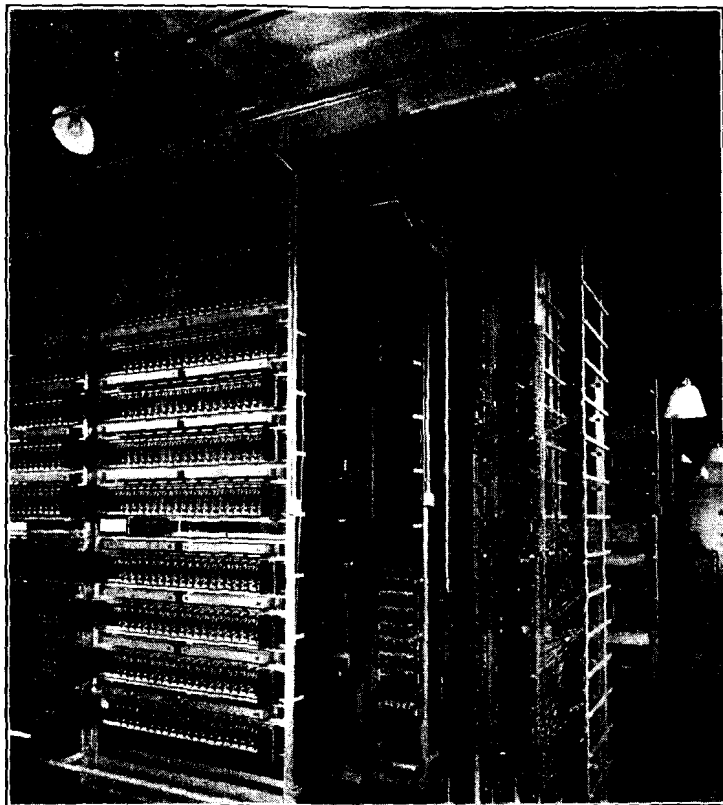
At Longford, also, the power equipment is in duplicate. The batteries, which were manufactured and installed by the Chloride

Electrical Storage Co., have an initial capacity of 400 ampere hours and an ultimate of 900 ampere hours. The charging machines were supplied by Messrs. Crompton-Parkinson, Ltd., each having an output of 8 kilowatts, i.e., 140 amperes at 57 volts. Unlike Sale, both ringing machines at Longford are driven from the exchange battery. The second machine is, however, brought into operation automatically in the event of the other machine failing.

At each exchange, a Counter EMF battery, consisting of 7 cells, is installed for serving the P.B.X. boards.

A new innovation to the Manchester Director area is the introduction of multi-registration at both Sale and Longford Exchanges. At present, all calls that can be dialled direct fall within either the local or second unit fee areas, but with the opening of Main (Oldham) and Woodley Automatic Exchanges in 1932, the Sale subscribers will dial direct, three unit calls to these subscribers. For obvious reasons, it is impracticable to allow coin box users to dial "multi-registration" calls direct and if, therefore, a caller attempts to dial such a call, the call is diverted to a coin box "O" line and dealt with at Toll.

The manual exchanges which have an appreciable amount of traffic to Sale and Longford, have either dialling-in circuits or circuits via the 4-digit keysenders at Toll. Other exchanges obtain calls to Sale and Longford via the 7-digit keysenders. Owing to



LONGFORD: UNISELECTOR (LINESWITCH) RACKS AND TRUNK DISTRIBUTING FRAME.

the strong community of interest between Sale and Altrincham and with a view to reducing considerably the route mileage, it is arranged for Sale subscribers to obtain Altrincham Exchange direct by dialling "221." These calls are completed by the Altrincham operators, who also register them on the calling subscribers' registers by depressing, when the called subscriber answers, a key which is associated with each incoming Sale junction.

During the three weeks preceding the transfers, each subscriber was visited and instructed in the new method of working. To permit of the visiting officers demonstrating the various tones and the method of dialling, facilities which enabled the operating staff to convert the subscribers' lines temporarily to Automatic working, were provided at the respective manual exchanges. In addition, a public demonstration set of the Director type was



LONGFORD: TRUNK DISTRIBUTING FRAME AND FINAL SELECTOR RACKS.

installed at the Sale new Post Office. The public in general took much interest in the demonstrations, which, considering the scattered nature of the areas, were well attended.

Prior to the transfers, the new equipment and associated trunk and junction circuits were subjected by the traffic staff to exhaustive tests, in the course of which some 73,000 calls were passed through the equipment.

The change-overs were effected without difficulty and post transfer testing of the subscribers' lines was commenced shortly after 1 p.m. During Saturday afternoon replies were received from more than 80% of the subscribers, the majority of the remaining subscribers being obtained on the following Monday morning. The tests revealed exceedingly few faults, which is reflected in the very satisfactory working of the new exchanges.

One pleasing feature of the transfers was that on the Saturday morning a number of subscribers, whose lines were being transferred, very thoughtfully called up the exchanges to bid the staff good-bye and to thank them for the services they had rendered.

I am indebted to the General Electric Co., Ltd. and the Standard Telephones & Cables, Ltd. for information regarding the respective power plants and for the photographs which they have kindly supplied.

QUESTIONS ON TELEGRAPHY, TELEPHONY, ELECTRICITY AND MAGNETISM.

SOLUTION OF QUESTION X.

It is astonishing to find that the number of answers submitted in connexion with the questions set on Telephony continues to decrease. One would have thought that with the winter study period at its height, the number would have shown a considerable increase! Mr. G. S. Edwards carries off the prize for his answer which is reproduced below.

"Inset is the term applied to transmitters which are complete in themselves, and require an external case only for protection and disposition of connexions. The type described is known as Inset Transmitter No. 3 and is employed in local battery telephones.

"It consists of an airtight, damp-proof, case of 20 S.W.G. nickelled brass. A circular carbon block is clamped in a cup at the back by a suitably insulated screw. The block carries concentric V-shaped grooves on its front face.

"The carbon granules are highly polished and of uniform size. They are retained between the V-grooves and a carbon diaphragm by two turns of flannel secured by copper wire. The edges of the flannel are frayed and glued to the diaphragm. A rubber ring for the suppression of undue vibration at resonance is placed on the diaphragm and the edge of the brass case is spun over to form a hermetic joint.

"The case forms one connexion and a gold-silver contact on the centre screw the other; a spiral spring presses on this contact.

"No adjustments are possible. This, with rapid inter-changeability, reduces maintenance costs. Inset transmitters are inexpensive and have a long life. They are used with 1 ohm plus 25 ohms induction coils to obtain a large voltage variation.

"For operation, two Leclanché cells are connected in series. If the E.M.F. employed much exceeds three volts, a hissing, known as the Rocker effect, arises. This is due to the formation of minute arcs. It causes roughening of the granules, leading to packing and consequent loss of sensitivity."

There is only one comment to make upon this answer and that is that the latest supplies of this type of inset transmitter have a small hole, 15 mils in diameter, bored in the back of the case. This is done to permit the air trapped inside the case to "breathe" when the transmitter is subjected to temperature variations. By this means the liability of the transmitter to pack, due to the compression of the granules by the outward and inward movement of the diaphragm as the air expands and contracts, is prevented.

REVIEW.

"*Roget's Dictionary of Electrical Terms.*" (Sir Isaac Pitman & Sons Ltd. 7s. 6d. net.)

This is a Dictionary of Electrical Terms, including Telegraphy, Telephony and Wireless, by S. R. Roget, M.A. (Cantab.), A.M.Inst.C.E., A.M.I.E.E., for Electrical Engineers and Students.

Before the advent of the cross-word puzzle the name of Roget was probably familiar to few outside the ranks of literary people, but to-day every well-equipped hunter of the elusive cross-word, numbers among his weapons a well-thumbed copy of Roget's Thesaurus. Although the author of this Dictionary is a descendant of the Roget of the Thesaurus the present Dictionary is the very opposite of that now famous book. Instead of presenting the reader with a score or so of alternative words, it gives the one word or phrase, which should fit the purpose of its use like a glove, and a concise definition of that word or phrase. While it should prove invaluable to "Electrical Engineers and Students," the extension of the use of electricity to practically all departments of modern life demands that persons other than those must have some knowledge of the meaning of the technical terms now so frequently met with and this book should be of use to them. Until he opens this Dictionary a reader will probably not have realised what a vast body of technical language has grown up in the last hundred years. Who has heard of or knows what "Scherbius (Motor) Control" or a "Pilot Wire" is and for what purpose the latter is used. What have "Rat-Tails" and "Rayleigh Cycles" to do with electricity? No! the last-mentioned is not a misprint for something "all steel."

Here in this book of nearly four hundred pages the information is clearly and concisely given in a form which should satisfy the expert and will not yet still further mystify our old friend the man-in-the-street.

The book is well printed, attractively bound, and is in all respects up to the high standard Messrs. Pitman have set and consistently maintain.

LIVERPOOL NOTES.

Retirement.—An old member of the Telephone Service retired at the New Year in the person of Mr. Charles Henry Jones, Contract Office of Liverpool, who in his sphere of work did his "bit" to extend the telephone system on Merseyside. Mr. Jones joined the Contract Department in Liverpool in July, 1904, when the branch had only recently been formed.

Our old colleague knew well the conditions applying in those days to encourage the general public to adopt the "telephone habit," particularly when a new subscriber could be offered an unlimited number of originating calls at a basic yearly rental. Later he saw rapid changes, especially after the telephone system became the property of the State, in 1912. Throughout his telephone career he made a host of friends, and his retirement is not regretted more than by his confreres in the Contract Department. Before he actually retired, however, he was presented with a handsome token of their regard and esteem in the form of a silver tea service, which he admitted would remind him of the happy though strenuous day he spent in the telephone service.
F. C. W.

Mr. E. R. Lancaster, Contract Officer, Class II, was transferred on the 11th instant to the Western District at his own request. The staff of the Contract Department presented him with a case of cutlery as a token of regard and esteem. We hope the change of district will prove of great benefit to himself and family.
J. M. B.

Presentation.—To mark the occasion of his marriage, which took place at Christmastide, his colleagues in the Traffic Office presented Mr. L. W. Wright with electric lamp shades to go towards the lighting equipment of his new abode. Mr. Wright has been with us only a short time, and this presentation is an indication of the esteem in which he is already held. We wish him and his wife many years of happiness together.

A fancy dress ball was held under the auspices of the Post Office Choral Society, at which some 130 members of the staff and their friends disported themselves. Notable characters were an Eastern Bride and a Honolulu Maid, respectively the 1st and 2nd prize winners for ladies' costumes, and Charlie's Aunt, which carried off the prize for the best gentleman's costume. Lt.-Col. Kempe, M.C., accompanied by Mrs. Kempe, Mr. W. E. Gauntlett, Mr. and Mrs. Pickering, and other prominent members of the staff, were present. Refreshments were served in a room decorated in the Japanese fashion by waitresses (members of the staff) in Japanese costume. The function resulted in a substantial profit, which goes to the funds of the Society. Mr. E. Hant, in his capacity as M.C., contributed in no small degree to the success of a very enjoyable evening.

Extract from a subscriber's letter: ". . . we would like to express our appreciation of the courtesy and promptness of the operators. . . . We move about in different parts of the country, but we must say that the service from your telephone exchange has been the best we have received."

In the January issue of the *Journal*, reference was made in the Liverpool Notes to Mr. Geill's farewell presentation. Inadvertently it was omitted to mention that the Trunk Exchange Supervisors and Staff, amongst whom Mr. Geill had worked for some years, also gave him parting gifts which consisted of a fountain pen and a gramophone record carrier containing a number of records.

WESTERN DISTRICT NOTES.

Michael Faraday.

FARADAY Centenary Celebrations were held in Exeter at the University of the South West in December, 1931, two of the distinguished visitors being Sir Wm. Bragg, one of the most distinguished of British Scientists, and Sir John Ambrose Fleming, known to the whole world as the inventor of the wireless valve.

The exhibition was opened by A. C. Reed, Esq., M.P. and there was a wireless broadcast of Sir Wm. Bragg's Faraday Lecture. The exhibition was one of the best and most interesting that has ever been held in the West of England.

The Post Office exhibit was as follows:—

Exhibit 1.—Automatic Telephone System. A continuous demonstration by means of a model was given of the Automatic Telephone System as installed in Provincial Exchange Areas such as Exeter and Torquay.

Exhibit 2.—Telegraph System. A demonstration of telegraph systems showing the transmission of a telegram by means of (a) a teleprinter which is operated in the same manner as an ordinary typewriter and reproduces a printed record at the distant end; (b) a Wheatstone transmitter which transmits Morse signals at a high speed, and a receiver which records them in Morse code on a continuous paper strip; and (c) a simple Morse hand manipulated set.

Exhibit 3.—Replica of the 2,000,000th Telephone installed on the British P.O. System. One of the new hand microphone instruments, finished in old gold, similar to the 2,000,000th telephone installed in June last in Buckingham Palace for H.M. King George V.

Exhibit 4.—Underground Cables. Various types of multi-core cables used in the telegraph and telephone service.

Exhibit 5.—Telegraph and Telephone Apparatus. Types of small Private Branch Exchange Switchboards, Prepayment Multi-coin box, and other apparatus, ancient and modern, as used in the telegraph and telephone service.

At the close of the 3 days' exhibition the general opinion seemed to be that the continuous demonstration of the Automatic Telephone system was the most popular exhibit. The model was continuously attended by Assistant Traffic Superintendents acting in relays.

A Few Interesting Items.

The Western District has approximately 350 miles of coast-line on which are 85 exchanges working and 5 coming along. This represents approximately one exchange to every 4 miles of coast line.

The most elevated exchange in the district is over 2,000 ft. above sea level, the lowest 2 are, I believe, actually below sea level, and in any case have been flooded once or twice at high tide.

When the Western District was first formed in April, 1925, by the amalgamation of the old Plymouth and Exeter districts, there were 23,336 stations including 729 call offices. On Dec. 31, 1931, there were 45,384 stations including 1,498 call offices, representing an increase of 96%, whilst 843 trunks and junctions have been added. The number of calls dealt with by the Operating Staff and Automatic Plant during 1931, was 48,289,953, or an increase over 1930 of 1,000,000.

The accompanying photograph illustrates a concentration of 5 means of communication in Devon, i.e., Telephone, Telegraph, Road, Rail and River, and was taken in the Exe Valley about 2 miles south of Tiverton.



COMMUNICATION IN DEVON.
TELEPHONE, TELEGRAPH, ROAD, RAIL AND RIVER.

A case of Call Office discrepancy recently taken up with a little country Sub-Post Office brought back the following report:—

"I have sent 1 2d. in money on but I don't think I am wrong in their! that the wrong is if its wrong in future I shall not send it in."

F. J. F.

C.T.O. NOTES.

Promotion.—Messrs. F. C. Whitaker, A Supt. to Supt. (L.G.), L. F. Ellisdon, Overseer to A Supt.

Retirements. Messrs. F. Sparks, Supt. (L.G.), C. H. Smith, Asst. Supt., W. J. Davey, Overseer, R. Flint and F. Forsgate, Telegraphists.

Obituary.—We very much regret to record the sudden death of one of our promising young members, Miss M. J. Cullinan, Telegraphist, after an illness of only two days.

Miss Cullinan commenced her P.O. service at Waterford and came to us from the L.T.S. on Sept. 26, 1926. She quickly identified herself with the sanatorium movement and was instrumental in bringing the number of members in the Phonogram Room up to nearly 100%. Always very willing and cheering, we shall miss her. To her relatives we extend our sincerest sympathy.

"Centels" Operatic, Dramatic and Orchestral Club.—The operatic section are giving a performance of the "Pirates of Penzance" on Feb. 9 and 10, commencing at 8.15 p.m., at the theatre of the Guildhall School of Music. We hope all friends of the C.T.O. will make an effort to attend. They will be assured of an enjoyable evening's entertainment.

RETIREMENT OF MR. J. F. BROWN, CHESTER.

ON Dec. 31, 1931, members of each section of the Chester District Manager's Office, representatives of the various exchanges, and of the Engineering Branch, assembled in the local Traffic Office to bid "Au Revoir" to Mr. J. F. Brown, Traffic Superintendent, Class I, on the occasion of his retirement, after having served 44 years in the Post Office service. The Chairman, Mr. F. W. A. Clutterbuck, Traffic Superintendent, Class II, read a number of messages of goodwill from colleagues who were unable to be present owing to various causes.

He said it was difficult to believe that Mr. Brown had reached the age limit, for he certainly did not look as though he had weathered 60 winters.

Mr. Brown had always been appreciative and considerate, and the speaker wished him and Mrs. Brown many years of happiness. Miss Parry, Assistant Supervisor, Class I, Chester Exchange, Mr. Clough, Contract Manager, Mr. Russel, Higher Clerical Officer, Mr. Lawson, Asst. Traffic Supt., and Mr. Christie, representing the Engineering Branch, spoke in high terms of Mr. Brown's qualities.

Mr. A. L. Barclay, District Manager, endorsed all that had been said by previous speakers, and remarked that he knew Mr. Brown probably better than any of the officers present. He wished to thank Mr. Brown for the assistance rendered to him since he took up his appointment as the Chester District Manager, and in presenting Mr. Brown with a fitted wardrobe on behalf of the staff, wished him and Mrs. Brown a happy and prosperous retirement.

Mr. Brown, in reply, thanked everybody for all the kind expressions of goodwill and for the parting gift. He gave an interesting account of his career in the Post Office service, and it was evident that he was keenly affected in severing his official connexion with the Chester District staff with whom he had served several happy years.

RETIREMENTS.

At the end of last year, Mr. C. W. ROWLANDS, Executive Officer in the Telephone Branch of the Secretary's Office, retired under the age limit, having spent nearly 40 years of his life in the service. He was for a short time in the Accountant-General's Department, whence he was transferred to the Mails Branch. His last twenty years were passed on the Wayleave Duty of the Telegraph and Telephone Branches. On his retirement he was presented with a handsome chiming clock by his colleagues. Mr. Grant, Assistant Secretary, in making the presentation, referred to the ungrudging unobtrusive service rendered by Mr. Rowlands during his career. Mr. Rowlands, though of a retiring nature, was of a genial disposition and ever ready to place his knowledge at the service of others.

Another retirement at Headquarters due to the age limit was that of Mr. E. T. PAYNE of the Statistical Section of the Telephone Branch. Mr. Payne entered the Audit Department of the National Telephone Company in the 'nineties, and was subsequently appointed Headquarters Travelling Auditor. He was so successful on this duty that he was promoted to be Chief Clerk at Newcastle, a post he held at the time of the transfer. He was transferred to headquarters in 1914. His colleagues presented him on his retirement with an arm-chair, with an expression of hope that he would enjoy many years of ease in it. Mr. Payne, however, is a great peregrinator, and we suspect that much of his retirement will be spent in rambling in search of streets which promise to be of interest and visiting quaint corners of the metropolis and its ever increasing suburbs.

MANCHESTER NOTES.

Retirement of Mr. A. C. Godfrey.—The close of the year saw the retirement under the age limit of Mr. A. C. Godfrey, Staff Officer, Manchester District Manager's Office. Mr. Godfrey, one of the fast dwindling band of ex-National Telephone Company men, first entered the service of the late Western Counties & S.W. Telephone Co. at Newport, Mon., in January, 1888, and was subsequently transferred to Weston-Super-Mare and thence to Bristol, where he stayed for 8 or 9 years.

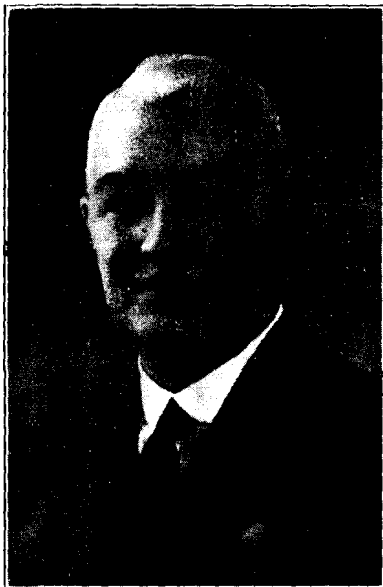


Photo by Fred Ash, L'pool.

MR. GODFREY.

He received his first promotion as Chief Clerk to Hull in December, 1899, was transferred to Liverpool in 1905 and from thence to Manchester in 1909.

Mr. Godfrey is a West Country man having been born in Bristol practically on the site of the present Telephone Buildings. In his youth he was an ardent member of the 1st Volunteer Battalion Gloucester Regiment, in which he served for 13 years and was also a keen Rugger player with the now defunct "Bristol Harlequins."

During his sojourn in Manchester the District has increased from approximately 30,000 stations to 98,000. His hobbies are gardening and wood carving.

At a Hot Pot at Telephone House on Jan. 5, Mr. J. T. Whitelaw (District Manager) who presided, presented to Mr. Godfrey on behalf of the staff a stainless steel kerb with companion set; H.T. unit for wireless set and an umbrella. Mrs. Godfrey who was suffering from the effects of a cold, was unable to attend, and it was with much regret that an umbrella could not be presented to her personally. There was an attendance of 150 representing all the branches of the Manchester Telephone Service. Mr. J. T. Whitelaw (District Manager); Mr. T. E. Herbert, M.I.E.E. (Superintending Engineer); Captain E. S. Cooper (Contract Manager); Mr. J. M. Crombie (Traffic Superintendent); Mr. C. Sadler, Mr. J. Wilson and Mr. R. Diggles of the Accounts Branch all spoke highly of Mr. Godfrey's personal charm and his many excellent qualities, and wished him and Mrs. Godfrey a long and happy retirement. Among the messages received was one from Mr. J. G. Maddan (Postmaster-Surveyor), regretting his unavoidable absence and another from Mr. Archer W. Smith, late District Manager, under whom Mr. Godfrey had served for a number of years and by whom he was held in high regard.

In his reply Mr. Godfrey, after referring to some of the many changes which had taken place since he first entered the service, thanked his colleagues and friends for the expression of their goodwill.

Among the Manchester Telephone Staff there are many talented artists, and a number of these, in honour of the occasion and as a mark of the very great respect in which Mr. Godfrey is held, provided an excellent musical entertainment. The items were interspersed with dancing, and at 10.45 p.m. a jolly evening was brought to a close by singing "Auld Lang Syne."

Staff Officer.—The vacancy for Staff Officer caused by the retirement of Mr. A. C. Godfrey has been filled by Mr. J. C. Macdonald, to whom a hearty welcome is extended by all sections of the Manchester Telephone Staff.

Mr. Macdonald left Manchester to take a higher position at Glasgow 2½ years ago. Twelve months later he was again promoted when transferred to Leeds, and is now back again amongst us as Chief of the Accounts Branch.

Toll Exchange—Second in Command.—Authority has been given for the employment of an Assistant Supervisor, Class 1 at Toll Exchange, and Miss Mahoney from the City Exchange has taken up this position.

The staff at this Exchange has grown rapidly since it was opened in June, 1930. Then, the staff, all told, numbered:—

Assistant Supervisor Class 1.	...	3
Assistant Supervisors, Class II	...	27
Telephonists	...	27

Now the staff comprises the following:—

Exchange Manager.	...	
Supervisor.	...	
Assistant Supervisor, Class 1.	...	12
Assistant Supervisors, Class II	...	140
Telephonists	...	4
Girl Probationers	...	

Transfers to Automatic Working.—The following further transfers took place during December of last year:—

Central 1,000 Subscribers to Blackfriars Automatic.	
City 1,000	"

During the same month the Sale and Longford Exchanges were converted to Automatic working involving 2,200 subscribers. By the time these notes appear the following further transfers involving some 3,410 subscribers will have been effected:—

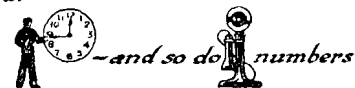
Stockport (non-director to director)	...	1,700
Heaton Moor	...	1,300
Denton	...	360
Woodley	...	50

Social Club, Telephone House.—At the Annual Meeting of the Telephone Social Club held in November, Mr. Whitelaw, District Manager, was again unanimously elected President; Mr. Field, Sectional Engineer, Chairman; Mr. J. M. Crombie, Traffic Superintendent, Vice-Chairman; Mr. Kirkup, Treasurer, and Miss Cowie, Secretary.

Miss N. Slater, who has been Secretary for the past two years, intimated that owing to other duties she would not be able to continue on the duty. Miss Slater was thanked for the excellent work performed by her during her term of office. A full programme is again assured for this season.

Annual Dinner of the Telephone District Office Staff.—The Annual Dinner took place in Telephone House on the evening of Dec. 17, when a very pleasant evening was spent. Some 160 partook of the "Hot Pot," after which a number of songs were ably rendered by various members of the staff. Dancing then brought the evening to a successful close.

"Tempora Mutantur"



When you want "Dilworths" after December 4th 1931, please ask for Blackfriars 1466, 7, 8 or 9.



"Early to bed and early to rise, But you'll soon be dead if you don't advertise."

So thinks this Manchester firm from their ingenious way of notifying their customers of a change in their telephone number.

Pantomime.—Preparations are now in progress for the presentation of the Pantomime, "Aladdin," by members of the District Office, Central, City and Toll Exchange Staffs at Telephone House, commencing on Feb. 23 for five evenings. Local readers please take note of these dates. We promise a first-class show, so give us your esteemed patronage.

Golf.—An interesting competition in which each competitor provided a prize, the distribution of which was governed by the score brought in, took place on Boxing Day morning at the Alderley Edge Golf Club. The event—a fourball against bogey—was won with a score of 5 up, which,

considering winter conditions of play and the festivities of the day previous, was a really splendid achievement. 3 up came second and Mr. Barnard, our Service Inspector and his partner with 2 up had the third pick at the prizes.

Smart Work by Mottram Exchange Operator.—The operator at this Exchange received a calling signal during the afternoon from a subscriber's circuit which was T.O.S. The person speaking asked for several numbers without waiting to be put through to any of them, and then started to make use of abusive language. The operator, suspecting something wrong, immediately telephoned the police whilst keeping the person in conversation. The police motored to the house and caught the burglar redhanded.

Miss Harrop is to be congratulated on her presence of mind.

Winter at Dovedale, Derbyshire.

Hushed is the music of the Sylvan Glade,
And mute the murmur of the rippling rills;
That wimpled wantonly adown the hills
In Summer's gold and Autumn's russet shade,
Quaint icy diamonds glisten on each blade,
That dares the deadly chill of Winter's breath.
Bleak breeze that moans the doleful derge of death
O'er frost-bound flowers in magic robes array'd
Bright lies the peerless blossom of the snow,
Shrouding in Silv'ry pall the fields forlorn,
That slumber on unheeding, waste and worn.
Beneath the baneful blight of Wintry woe,
Till kindly budding Spring again be born,
And soft awak'ning winds begin to blow.

LEEDS DISTRICT NOTES.

BRADFORD Telephonists' Christmas parties are invariably welcomed as an excuse for noise and a safety valve for suppressed vitality. The happy gathering which assembled at the Co-operative Cafe on Dec. 11 was certainly not lacking in enthusiasm or originality. Even the phlegmatic press



Photo by Exchange Studios, Bradford.

BRADFORD TELEPHONISTS' CHRISTMAS PARTY.

photographers, who were the only members of the male persuasion present, were highly amused at the varied costumes and, with a keen eye for further "copy" like the photo shown above, were anxious that another party should be held early in the new year.

By means of a weekly collection of odd coppers made amongst the Bradford Exchange staff during December, Miss K. Mee and her helpers were able to provide 40 parcels of food, &c., for distribution at Christmas to needy families in the poorer parts of the town. The letters of appreciation which have since been received more than justified the effort and made one realise how much more blessed it is to give than to receive.

A company of 260 gathered at the Metropole Hotel, Leeds, on Jan. 15 for the second whist drive and dance of the season held by the West Yorks District Discussion and Social Circle. Col. Jayne, D.S.O., O.B.E., M.C.

(Postmaster-Surveyor), and Mrs. Jayne were present, with Mr. Murray (District Manager) and Mrs. Murray, Mr. Bownass (Asst. Postmaster) and Mrs. Bownass. A most enjoyable evening was spent, Leap Year and its traditional privilege not being forgotten.

Mrs. Murray presented the whist prizes, which were won by the following:—

1st.—Miss E. Russell.	1st.—Mrs. Archbold (playing as gentleman).
2nd.—Miss E. Reynolds.	2nd.—Miss Henderson
3rd.—Mrs. R. Lockwood.	3rd.—Mr. F. Mills.

Members of the District Office, Contract and Traffic Staffs, met in the District Office on Dec. 22 to say good-bye to Mr. J. C. Macdonald, Staff Officer, on the occasion of his departure to take up a similar position at Manchester. The proceedings, which were quite informal, were unexpectedly graced by the presence of Col. Jayne (Postmaster-Surveyor), who managed to be present in spite of the claims on his time caused by the Christmas pressure. Col. Jayne expressed his appreciation of Mr. Macdonald's work during the short period he had been in control of the District Office and voiced the general regret which was felt that he was leaving Leeds. Mr. Lawrence (Traffic Supt.) who represented the District Manager, conveyed Mr. Murray's regret at being unable to be present and desired to associate himself with the remarks made by Col. Jayne. Messrs. Bowring & Cockrem, H.C.O.'s, and Mr. Rawson, of the Contract Department, also joined in the expression of good wishes. Mr. A. Garner, H.C.O., in a few well-chosen words, then presented Mr. Macdonald with a cut-glass electric reading lamp, which had been subscribed for by members of all sections of the District Manager's staff.

One of the best-known figures in telephone circles in the Dewsbury district, in the person of Mr. Arthur Hargreaves, Contract Officer, Cl. II, retired under the age limit on Dec. 31. Mr. Hargreaves had been canvasser in the Dewsbury area since 1906. It is particularly gratifying to record that, quite apart from the subsequent presentation by his Leeds colleagues, the Dewsbury Engineering staff, together with the Dewsbury Exchange staff, united in their determination to show their high esteem and regard for their old friend and presented him on Jan. 8 with a most comfortable adjustable armchair. The presentation was made by Mr. J. Tattersfield (Eng. Inspector), on behalf of the contributors.

In the Contract Department at Leeds, Mr. Hargreaves was presented by his colleagues on Jan. 15 with an 8-day clock suitably engraved. Mr. J. N. Lowe (Contract Manager) and Mr. J. F. Murray (District Manager) paid tribute to Mr. Hargreaves' qualities and hard work, and congratulated him on the way he had performed his duties. Other members of the staff spoke highly of Mr. Hargreaves, and Mr. J. R. Taylor, Contract Officer, Cl. II, made the presentation.

NEWCASTLE NOTES.

It is pleasing to note the appointment of Mr. T. W. Wickham to the post of Traffic Superintendent at Chester, and Mr. T. McLauchlan to the resulting vacancy for Traffic Superintendent, Class II, at Newcastle. Possessed of a wide experience of both the technical and administrative aspects of telephones, Mr. Wickham served with the National Telephone Company in various centres and shortly after the transfer of the telephones to the State he was drafted to Southampton.

During the War, Mr. Wickham joined up with the Royal Naval Air Force. On his return to Civil duties he took charge on the Traffic side of the transfer of Southampton to Automatic working and a few years later he came to Newcastle as Traffic Superintendent, Class II. The duties of a Traffic Superintendent will not be new to Mr. Wickham who, prior to the appointment of Mr. D. Howieson as Traffic Superintendent and following his untimely death, performed fairly lengthy periods of substitution. His kindly bearing and courteous manner have won for him the regard of the entire staff at Newcastle.

The appointment of Mr. T. McLauchlan as Traffic Superintendent, Class II, will prove popular at Newcastle. Following distinguished war service during which he was awarded the Military Cross and attained the rank of acting Captain in the Royal Scots, Mr. McLauchlan returned to civil duties in the Telegraph Department of the Post Office at Edinburgh. Mr. McLauchlan has an intimate knowledge of the District and this, coupled with the experience gained from his chargshep of the Newcastle Automatic Scheme, should prove invaluable both to the Department and the Staff in his capacity as Traffic Superintendent, Class II. Imperturbable on all occasions and ever ready to assist the less experienced, Mr. McLauchlan will be welcomed by all in his new sphere of work.

Sincere congratulations and good wishes for the future are extended to both gentlemen on the occasion of their promotion.

At a large gathering of the staff in the Conference Room at Telephone House on the eve of his departure, Mr. Wickham was presented with a canteen of cutlery from the telephone and engineering staff at Newcastle.

The District Manager, Mr. J. W. W. Stewart, made the presentation. The Traffic Superintendent, Mr. A. E. Ryland, the Contract Manager, Mr. R. P. Lowe and Mr. McLauchlan joined with Mr. Stewart in conveying to Mr. Wickham the best wishes of all the staff at Newcastle.

NORTH WESTERN DISTRICT NOTES.

REJOICE! good friends. Rejoice!! The "Church" long reputed to be lying in the arms of Morpheus is awake and has just dealt the "State" a violent blow below the midriff. The Carnera-like "Sock" takes the form of a letter—or effusion—protesting against the non-inclusion of the Reverend Gentleman's name in the Classified Telephone Directory, compiled by Messrs. Weiner Limited, and for which (the omission, of course) we are blamed. At first we were inclined to write under the undeserved castigation hurled at our unprotected waisteoats by the outraged scribe. But then, his letter contains humour and for this we can forgive him the undercurrent of sarcasm and the libels on his flock (poor sick sheep), only hoping that his enjoyment in the preparation of the letter equalled ours in its perusal.

This is what he says:

January, 1932.

"Honourable and Dear Sir, In wishing you the very best of good things for the New Year, I feel I must ask you to give your very kind consideration to the following comments on the 'Classified Telephone Directory' which (with most startling efficiency) has just been delivered.

As you are aware of my happy vocation I merely say:—

Between Miners' Agents and Motor Auctions there are none but Monumental Masons. The Minister's Function lies between the two, but his name does not appear. I looked for Clergy and for Clerks in Holy Orders and there is nothing worth mentioning between Cleaning Materials and Clog Irons. Most of the Clergy use neither.

I searched for Incumbents and there is a noticeable gap between Income Tax Consultants and Insurance Brokers. We do not need the former and the latter dislike us when we do that which alone we can do in connexion with insurance.

A Curate ought to come between a Credit Check Trader and a Carrier but he does not.

I hunted for Vicars and the only thing between Veterinary Surgeons and Vulcanisers are Vinegar Brewers. Sir, we tend stupid sick sheep (of whom we could wish you were a more regular member) and our Nuptial Vulcanising Process takes some beating, but we entirely repudiate the charge of being 'vinegar brewers.'

So I climbed higher still, and, looking for a Rector, found that Reed Makers follow closely upon Rayon Fabric Manufacturers.

The poor Rural Dean is completely lost between Rubber Merchants and Sacks and Bags. Undignified, I call it. Our's would not like it at all.

With increasing optimism I looked for Canons, but Candle Makers and Canvas Fire Hose Makers know them not. One could explain this away by thinking that the compiler was a low churchman, but Archbishops and Archdeacons find no space to hide their nether limbs between Antique Dealers and Architects. This is palpably true, anyhow, in spite of modern critics.

Bishops, poor darlings, find no place between Biscuit Makers and Bitumen Compounds.

Surely Deans might prove to be a useful go-between between Deaf-instruments for the use of and Debt Collectors.

All this is most unwarrantable. I shall cause the question to be raised in Convocation and ultimately in the House of Lords. Surely one Government Department should not ignore another. The G.P.O. should know of the Establishment.

I am retaining a copy of this to send instead of a cheque in payment for the two telephones which I so generously maintain, in spite of their mediocre service, in order to help the National Government. I shall particularly pray for the Post Office when dealing with the outworn and detestable enormities of modern life at the Day of National Prayer Services to-morrow. I did not realise we needed them so much.—Yours very sincerely,
THE VICAR."

Preston.

On the 9th instant we bade farewell to Miss Ramsden (Clerical Officer) who is entering the bonds of holy matrimony at an early date. Concrete evidence of our regard for the lady is the canteen of cutlery with which she has been presented.

The Preston Telegraph and Telephone Staffs are to be congratulated on the success of a Supper Dance and Ball held at the Victoria and Station Hotel on the 6th instant. A most enjoyable evening was spent in an atmosphere which radiated good feeling and happiness. The guests of the evening were Miss Bailey and Mr. Garlington.

We regret to announce the death on Jan. 6 of Mr. J. F. Done, Clerical Officer in the Contract Department, Preston. Mr. Done was, previous to his transfer to Preston, with the Engineering Department and served at Leeds and Shrewsbury, and he will, no doubt, be kindly remembered by his colleagues in those offices. Heartfelt sympathy towards his widow is felt by all the staff at her sad bereavement. The funeral took place at Blackpool on the 11th instant, the Staff being represented by Mr. E. C. Walker (Engineers) and Mr. J. Humphrey (District Manager's Office). His colleagues indicated the high esteem in which Mr. Done was held by floral tribute.

GLASGOW DISTRICT NOTES.

A VERY jolly Christmas party was held by the telephonists of the Douglas Telephone Exchange in their dining room, on the evening of Monday Dec. 28, 1931. The proceedings opened with high tea at 6.30, to which, everyone did justice. Most of the company were in fancy dress, the gay colourings of which blended with the lanterns and decoration of the dining room, making a really festive picture. The prize given for the best and most original costume was won by Miss C. T. Boa ("Maori Girl"), whilst the prize for the funniest costume went to Miss J. White ("Schoolboy Footballer"). The Exchange Supervisor (Miss Mortimer) acted as hostess during the evening with great success, and when it came to "lights out" at 10.45 p.m. all felt that the time had been far too short, and all look forward to the time when a similar evening can be spent together.

The remarks made by Percy Flage in last month's issue regarding feminine privileges during Leap Year have caused our local spring poet to burst into verse rather earlier this year, with the following result:—

THE TWENTY-NINTH OF FEBRUARY—"LADDES' DAY."

In each Leap Year there is a day
When all the ladies have their "say,"
And though I do not wish to wed
I thought I'd like just to "have said,"
So being one who lacks much wealth
I thought I'd gain some clothes by stealth.

I therefore picked out several men
Of my acquaintance, now and then,
Who'd shown for me a preference—
(But not enough to leap the fence),
I made myself just sweet enough
For them to give me quiet rebuff.

I then prepared my formula
(I knew I must not go too far!)
But let them feel with veiled excuse
They could quite well my suit refuse.
Alas, for my discerning powers,
The very first said "Yes" (with flowers!).

I wondered if I should go on
And risk a "Breach of Promise." Don
Each pretty frock the rest would give
And so in silk each day to live,
But soon my hopes were doomed for woe
Not one of all these men said "No."

I wish that this Leap Year were over,
Through it I'd thought to live in clover;
Instead of which with pain 'tis fraught—
Thus dearly is experience bought.
I've lost my friends—my reputation—
I'll marry one for consolation!

EXPERIENTIA DOCET.

The following has been extracted from the December issue of "Scottish Thrift":—

"Central Telephone Exchange Association, Glasgow.

"Miss Mary M. Ruxton, Hon. Secy. and Treasurer of this Association, writes—

"I am going to another exchange and very reluctantly give up being Secretary and Treasurer after 12 years."

"During this period investments in Savings Certificates through the Association amounted to £12,193, and we congratulate her on such a splendid achievement."

We do not apologise for reprinting this extract as we think that such a splendid record is deserving of the widest publicity.

Resignations on Account of Marriage.—Miss M. C. L. McDonald (Trunk Exchange); Miss E. Jackson (Central).

Scotland West Engineering Notes.—A Lady Lights the Western Sky.—The first Writing Assistant appointment is announced.

Our junior clerk—a pre-war vintage, hard put to it to maintain his tradition of juvenility—has started to dye his white hair; office jackets

are being patched and buttons are re-appearing in place of paperfasteners and string.

In a vision we see the eventful day.

A row of highly polished shoes and faces throws an unusual radiance along the gloomy corridor. Pink shirts with green collars, kilts decked with geraniums and large sporrans are the order of the day. The staff officer appears in a white top hat, short toga and spats, bearing the white wand of his office. Advancing and retiring is a body of messengers, singing, dancing, and strewing flowers. Fifty three extension telephones clamour incessantly. The District Symphony Orchestra of 179 motor lorries, vans, cars and motor cycle combinations conducted by the Area Transport Officer is massed outside the office.

She comes. The throttles are opened. A paean of sirens, klaxons, horns and sackbuts rends the air.

Within, an uneven row of unnatural dentures flashes along each side of the corridor.

She comes. See now the Staff Officer. The spats advance, the toga flaps, the staff (i.e., wand) twirls. Kilts and sporrans are a-flutter all along the line. The staff (i.e., clerks) sings (in melancholy rapture):—

We're going to marry Yum-Yum, Yum-Yum,
We're horribly sorry, we're horribly sorry,
We're horribly sorry she's come, come, come,
We're horribly sorry she's come,
She's charming, disarming and gay, no doubt,
But still we could very well do without
The first and the worst of the frocks,
(This frocking that's knocking us out)
A martyr we'll find for the tartar
To marry and carry her out.

She enters (black dress, white silk jumper, stockings de luxe, despatch case, fountain pen in coat pocket), smiling.

Staff Officer (presenting attendance book and scarlet quill on gold cushion): Madam. The roll!

Writing Assistant: Dear soul!

Staff Officer: Your name?

Writing Assistant: Anne Howe.

Staff Officer: Oh—Yes.

She signs. The staff (i.e., wand) twirls unrestrainedly.

Staff (i.e., clerks) bursting again into song—

Aint she sweet?
Such a treat and so petite
What a peach to teach (whose job's she doing, Sir?),
Take my seat.

The occasion is then marked by a general issue of blotting paper to the staff (i.e., clerks).

R. P. B.

FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

Great Britain.—Feb. 15. Central indication and telephone equipment and supervisory control equipment in the North West England and North Wales area. Copies of specification No. NWE-G11 from offices of the Board, Secretary Richard H. Fox, Trafalgar Bldgs., 1, Charing Cross, S.W.1, London.

New Zealand.—Feb. 8. Post and Telegraph Dept. 35,000 telephone dry cells (A.X. 112, 12). Also Mar. 1. Same department, 250 gongs (A. 11230). *Lithuania.*—Kaunas (Kovno) P. and T. 450 table telephones, 50 wall telephones, &c. (A.X. 11227).

A confidential memorandum on trade with New Zealand prepared by the Trade Commissioner at Wellington has been received and issued by the Dept. of Overseas Trade to firms whose names are entered on its Special Register. U.K. firms desirous of obtaining a copy should apply to Dept. 35, Old Queen Street, S.W. 1. Quoting reference, No. CX. 3714.

A confidential memorandum on the appointment of agents, terms of payment and methods of trading in *Italy*, furnished by the Commercial Counsellor to H.M. Embassy at Rome, has also been issued by the D.O.T. On similar conditions as above, this information is available and application made to 35, Old Queen Street, but quoting reference (C.X. 3750).

A similar memorandum (C.X. 3734) dealing with *Argentina* is also available to firms qualified as above.

The Board of Trade Journal informs us that the operation of the deferred duties on valves for wireless telegraphy and telephony (tariff item 181 (A) (2)) came into force on the 1st of the present month.

Siam. Among the goods included in the new Siamese customs are telegraph, telephone and radio apparatus, on which a duty of 5% *ad valorem* has been imposed.
J. J. T.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

AN order has been obtained from Messrs. Unilever, Ltd., Unilever House, Victoria Embankment, for 113 exchange lines and 643 extensions. The installation consists in the main of removals from other premises to the firm's new building. The London County Council has signed an order for 300 additional extensions in connexion with an extension of the County Hall, Westminster.

Other recent orders include:

Imperial Communications, 100 extensions; Brownings Hotel, 25 extensions; Ilford Borough Council, 30 extensions.

A telephone show room was opened in premises rented at 379, High Street, Lewisham, from Jan. 4 to Jan. 20, 1932. A very effective window display was staged and various kinds of telephone apparatus were on view to the public. In addition a member of the staff was in attendance to demonstrate the working of automatic apparatus and a Contract Officer to give information and accept orders.

A demonstration of the automatic system was held at the new Hampstead Automatic Exchange from Jan. 4 to Jan. 23, 1932, and a Contract Officer was in attendance to give information and accept orders.

The British Industries Fair for 1932 is going to be bigger than ever. Attendances of buyers from overseas last year ran into several thousands and it is understood that remarkable travel facilities are being offered to buyers both at home and abroad who wish to attend.

Everything points to this year's fair being conducted on a much larger scale than that of any previous year. The gradual improvement in the ratio of telephones to exhibitors has been a feature of exhibitions for some years, and last year's B.I.F. returned a higher percentage than that of any previous year; more than 35% of the exhibitors rented telephones.

Nevertheless, it is an astonishing thing that 65 out of every 100 exhibitors do not avail themselves of the special rates offered for telephone facilities on these occasions. Here is a field for improvement amongst a body of business men and manufacturers prepared to spend large sums of money on promoting trade. Let us be in at this big push, remembering that last year only 407 of the 1,142 exhibitors signed agreements for telephone service.

A further attempt to increase the effectiveness of the salesmanship scheme was made at a talk given by Mr. C. W. Muirhead, of the Contract Branch on Jan. 5 in the Conference Room, Cornwall House. The Controller presided over a well-attended meeting.

Mr. Muirhead first of all dealt with the application of the information and forms issued with the "Compendium" available to the staff on "How to get Orders for Telephone Service." He dealt chiefly with the aspect as it affected the Accounts Branch staff in their contact with the public. The choice of opportunity for pushing forward the extended use of the telephone was illustrated by analysis of the subscriber's mind when paying an account or when dealing with a complaint. In social life he quite understood the diffidence to talk "shop," but was able to show that opportunities do occur when good can be done in furthering the telephone business. There need be no hesitation, he said, as to the extent of the field that can be operated by the staff, and his final word to the meeting was:

"Do too much, rather than too little."

An interesting discussion followed, showing keenness to assist in doing something to help forward the Telephone Service.

The Deputy Controller, Mr. Pink, dealt with the importance of securing an adequate return for expenditure already incurred in plant and equipment. The Controller, in concluding the meeting, referred to the wide undeveloped telephone field and said all must look for opportunities for expanding the Service.

Other similar meetings are being arranged.

The orders obtained in the London Area under the "Staff Salesmanship Scheme" between Sept. 30, 1931, and Jan. 14, 1932, were as follows:

No. Ordered.

Exchange lines	...	...	...	...	275
Extensions	...	...	...	...	230
Private lines	...	...	...	...	2
Plug and sockets	...	...	...	...	34
Hand microphones	...	...	...	...	952
Extension bells	...	...	...	...	67
Miscellaneous orders	...	...	...	...	52

Armistice Day, 1931.

The appeal for the Armistice Day Anniversary was issued as usual and the total amount subscribed was £55 6s. 9½d. (Last year the amount subscribed was £79 18s. 11d.) After deducting the expenses in respect of

the cost of the wreaths, flowers, &c., the sum of £50 2s. 9½d. was available for distribution among the following charitable funds:

	£	s.	d.
Adair Wounded Fund	3	3	0
Q.M.A.A.C. Old Comrades Association	3	3	0
The Lord Roberts Memorial Fund	3	3	0
Star and Garter Compassionate Fund	3	3	0
St. Dunstan's	3	3	0
Ex-Services Welfare Society	3	3	0
Queen Alexandra's Hospital Home for Discharged Soldiers	3	3	0
The "Not Forgotten" Association	3	3	0
L.T.S. Distress Fund	24	8	9½
	£50	2	9½

The money subscribed to the L.T.S. Distress Fund is for cases of distress arising on either the male or female staff directly or indirectly due to war conditions.

The wreath for the Cenotaph was placed thereon by the Controller accompanied by the following representatives of the staff: Miss M. R. Milbank (Central Exchange) and Mr. W. A. Catling (Accounts Branch).

A wreath was also placed on the Men's Roll of Honour and flowers in front of the Women's Roll of Honour in the Public Enquiry Office, Controller's Office, Cornwall House, Waterloo Road, S.E.1.

London Telephonists' Society.

The Annual Dance was held on Jan. 15 at the Coventry Street Corner House, and in spite of many last-hour disappointments occasioned by cases of illness, about 150 members and their friends spent a most enjoyable evening. The musical requirements were, as usual, contributed by Mr. Skinner's orchestra, and those who have had previous experience of his abilities will need no assurance that the standard attained was of the very highest class.

The announcement of the last waltz just before midnight was received with universal regret, and it was evident from the enthusiasm displayed throughout that the evening was regarded as a great success by all who were fortunate enough to be present. We would assure those who were disappointed by illness that their presence was greatly missed, and would express a hope that by the time they read these lines their recovery may be complete. Let us hope that on the next occasion there may be no cause for similar regrets.

"The Stamford Dramatic Society."

The next production by the Stamford Dramatic Society will be given on Feb. 15, at the Cripplegate Theatre. The play's the thing—on this occasion it will be Noel Coward's "Hay Fever," and everybody who has enjoyed the spectacle of "Cavalcade," or those that haven't yet, will have the opportunity of seeing one of his earlier plays, a witty "comedy of manners" of our present time, written in his most happy and characteristic style.

The Stamford Dramatic Society continues to progress in the right direction by each time essaying something better than has gone before, and now is the time for new members, who by their added encouragement and enthusiasm will enable the Society to carry out their future ambitious programme the more easily.

The amateur actor does possess one great advantage that is the satisfaction of doing something really pleasant, a vivid contrast to the daily routine, a little piquancy to the dull moments of one's spare time. Yes, there's fun to be got out of acting, and it often gives other people the chance of seeing you at your very best.

Tickets for "Hay Fever" may be obtained from Miss Dorothy Coleman (Business Manager), Telephone School (Telephone Clerkenwell 0101), and Harold Cooper, Esq. (acting Honorary Secretary), Prospect Traffic Office (Telephone Prospect 0101).

Tandem Exchange.

Tea and Entertainment to Poor Children.—On the morning of Saturday, Jan. 9, a van might have been seen discharging a mysterious-looking load into St. Etheldreda's School, Great Saffron Hill, E.C. Had any uninformed member of the Service passed at the time, he would have supposed that an official building had been plundered. In fact, his supposition would have been correct. He would, it is hoped, have been agreeably surprised, a few hours later, to find that the drab, businesslike office screens and furniture had been transformed into a domestic scene, representing Baron Tumbledown-Dreary's kitchen and, awhile afterwards, into the ballroom of Prince Truelove's palace.

The occasion of these proceedings was a tea and entertainment (with toys and "goody" bags at the conclusion), given by supervisors' telephonists, night staff and engineers of the Tandem Exchange to some 150 children of the above-mentioned school. The programme was an ambitious one, inasmuch as, following the tea, it involved the conversion of one end of the schoolroom into a stage and the remainder into an auditorium, in preparation for the pantomime "Cinderella," which a number of Tandem telephonists had been rehearsing for some weeks previously.

The transformation already described was effected by Miss Ball, whose talent as a scenic artist achieved, as one might have supposed, the impossible.

Her creation of a kitchen dresser, complete with crockery, was a revelation of what can be done with a large sheet of cartridge paper and a blue pencil. She was responsible, also for the production of the play, and she was the recipient of much well-deserved congratulation.

The members of the cast were so excellent collectively that it would be difficult, and perhaps invidious, to particularise. Exception is, perhaps, permitted in the case of Cinderella herself—charmingly played by Miss Fountain. A feature of the play was the dancing—ably arranged by Miss Pink. As is well known, pantomime presents ugliness as well as beauty. The charge is often brought against the fair sex that unnatural aid to beauty is too frequently sought. On this occasion, however, Miss Hill (who was responsible for "making up" the cast) must have had a very heavy task to produce such specimens of ugliness. It says much for her skill that she succeeded in presenting "females" who would never be recognised in the Tandem Exchange.

Reference to this occasion would be incomplete without mention of the proceedings in the Holborn-Tandem Dining Room on the previous evening. The ostensible reason for this function was that the cast of "Cinderella" should have an opportunity of staging a dress rehearsal before an audience. In actual fact—of course, nobody admitted this—an excuse was provided to taste the children's sweets first. Although there was, with one exception, an absence of "round-eyed wonder," there was an abundance of merriment and enthusiasm. The one exception was Miss Frances Boucher, aged 10, daughter of the District Superintendent. This young lady was, perhaps unwisely, introduced to the mysteries of the dressing and "make-up" rooms. It is understood that her movements about the household will be closely followed by her parents for some little time to come.

It is desired specially to thank the local engineers for lighting effects and Miss Milton and M. E. Johnson for catering and musical accompaniment respectively on both occasions.

L.T.S. Concert at Benenden Sanatorium.

Dear Miss Worth,

I am sure we all enjoyed the concert last Saturday, which was much better than any medicine the doctor could give us. We all send our grateful thanks to you for helping us to forget our troubles.

I enclose a brief report that may give the L.T.S. staff some idea of our appreciation.

I wish you a very happy New Year with the hope of seeing your concert party just once again before I leave, which I hope will not be long now.

Yours sincerely, H. H. CARVER,
Night Telephonist, Welbeck Exchange.

An excellent concert organised by the staff of the L.T.S., under the direction of Miss Margaret Worth, was given at the Sanatorium on Saturday, Jan. 2, 1932.

At previous concerts Miss Worth and her colleagues have set a high standard, but on this occasion they excelled themselves. Miss Worth was assisted by Miss Nellie Beare, soprano, Miss Madge Harwood, elocutionist, Mr. Hugh Williams, tenor, Mr. Charles Conyers, conjurer and ventriloquist, Mr. Walter Todd, entertainer, and Miss Janet Rivers at the piano. Between them they displayed a wonderful diversity of talent. It would be invidious to refer to any particular artiste, as all the items were admirably rendered and the patients hope soon to be favoured with "the mixture as before."

At the conclusion, the Medical Officer, Dr. Spurrier, on his own and the patients' behalf, tendered thanks to the L.T.S. and the artistes. Miss Worth, in replying, stated that the appreciation shown by the audience more than repaid her colleagues and herself for their efforts.

The evening concluded by the performers and audience joining hands and singing "Auld Lang Syne."
H. H. CARVER.

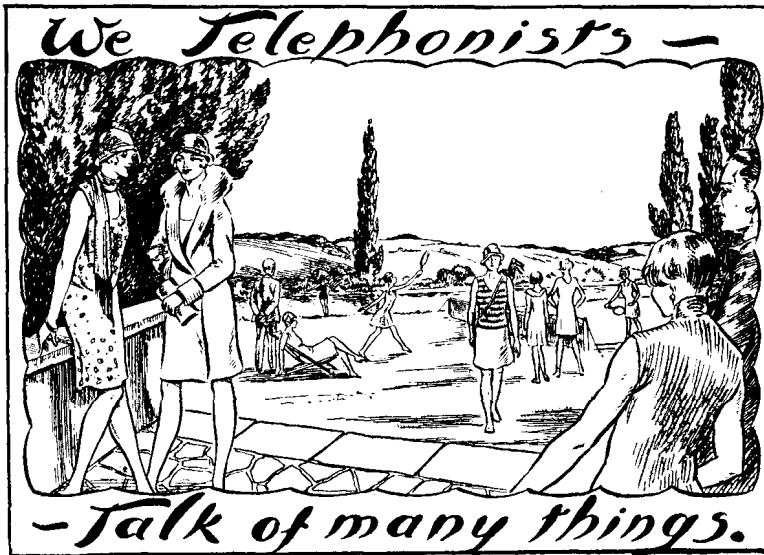
Personalia.

Resignations on Account of Marriage.

Assistant Supervisor, Class II.
Miss D. F. Vince, of Croydon.

Telephonists.

Miss D. Simms, of Emberbrook.	Miss D. V. Walsingham, of Mayfair.
" F. D. Hutchings, of Valentine.	" E. A. Dowding, of Bishopsgate.
" H. C. Wood, of Paddington.	" E. F. G. Fagg, of Bishopsgate.
" E. H. Buggy, of Hampstead.	" D. E. Parish, of Rodney.
" V. B. Turnage, of East.	" A. L. McMillan, of Rodney.
" P. P. B. Fleming, of City.	" I. C. Frankland, of Trunk.
" D. A. Orme, of Grangewood.	" K. Simmons, of Trunk.
" M. E. Huicks, of Royal.	" E. M. Coyte, of Trunk.
" L. Barnes, of Harrow.	" I. Hinde, of Trunk.
" E. K. Cooper, of Harrow.	" F. E. Trimble, of Temple Bar.
" I. V. Course, of Holborn.	" E. W. Hull, of Temple Bar.
" O. E. F. Robinson, of Hop.	" L. F. Carter, of London Wall.
" D. M. Tyler, of Regent.	" J. I. A. Hazzledine, of Museum.
" E. J. Lashley, of Regent.	" K. E. Rockliff, of Terminus.
" W. K. Milner, of Wembley.	" L. E. Brooker, of Central.
" M. Hartwell, of Wembley.	" E. M. Wall, of Palmers Green.
" P. I. Collins, of Victoria.	" A. E. Dodd, of Palmers Green.
" D. E. Viccars, of Victoria.	" G. E. Hollingsworth, of Kensington.
" L. Steward, of Mayfair.	" M. R. Cleary, of Clerkenwell.



Tricky Pixy.

FAITH, she charms the heart and senses of ye entirely, the artful, illusive, coaxing, saucy little baggage. Ye wonder at the mystery of her. Do ye but look at her and she lures ye with a coy seduction. Ye're never sure that ye'll find her and when ye do find her, faith she's gone again. She's an imp o' mischief. She'll lose ye and bog ye and lead ye to somewhere when all the time it's nowhere as ye've been desiring with all yere soul. And if it's nowhere she leads ye, certain sure ye can be that it'll be better than the somewhere ye'd thought to see. But ye're no sort of a man at all if ye don't love her: if the blood in ye doesn't course at the sight of her: if ye don't heed the mute voice of her.

Times maybe, ye'll be along the tree-fringed road and if ye look ye'll see a parting in the short bracken away on the right. That'll be her—modest! not her: just lurking quietly and waiting for ye to shin the bracken and follow her under the cool beeches and out of sight of the road. And then she'll play with ye. The wise brambles pluck at the coat of ye: the low bushes flick ye in the face and the beech roots pluck at yere feet. But do ye heed their warnings: do ye take thought? Sure ye don't: ye follow her. She'll turn and twist on ye till ye wonder why the sun is setting in the east: or she'll plunge ye up to the eyelets in black mud or lead ye up a hillock to drop ye on the other side. And she'll disappear and ye'll wonder whether ye could sleep sound if ye were to be a babe in the wood. But she likes ye be brave and if ye'll follow her she'll meet ye again with a pleasant smile. Perhaps then she'll behave for a bit and walk with ye demure and faithful and ye think she's even better than ye thought until ye find yerself at the bank of a clear swift pebbly brook with herself sitting on the other bank in a shaft of sunlight and smiling at ye. Ye can tell she's whispered her vexings to the brook because a few yards away, hidden by the undergrowth, he is dancing down with a merry laugh. He's like a small boy who thinks ye're an odd creature—as maybe ye are—but reserves his mirth for a safe distance.

If ye turn back then, ye'll be no man and a fool at that. She leads ye from the bank at the trip and sweeps ye round through the long wet grass. Maybe she'll show ye where the iris and the daffodils grow or take ye to a glade full of the mist of bluebells like the sea in summer. Or she may sweep ye round another way and lead ye past a group of larch just to make ye look up to heaven—in case ye haven't done it recently. Perhaps she'll show ye with pride, the dainty silver birches standing ready like bridesmaids for a sylvan wedding. Certain it is she'll take ye quiet or twisty for a spell and drop ye sudden into a circle of trees. If ye look ye'll see right in the centre a mighty oak, a king oak, with a fatherly spread of branch and a trunk ye couldn't span—not even with the help of all yere grandfather's descendants. And ye hang back with her, just a bit behind the king's courtiers. Maybe ye think that after all ye're not the wonder ye thought ye were: maybe ye feel just a bit small and insignificant: a bit doubtful about ye're strength and wisdom: a bit "low down and ornery." And ye fall silent and think—and it does ye good.

If ye look for the path again, I doubt but she'll be gone and ye can make ye're best way back to the matter of fact road. She'll be happy in the woods having done ye a bit of good. But she's an artful, illusive, coaxing, saucy little baggage—bless every inch of her, the tricky pixie.

PERCY FLAGE.

To Correspondents.—

"Plymouth."—Thank you for your good wishes and kind message.

"C.A.S."—So you thought I was real! Ha! ha! Did you reel when you saw me? And did you actually gambol in the pine grove?

P. F.

A printed postcard bearing the following has been received at Acorn Exchange:

"Dunkerry,"

1, Twyford Crescent,

Acton, W.3.

(Date as Postmark.)

It has pleased H.M. Postmaster-General to transfer our telephone line to the new automatic exchange "ACORN." (No subtle reference, I understand, to BUNYAN'S "Pilgrim's Progress.") Perhaps, in time, we shall come to OAK, although Elm, or Cremation, is preferred in some quarters. I am glad to say that our historic NUMBER (TEN-SIXTY-SIX) remains unchanged.

(Signed) F. HAROLD SULLY.

Service Cameos—No. 2.

Such a frantic woof! I've been to interview a Traffic Officer, yes, really. I'd always been told that Traffic Officers were born and not made and I'll say that's the truest rumour I've ever heard, yes, really. It stands to reason no one in their senses would ever make one, I mean, doesn't it, and as such miracles simply don't happen of themselves, I mean really, it means, doesn't it—or doesn't it—that the species must be born. Don't you think so? Of course, it's very comforting to think that there's always a Great Purpose behind all these things, I mean like earwigs and one's appendix and so on, isn't it? I mean really.

I started off with a "fox path"—that's French you know for those ghastly silences one so often hears at "At Homes" and so on. I asked if he was Mr. St. John Hare and I said "Saint John"—well, I mean, wouldn't you, really. But he said "No, I'm singein' hair." "Not really," I said, "so that's what I smelt." "No, no," he said, "that's what I'm called." "What a delightful nickname," I giggled, "do tell me about it." "No, no, no," he said, "that's how they pronounce my name." "Whatever for?" I said, but he just moaned and stuck his head in a box. Of course, I saw at once that something was amiss so I said brightly "I've come to interview you for the Journal." He withdrew his head with a jerk and said "Not the ——" "No, no," I replied quickly, "The Journal—you know, on behalf of the telephonists who" I added impressively "are most fearfully interested in you. They all want to know what you do and so on—I mean so on, not sew on—yes, really, and why you do it or don't." But he'd stuck his head into the box again. "For example," I prattled, "tell the dear girls about your boyhood and your hobbies and your love affairs and what made you take to this sort of life instead of becoming a respectable Executive Officer." At this he showed faint signs of life and taking his head out of the box, he said, "My choice of a career was based upon a desire to live for my work rather than to work for my living and so I am what I am." This is what is called a Noble Utterance. I mean the sort of blurb one finds in prizes for good conduct, doesn't one or didn't you? I mean really and on tombstones and things.

I couldn't get any other message out of him but his Mamma spoke to me as I was leaving—well I mean she just cascaded. She said he had always been interested in telephones and even when a Tiny Mite he shouted down the far end of his tin trumpet. "You know he was born, as it were, with a slide rule in his mouth"—I didn't, of course, really, but I murmured sympathetically—"and his earliest picture-books were files of circuit diagrams and blue prints. He has installed wireless in every room in the house and has even put one in the bathroom to save his papa the trouble of singing in his bath. Such a thoughtful boy." "How nice for you," I dribbled, "I mean listening in an so on during household duties." "Oh," she said, "not exactly that: you see he's always experimenting so we never really ——" "No, no," I said, "Oh quite, I mean really, of course ——" "but," she went on, "my one anxiety is that he may be breaking hearts in the exchange. He's so handsome, don't you think." I admit I faltered a bit between courtesy and accuracy before I decided on speed. So I sped. Well, really, I mean don't you think it was all for the best. As to the photo—well, in the circumstances, I thought not—don't you think so, I mean really.

BIRDIE TWILETT.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, (G.P.O. (North), London, E.C.1.

SCOTLAND (WESTERN DISTRICT) NOTES.

AFTER a lapse of several years the Staff had a Party in Rombach's Restaurant, Glasgow, on Dec. 16, 1931. The proceedings opened with a short period of whist. Tea was then served. The Party programme, which was an interesting and varied one, was thereafter set agoing. Opening with a Paul Jones' waltz, which was danced with much glee, the time passed all too quickly ere the last item, an Eightsome Reel, was reached. Interspersed with the games, Community Singing was engaged in, conducted in an efficient manner by Mr. Thyne, District Manager. This had the effect of discovering the musical talent of the Staff. The Party was voted by all present as being a most successful venture. The company was fully representative of the Staff. Already enquiries are being made as to the probable date of a repeat performance.

There was a surplus of £2 2s. which the Committee forwarded as a donation to the Quarrier's Homes, Bridge of Weir.

SPEAKING MACHINES.

THE common ancestor of all speaking machines is to be found in some form of speaking trumpet, and this device can claim the respectable antiquity of classic times, when it is probable that the "Oracles" were literally "worked" by this means. Mr. J. E. Kingsbury, in the introductory chapter to his book on "The Telephone," deals exhaustively with the Otacousticons, Tubastentoro-Phonics, Telekophonons, and other early instruments with high-sounding names which are landmarks in the history of the invention of the telephone.

From speaking trumpets the next development was in the direction of mechanism which would produce sounds resembling the human voice, and the following description, taken from a number of the *Saturday Magazine* printed in 1843, may not be without interest to our readers:—

"The first attempt made with anything like success, to produce a piece of mechanism capable of imitating vocal sounds, arose out of a question proposed by the Imperial Academy of St. Petersburg, in 1779. The question, or rather questions, ran as follow:— 'What is the nature and character of the sounds of the vowels A E I O U?' and 'Can an instrument be constructed, like the *vox humanica* pipes of the organ, which shall accurately express the sounds of the vowels?'

"Professor C. G. Kratzenstein gained the prize for the best answer to these two questions. He achieved results not equal to those which have since been obtained, but sufficient to reflect credit on his industry and talent. After examining the positions of the various organs, and measuring the apertures made by the lips, teeth, &c., in the production of the different sounds, he constructed a series of tubes, which, when applied to an organ-bellows, imitated with tolerable accuracy, the five vowel-sounds required. These tubes were of the most grotesque and complicated forms; for which no reason was offered, except that experience had shown these forms to be the best adapted to the production of the sounds in question. Some of the pipes were rendered vocal by the application of vibrating reeds, like those in clarionets; while others were open in the manner of a common organ-pipe.

"About the same time that Professor Kratzenstein was engaged in this inquiry, M. de Kempelen, so celebrated for his automaton chess player, and other clever pieces of mechanism, was occupied in a more extensive investigation of the same subject. He attempted to imitate not only the vowel-sounds, but also the consonants; and his results are well worthy of our notice.

"Kempelen at first entertained no hope of obtaining consonants, and if obtained of being able to unite them with vowels in the form of words. In the course of his investigations he tried a large variety of musical instruments, even horns and trumpets, with the view of discovering which of them emitted sounds approaching nearest to the human voice; but although he was aware that the reeds of hautboys, clarionets and bassoons, came nearer to the human voice than most others, and also that a reed-stop, called *vox humana* from its resemblance to the human voice, had been adapted to organs, his researches were ineffectual; for the sound of those reeds was found, on comparison, to be a very imperfect imitation of what they were intended to represent. At length, having accidentally heard the reed of a bagpipe, he conceived that it exceeded all others in this respect, and thence made it the subject of his subsequent experiments.

"Having particularly studied the mechanism of the human voice, he formed an opinion that the sound *a* (in the Continental form, equivalent to *ah* in English, or to the *a* in the word *father*.) was the fundamental part of the voice; such opinion being probably influenced by the circumstance that this sound was one which he could imitate by a pipe with a vibrating reed attached to it. But he found himself unable to imitate any other sound, and was thereupon led to seek for contrivances of other kinds. After long study he contrived a hollow oval box, divided into halves which, by being hinged to the box, more or less resembled jaws. This box was used, not instead of, but in conjunction with, the tube; the cavity of the box being made to receive the sounds as they issued from the tube. He thus found that by varying the degree in which the box was opened or closed, he could produce the sounds *a*, *o*, *ou*, and an imperfect *e*; but no indications of *i*, or the German *ü*.

"This success prompted Kempelen to direct his attention to the consonants; and after the labour of two years he obtained from different forms of cavity, the sounds of *p*, *m*, and *l*. With the vowels and consonants thus obtained he could compose syllables, and such short words as *mama*, *papa*, *aula*, *lama*, *mulo*. Still he had to conquer a great difficulty, which arose from the circumstance that the first letter did not cease when the second commenced; and on attempting to procure the sounds in immediate succession, they were confounded together, the word *papa*, for instance, instead of being one word, evidently consisted of four successive sounds. He also found that the too sudden discharge of air into the tube produced a faint sound of *k* before every other sound, so that *aula* became *ka-ku-kl-ka*; and that sometimes an aspiration followed a consonant, giving *papa* the sound

of *ph-a-ph-a*. With untiring application Kempelen surmounted these several difficulties; until he so far imitated the natural phenomena as to make one glottis and one mouth (or representatives of them) produce various sounds—sounds, too, not only of letters, syllables, and short words, but of long words, and even sentences, such as '*opera*,' '*astronomy*,' '*Constantinopolis*,' '*vous êtes mon ami*,' '*je vous aime de tout mon coeur*,' '*Leopoldus Secundus*,' and others.

Without entering minutely into a description of Kempelen's apparatus, we may state that it consisted essentially of five parts: 1, a reed, to represent the human glottis; 2, an air-chest, with internal valves; 3, bellows, to represent the lungs; 4, a cavity with much complex mechanism, to represent the mouth; and 5, two apertures, to represent nostrils. The reed was a hollow square box or tube, having a thin vibratory ivory slip resting horizontally on it, and acting as a vibratory tongue. The tube was inserted at one end into the air-chest, in such a manner that a blast from the bellows set the vibratory tongue in motion, and thus produced sound. To soften the vibration, the part against which the tongue vibrated was covered with leather; and the pitch of the pipe was raised or lowered by increasing or diminishing the tension of a spring. One end of the air-chest, which was of an oblong figure, received this voice-pipe, while into the opposite end was inserted the mouth of the bellows; both apertures being guarded by leather, to prevent the unnecessary waste of air. Two smaller air-chests were placed in the larger one, each having a valve closed by the pressure of a spring, and also a round aperture adapted to receive through the side of the large air-chest a tin funnel. This funnel was so contrived as, by modifying the sounds emitted by the reed, to give the sounds of *s*, *z*, *s c h*, and *x*. The cavity to represent the mouth was formed of elastic materials, capable of yielding to the impression of air. The two tubes intended to represent the nostrils were so contrived, that when the mouth-piece was closed, and both tubes were open, the sound of *m* was heard; when one was closed and the other open the sound was that of *n*."

The Leopoldus Secundus referred to was the German ("Holy Roman") Emperor reigning at the time, but it is significant of the period that the words chosen for production are all Latin and French, and not German.

A Mr. Willis, of Cambridge, constructed a talking machine in 1829, confining his efforts, however, to vowel sounds, and, in Mr. Kingsbury's opinion, forming the foundation of the scientific enquiry which Wheatstone and Helmholtz continued. Wheatstone, who is better known as a telegraph pioneer, expended much time in research and experiment in the direction of telephony.

The *Saturday Magazine* concludes its article thus:—

"Mr. Willis's researches did not extend to the production of consonants, since his object was to place on philosophical grounds the causes which regulate the production of vowels. We are not aware that any more recent investigations have been made into this matter; but we join in the opinion that, before another century is completed, a talking and singing machine will be numbered among the conquests of science; so that the utterance or pronunciation of modern languages will be conveyed not only to the eye, but also to the ear of posterity. Had the ancients possessed the means of transmitting such definite sounds, the civilised world would still have responded in sympathetic notes at the distance of many ages."

Much less than a century (a quarter of a century to be exact) sufficed to see the electric talking machine established as a scientific and commercial success.

A BRIEF CHRONOLOGY FOR STUDENTS OF TELEGRAPHS, TELEPHONES AND POSTS.

BY HARRY G. SELLARS.

(Continued from page 32.)

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|-------------------|---|
| 1924, July 1 ... | High-power wireless broadcasting station opened at Chelmsford. |
| | Marconi experimented with beam wireless transmission at Poldhu (Cornwall). |
| | Congress of the International Postal Union held at Stockholm. |
| 1924, Aug. 29 ... | Continuously-loaded, paper-insulated, lead-covered telephone cable, providing eight physical and four super-imposed circuits, laid between England and Holland. |
| | British Post Office adopted Aitkin's method of graded access in connexion with automatic telephony. |

	V. Poulsen invented the "Telegraphone" for recording speech for subsequent reproduction.		Post Office traffic during the year: Inland telegrams, 52,110,000; cablegrams and wireless, 11,314,000; letters, 3,500,000,000; printed papers, 1,710,000,000; newspapers, 165,000,000; postcards, 465,000,000; telephone calls, 929,000,000; trunk calls, 86,000,000; and Continental calls, 480,000.
	Telephone Development Association commenced operations in London.		Number of staff, 223,000—of whom approximately 143,000 were unestablished.
	Comité Consultative Internationale (Telephones) formed.		Amounts paid in pensions, £4,693,000, and in additional allowances, £1,038,000.
	Captain H. J. Round introduced a magnetophone transmitter.		7,770,000 two-shilling, and 10,490,000 three-shilling books of stamps sold.
	Adrian Sykes patented a telephone transmitter.		
1924, Nov. ...	Short-wave wireless station at Sydney heard in England and America.	1926, Jan. ...	Rugby high-power wireless station commenced operations, the circuit being controlled from the Cable Room, General Post Office, London.
	Marconi Telegraph Company entered into an agreement with the British Government for the provision of stations to constitute an Imperial Wireless Chain, in England, Australia, Canada, India and South Africa.	1926, Jan. 27...	J. L. Baird demonstrated "television" before the Royal Institution.
1924, Dec. 31 ...	26,068,000 telephones in use in the world.	1926, Feb. ...	Wireless telephony tried successfully between Rugby and Long Island.
	420,000 Anglo-Continental telephone calls during the year.	1926, Mar. 19	Anglo-German telephone service opened.
	P.O. telephone surplus for the year, £463,000.	1926, Mar. 22	Wireless communication opened between London and Danzig.
	Post Office introduced motor cycles for postal work.	1926, Mar. 29	Cash on Delivery postal system adopted in United Kingdom.
1925, Jan. ...	First permalloy loaded telegraph cable opened between New York and the Azores.	1926, Mar. 31	For previous twelve months, surplus of £7,416,266 on British postal business, loss of £1,299,214 on telegraphs, and surplus of £550,830 on telephones.
1925, Feb. 4 ...	Overseas Telegraph Branch of the General Post Office formed with Mr. F. W. Phillips (Assistant Secretary) in charge. Mr. L. Simon (Assistant Secretary) took control of the Inland Telegraph Branch, while Mr. W. T. Leech (Assistant Secretary) became head of the Telephone Branch. Mr. R. A. Dalzell became Director of Telegraphs and Telephones, with Mr. J. F. Edmonds as Chief Inspector of the Telephone and Telegraph Traffic Section.		£15,233,274 spent on telephone and telegraph construction.
	That part of the Cable Room, General Post Office, devoted to wireless working, named "Central Radio Office."		Paid in salaries, £38,169,000 (including bonus).
1925, March ...	Union International de Radiophonie formed at Geneva. President, Vice-Admiral C. D. Carpendale. Vice-Presidents, H. Giesecke (Germany) and R. Tabonis (France).	1926, April ...	F. W. Cook submitted an improved Baudot multiplex speed governor to the Post Office.
1925, Mar. 31	Post Office surplus for previous year £5,429,594. Paid in salaries, £36,844,000 (including bonus).		Regular short-wave radio communication in operation between Germany and Argentine, Brazil, Java and U.S.A.
1925, April ...	International Telegraph Conference held in Paris.		Experiments in radio picture transmission carried out between Berlin and Rio de Janeiro on wavelengths of 25 and 40 metres.
	Wireless telephone experiments took place between United Kingdom and Rock Point, Long Island.		Short-wave wireless telegraph service opened between Belgium and the Congo.
	F. G. C. Baldwin published an exhaustive "History of the Telephone in the United Kingdom."	1926, May 6 ...	Third Anglo-Dutch telephone cable (continuously loaded, lead covered, paper insulated) laid.
1925, May ...	Rome—Malaga—Las Palmas—Cape Verde—Rio de Janeiro—Buenos Ayres cable system laid.	1926, May 19	London—Oslo and London—Bergen cables commenced working from Cable Room, General Post Office, London.
	C.L.R. (combined line and recording) method of trunk telephone working introduced in U.S.A.		Baudot-Picard telegraph apparatus installed on Brest—Casablanca cable (1,600 miles).
	A. C. Booth and J. W. Willmot assembled a keyboard perforator suitable for producing perforated tape for transmission on Baudot circuits.		Radio Relay Station opened at St. Albans, Herts.
1925, June ...	Mendonca and D'Oliveira, of Portugal, introduced a governor for Baudot telegraph distributors.	1926, June ...	"Regenerator" (relay) introduced on London—Alexandria cables.
	Rice and Kellogg produced a moving coil with cone and baffle sound increasing attachment.		Thorne Baker's apparatus ("Izon") for the cable and wireless transmission of photographs placed on the market.
	C. Verdan, of Strasbourg, introduced a system of eliminating the effects of atmospherics in wireless telegraphy and applied it to the Baudot multiplex.	1926, June 29	Cable ship "Colonia" commenced laying the Western Union Telegraph Company's "permalloy" cable from Newfoundland to Penzance.
1925, July ...	P.O. Radio Research Station opened at Dollis Hill.	1926, July 1 ...	Continuous Anglo-German telephone service established by through circuit.
1925, July 21	Postmaster-General announced that the British Government were retaining all wireless communications with the Dominions and the Colonies.	1926, July 16	Number of telephones in use in London reached 500,000. Commemorative telephone with suitably inscribed tablet installed in the Press Gallery of the House of Commons.
1925, Aug. ...	Wireless signals exchanged between England and the MacMillan North Pole Expedition party within the Arctic circle.		G. M. Carrat, of Paris, adapted the Baudot-Picard apparatus and increased by 80% the efficiency of the Brest—Casablanca cable.
1925, Sept. ...	Daventry high-power wireless broadcasting station opened.		C. Verdan, devised a modification of Baudot's apparatus for wireless telegraphy, tests being carried out between Bordeaux and Madagascar.
1925, Oct. ...	Berlin—Moscow telegraph service opened.	1926, July 29	Western Union Telegraph Company's "permalloy" cable from Newfoundland to Penzance completed.
1925, Nov. 1 ...	"Regenerator" (relay) introduced on London—Gibraltar cables.		Anglo-Belgian cable laid, providing 14 physical and 7 phantom circuits.
1925, Nov. 3 ...	Comité Consultatif Internationale des Communications Telegraphiques held its first meeting in Berlin.		Convention signed by the Greek Government and the Eastern Telegraph Company, whereby the latter obtained a concession for transmitting telegrams by cable or wireless from Greece for a period of fifty years.
1925, Dec. 1 ...	Inland and foreign telegraphs accepted on moving trains in Germany for wireless transmission, and a telephone service provided.	1926, Aug. ...	Fourth Anglo-Belgian telephone cable (continuously loaded, lead covered, paper insulated) laid.
1925, Dec. 31	Number of telephones in use: Europe, 7,475,000; Asia, 912,500; Africa, 165,500; North America, 18,240,000; South America, 402,000; Australasia, 530,000.	1926, Sept. 4 ...	First National Radio Exhibition held at Olympia, London.
	1,357,908 telephones in Great Britain and Northern Ireland.		

(To be continued.)

THE Telegraph and Telephone Journal.

VOL. XVIII.

MARCH, 1932.

No. 204.

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All correspondence relating to advertisements should be addressed to MESSRS. SELLS, LTD., 168, Fleet Street, London, E.C.4.

TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCV.

MR. C. F. ASHBY.

MR. C. F. ASHBY, the District Manager of Telephones, Norwich, entered the employ of the National Telephone Co. Ltd. at Leicester as Chief Inspector in October, 1892. After promotion to various posts at Coventry, Bangor, and Lincoln, he was appointed District Manager of the East Kent District at Canterbury, in 1906, the District soon after being enlarged to include nearly the whole of Kent.

He was specially transferred to Norwich in 1916 in connexion with War matters. It may be remembered that in the earlier part of the War, the east coast of Kent was considerably troubled by daylight air-raids by enemy aeroplanes, and, having obtained consent from the Headquarters, Mr. Ashby



arranged—entirely off his own bat—in conjunction with the Army, Navy, Air Force, and Police Authorities, for the introduction of what are thought to be the first daylight air-raid warnings in this country, which covered the coast from Margate to Folkestone, and, of course, included the important port of Dover. Headquarters and control were at Canterbury. These warnings proved very successful.

Amongst Mr. Ashby's hobbies are motoring, bowls and model making. Indeed some of his model steam engines have been exhibited at the Model Exhibitions in London.

We are glad to record, although nearing the age of retirement, Mr. Ashby is in excellent health, and displays all the energy and feels all the keenness of his younger days.

The
Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

Editing and Organising Committee - - -	{	Lieut.-Col. A. A. JAYNE. J STUART JONES. W. D. SHARP. W. H. U. NAPIER. J. W. WISSENDEN.
Managing Editor - -		W. H. GUNSTON.

NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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RURAL DEVELOPMENT.

ABOUT a year ago we drew attention to the fact that upwards of 300 rural automatic exchanges had been opened by the Post Office in the years 1929 and 1930, and commented on the extraordinary possibilities afforded by this type of exchange of extending telephone service to some of the most unlikely rural districts. It is gratifying to record that nearly 300 rural automatic exchanges were opened in 1931 alone. A proportion of these (as also in 1929 and 1930) it may be remarked in passing, represent conversion from existing manual to automatic exchanges. Some of the villages thus served may be known by name to the average reader who has perhaps rushed through them in an express train: at least two of them are places at which the railway station has been closed and the passenger service withdrawn: whilst the majority of them are not large enough to support a railway station at all. Many of them are hamlets, not even villages in the proper sense of the term, and are not to be discovered in the ordinary gazetteer. Many of them have populations ranging from 1,000 down to a couple of hundred, and those who know from experience how little and unimportant a village may appear to be and yet boast a population of over 1,000, will appreciate how truly small is a place with less than half that number of souls.

A typical example selected at random of the type of village to which service has been extended by means of the rural automatic exchange is Colmworth, in Bedfordshire, a place with about 300 inhabitants. It is not situated upon a main road nor upon an important cross road. It is about 7 miles west of St. Neots Station, 9 miles east of Sharnbrook, and about 11 miles south of Kimbolton. If such a place can support an exchange, there seems to be every

prospect of rural exchanges increasing at a higher rate than 300 per annum in coming years. Subscribers connected with exchanges in rural areas are a steadily growing body. They represent 12% of the total number of subscribers, and at the rate of growth above indicated they bid fair soon to reach the proportion of 20%, which is the percentage on the total of the rural population of this country.

The 290 and odd exchanges are spread well over Great Britain, the four largest counties properly having proportionately the largest share. Yorkshire comes first with 26 (of which perhaps the best known places are Hellfield, Eserick, Burton Agnes, Jervaulx, and Ripley), Lincolnshire next in the 16 (including Ancaster, Sutterton, Bamber); Devon third with 15 (including Sampford Peverel, Colaton Raleigh, Chulmleigh, Starcross, and Sticklepath); Norfolk fifth with 12, Suffolk sixth with 11, and Sussex and Wilts next with 10 each. Hampshire follows with 9, then Cheshire and Stafford with 8, then Oxfordshire, Northumberland, Berks, Dorset, and Cambridgeshire with 7. Sixty-three of the old geographical counties are represented in the list, Aberdeen being first in Scotland with 5 exchanges, and Denbigh in Wales with 4.

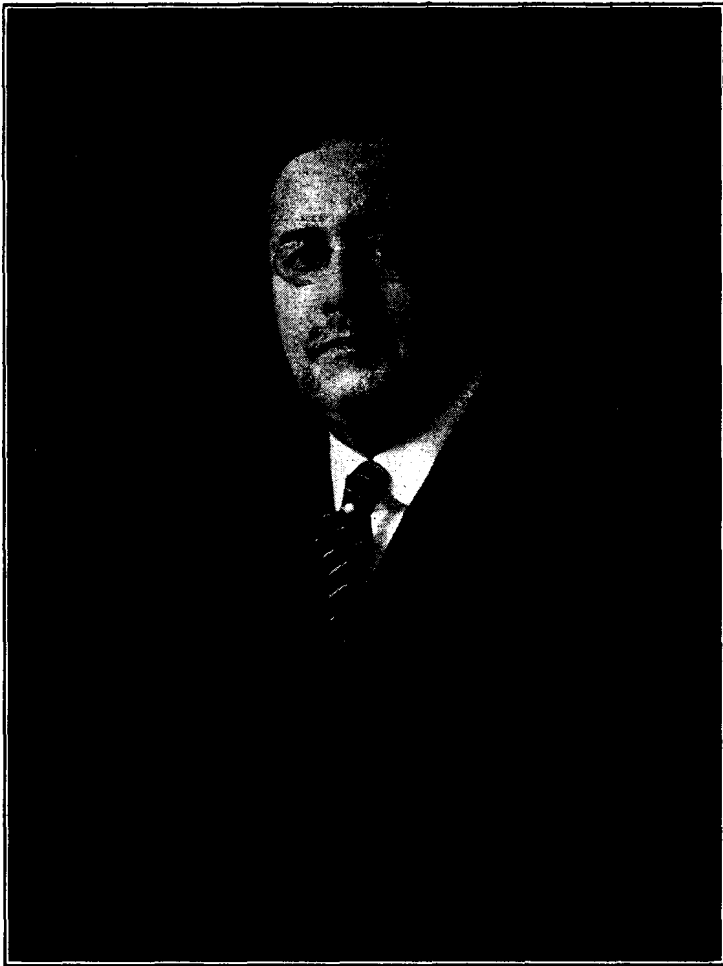
HIC ET UBIQUE.

ON the 1st of this month the transatlantic telephone service was extended to the Sandwich Islands (Hawaii, Honolulu, &c.). Service is available between 6.30 p.m. and 2.30 a.m. British time. The charge for a 3-minutes' call from London to Honolulu is £9 and to Hawaii £9 12s. 0d.

An Overseas Trade report on the Netherlands East Indies, refers to the radio telephone service between Holland and Java, which as our readers know was extended to all places in Java in 1930. The service, in which this country participates, was originally confined to special call offices, but it is now possible to ring up any telephone number. The report informs us that calls to Holland are put through within a few minutes of the stipulated time, provided notice is given in advance, and remarks "it is interesting to mention that there are families here that ring up their children at school in Holland and talk to them, over a distance of 9,000 miles, with the same ease as talking over a breakfast table." Of course, the ease of speaking in radio service is no new feature. Social calls were made, for example, via the transatlantic service between a Gloucestershire village and California and between places a similar distance apart several years ago with equally satisfactory results.

The big new motor-coach station, says the *Manchester Guardian*, in its challenging position opposite Victoria Railway Station, will come into use next month. In future it will not be sufficient to say Victoria to a taxi driver—one will have to specify "railway" or "coach." This coach station, which is a type of what we shall see commonly in the future, is an imposing new building with a tower at one end and faience decoration. It will supersede the makeshift coach station in Pimlico, which has been the London terminus of many services, including some from Lancashire and Yorkshire.

There will be accommodation for 80 motor-coaches, but at busy times waiting coaches for emergencies can park within easy call when it is full. The control arrangements of these large motor-coach centres depend largely on the use of the telephone,



Photograph by courtesy of J. Russell & Sons.

THE POSTMASTER-GENERAL, THE RIGHT HON. SIR KINGSLEY WOOD.

with which to keep in touch with centres in the country and to summon extra coaches as required. It is not surprising to hear that the telephone bill of the new station for trunk calls alone is expected to be over a thousand pounds a year.

We make no apology for lifting the following paragraph from *Popular Wireless* of Jan. 30 last:—

NEW YEAR'S "HOWLERS."

From Mr. Cecil Hunt's collection I take the following for you. "A positive is an molecule which has electrons distracted from it." "The farad is the unit of cowpacity." "Wireless waves travel at such a high frequency that it is impossible for the naked ear to detect them." "A dull-emitter valve filament is coated with thorax." "When the circuit oscillates it is in residence." "Wireless valves are worked by eccentricity." "Wireless is of great use to ships at sea, it helps vestals in distress."

Some of the "howlers," however, seem to betray the authorship of our old friend Ben Trovato.

"The provision of sets of telephone boxes labelled 'Gentlemen' and 'Ladies'—or even more bluntly, 'Men Only' and 'Women Only'—would be a welcome reform" (writes a correspondent of the *People*).

"Obstruction by female gossip on the telephone is becoming worse than ever.

The two sets of 'phones should be placed well apart to avoid excuse for confusion. Men, I am sure, could be trusted to keep well away from the women's section.

Many men give up hope of making their calls when they see a woman well-established in the 'phone box."

EVE IN THE CALL-BOX.

Abandon hope whenever she enters here,
For when she presses to her shell-like ear
The dumb receiver—all too soon to be
Made vocal with the ceaseless colloquy
Exchanged with distant friend—why, then Old Time
Must hover on the wing, and clocks must chime
The passing and relentless hours in vain,
Or serve as a recurrent, soft refrain,
To tales of Chrissie's wedding, Cissie's twins,
Joan's latest conquest, Eva's social sins,
Jill's luck at bridge, Estella's new "platonic"
And graphic notes (not, certainly, laconic)
On Dora's hat. "My dear . . . upon that head!
Too priceless—she's the last who should wear red!"
While "matters of great pith and moment" wait
And clamorous males fear lest it be too late
To put that sovereign on that fancied horse,
And rattle door-handles as last resource.
Perchance she ruins some financier's plot
To corner tennis balls. She heeds them not
But still purrs prettily. These rage and stamp:
"Oh, for one-minute's call to clinch our ramp!"
Oh *tempus edax rerum*, can't you eat
That thing inside, so fair, so seeming-sweet?
Nay, *she eats you*, while we, all starved for time,
Are doomed to vent our rage in pantomime!"

W. H. G.

THE G.P.O. PLAYERS.

This Society never permits interest in its progress to languish of monotony, and in pursuance of its policy of providing pleasing variety, it will present, as its spring production, the romantic drama, "The Cardinal."

In seeking a period story, the G.P.O. Players could have made no better choice than this fine play by Louis N. Parker, which portrays some dramatically eventful history in mediaeval Italy and of the Medici family.

The play, which has recently had a great vogue in the country of its setting, is calculated to appeal no less for its stimulant action than for its sheer beauty of line. The production will be in the capable hands of Mr. Gerald Storr, who had such striking success with the autumn production.

The play will be presented at the Guildhall School of Music Theatre, John Carpenter Street, E.C.4 (two minutes from Blackfriars and St. Paul's Stations), on Thursday, Friday and Saturday, Mar. 17, 18 and 19, at 7.30 p.m. Tickets, 5s. 9d., 3s. 6d. and 2s. 4d. (all reserved), may be obtained from Mr. W. L. Gartland, N.E. Room, 5th Floor, G.P.O. (N.), E.C.1. ('Phone, National 6321, Ext. 871.)

FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

New Zealand.—Wellington, Mar. 30. Adhesive insulating tape required (A.X. 11257).

The *Board of Trade Journal* states that the duty on insulators weighing over four kg. each imported into Finland, has been increased from 2.50 to 4 marks per kg. as from January last.

Also that, from Feb. 1 last the duty on radio sets and certain parts imported into Sweden has been increased from 10 to 20 kroner per 100 kg. (220 lb.).

A confidential memorandum on the appointment of agents in Tunisia prepared by H.M. Consul-General at Tunis has been received and circulated by the D.O.T. to firms whose names are entered on its Special Register. *British* firms wishing to obtain a copy should apply as above, quoting reference No. C.X. 3774.

J. J. T.

THE INLAND TRUNK SERVICE.*

BY H. TOWNSEND, *Secretary's Office.*

(Continued from page 97.)

It is perhaps worth while here to contrast in very general terms the economic problems of the local service with those of the trunk service, bearing in mind the large and important borderline. In long distance service the cost of the cables is the governing financial consideration and on a long view the cost of service depends mainly on the efficiency of their loading with paid traffic (that is the traffic-loading of the cables, and not merely of the working circuits). It is sound, therefore, to provide both staffing and exchange equipment fairly liberally in order to get the most economic possible use of the line plant. By liberally I do *not*, of course, mean wastefully, which is quite a different thing—a difference by the way of kind, not of degree. In the local service, operating costs—or their equivalent in automatic switching plant—are quite as important as junction costs. It follows that methods of staffing exchanges which are quite suitable for local traffic may be wrong for long distance traffic, and, in particular, it is dangerous, in dealing with the problem of staffing a large trunk exchange, to be guided too much by experience of output, &c., in the local service. Of course, it is just as important to staff a trunk exchange accurately at each point and at each hour of the day as it is for a local exchange, but the strength of the operating and supervising staff which gives the optimum financial results is different in the two cases, and its determination is not governed by quite the same considerations—for example, efficiency in timing, affecting materially the collection of revenue, may be involved in staffing trunk positions, as well as in equipping them.

Perhaps I may conveniently mention here the other fundamental difference between local and trunk service. This difference is brought out most clearly by looking at the matter from the point of view of the public—I mean of the caller, the man who pays for the service. From his point of view, an individual local call is a comparatively cheap transaction, while a trunk call is a comparatively expensive one. Even apart, therefore, from controllable efficiency, the caller making a trunk call requires to be looked after in case of any difficulty to a greater degree than the caller making a local call. To give an illustration, if, on a long-distance call, no reply can be obtained or the distant number is engaged, it is for the service to make repeated attempts to get the call through. On a local call, provided, of course, that no charge is made until effective service has been rendered (as has always been the practice in this country), the caller normally prefers in such circumstances to be left to get through again himself at his convenience. Hence the difference in the relative rules. But this difference has a much more general aspect. Generally speaking, the ideal form of local service is "full automatic"; the caller puts himself through without any human intervention on the part of the telephone service. In the trunk service, on the other hand, the object of automatic aids in the exchanges, is not to do without an operator altogether, but to concentrate the main work of putting through the call (which still remains with the service, and not with the caller) as far as possible on one operator, the "controlling operator," and to give her the most favourable possible conditions for putting through the call quickly and helping the caller in case of any difficulty. Incidentally, the controlling operator is, of course, responsible for collecting the charges due, which amount in the aggregate, as I have already mentioned, to £5½ millions a year. In this connexion, one point should be emphasised, namely, that of this £5½ millions a year £4½ millions is collected on timed (inland) trunk calls by the sole means (except for coin-box calls) of the controlling operators' tickets—the essential importance of accurate timing is thus obvious, and particular attention is, in fact, being given, both to providing the controlling operators with apparatus to facilitate correct timing, and to training them to make full use of it.

I hope that this very rough sketch of a few salient points may perhaps serve as a background for what follows. I want now to try to state in rather more concrete form some (selected) administrative problems and the lines on which they are being solved. I am, of course, deliberately leaving out a large number of administrative problems, for example, the extension of the trunk service to the few remaining new areas, such as certain outlying islands not yet linked up telephonically with the mainland, because in existing circumstances they are of comparatively secondary importance; I am also not dealing with the very important matter of standardisation of operating practice or with possible new types of service, such as, for example, "collect" calls, or "reverse charge" calls; but please do not assume that this implies they are being neglected!

First, the Trunk Telephone Re-organisation Plan and its inseparable companion, Demand working. (By the way, I hope no one will fall into the heresy of trying to separate in their minds the Demand working plan from the transmission improvement plan—the former would be impracticable without the latter and the latter would be uneconomic without the former. If anyone still doubts this, or feels that it should be possible for them to be economically separated, I can only refer him to Mr. Elston's paper which I have already cited.)

* Paper read before the Telephone and Telegraph Society of London.

As you know from that paper, the Reorganisation Plan involves a scaling-up of the standard of speech transmission generally to the level already given on the best routes, by means of high efficiency working over repeated cables between any two distant group centres. That means, at the present stage of technical progress, 4-wire working; an attenuation loss of 25 decibels as an over-all maximum for any call is the ideal, but of course other factors beside attenuation loss are equally important and are being looked after in the plan. To avoid any misunderstanding, perhaps I ought to mention that 2-wire working is fully efficient in suitable

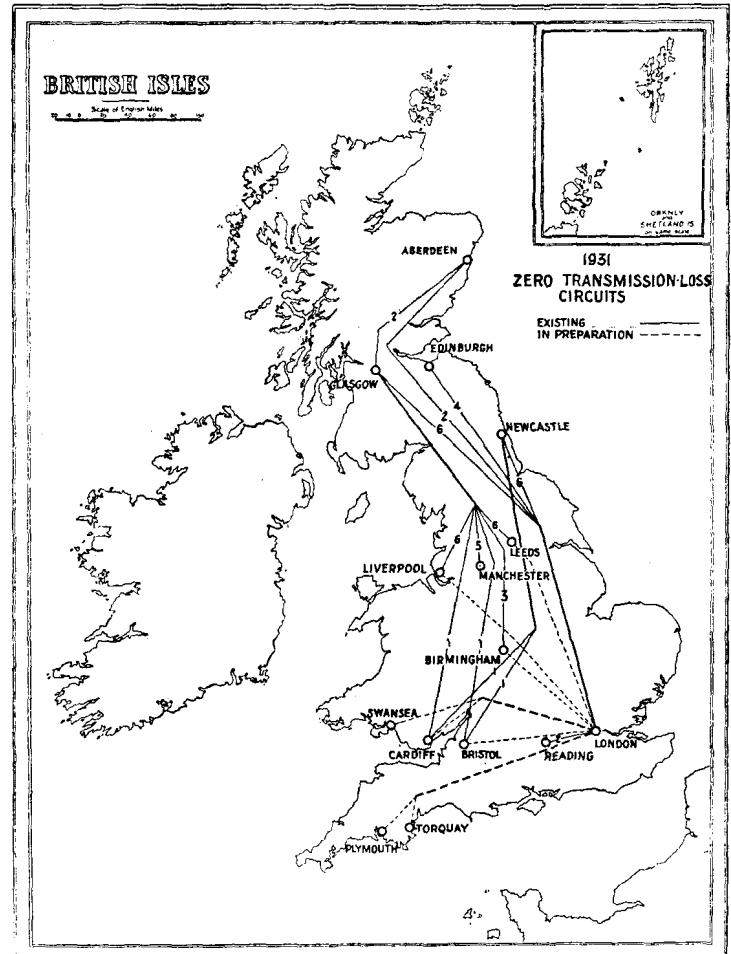


FIG. 5.

circumstances, and will remain standard for very large groups of terminal traffic, even over considerable distances—this will be possible over an increasing range of distances without in any way impairing our high standard of transmission, or limiting the scope of future mechanisation. I should add that I am informed that, in view of possible technical developments of the 2-wire repeater, it is not sound to stress too much as a permanent factor the differences between 2-wire and 4-wire working.

At the same time, the concurrent introduction of Demand working involves the provision at all exchanges which control trunk calls, of the best possible facilities for the controlling operators, ancillary or multiple answering equipment and an outgoing multiple of trunk circuits with idle visual indicators, through clearing, at least from the caller's telephone, the automatic measurement and display of the lapse of chargeable time, automatic warning for the announcement of elapsed durations, until these can be indicated automatically to the caller, a visible index file of routing and rating information and all the other things described in detail in Mr. Darby's work on Long Distance Telephony. You will remember that all these things are designed to get the best possible use out of the line plant, as well as to give the best possible service to the caller.

The administrative problem is, first how to finance the provision of this equipment—I do *not* mean how to borrow the money for it, which is easy enough, but how to ensure that its annual cost can be paid for out of revenue after its capital cost has been borrowed and spent—and secondly, how to co-ordinate the work. Financially, as I have said, it is merely a matter of attracting enough revenue to pay for the annual charges incurred on the additional capital spent on the new equipment or, conversely, if you prefer it—I don't—limiting the rate of growth of the equipment so that its annual cost will not outrun the growth of revenue.

Now the really expensive items involved in the Trunk Reorganisation Plan are the new cables (including their associated repeater equipment and

their loading, if any). Our rate of progress is, therefore, broadly speaking, conditioned by the extent to which we can (a) improve the transmission up to the necessary standard without laying new cables and (b) improve transmission and general service *rapidly* on those routes where our experience suggests that this will *quickly* attract new traffic, and with it additional revenue. By this means we can hope to afford to pay, as we go, the additional annual charges incurred on such new cables as we must lay, whether in order to meet ordinary growth of traffic or in order to improve transmission. The new exchange equipment required is a *comparatively* minor matter (I mean, of course, from the financial point of view—it is obviously as essential to the service as the cables); speaking generally, it can be afforded without its annual cost very materially affecting the rate of progress of the Plan. I don't mean that the cost is negligible, but that we can clearly afford it.

It is obvious that the right place to start is on the main routes connecting the zone centres: for here you have the most favourable conditions, both of demand and of supply. Now the main zone centres are, of course, already connected by cables of large traffic capacity. Some of these cables are new (London—Birmingham—Liverpool, for example); others are of older types; but the resourcefulness and technical invention of our engineers have already enabled us to improve enormously the standard of speech-transmission over many of the inter-zone-centre routes, even the older ones, at relatively small expense (except on those which must have new cables in any case to carry the growing volume of traffic). Post Office engineering research work has produced in this country quite recently a practically workable circuit of zero attenuation-loss, and concentration in applying this research on the main routes has enabled a substantial number of circuits of this new type (which include echo-suppressors of British Post Office design) to be brought into service in our country. Fig. 5 shows a map of these, together with the additional ones which will be put into service this year (1932). Further, on important secondary routes all over the country (such as London—Reading), as well as on a number of backbone routes where zero-loss circuits are not yet available, the engineers are effecting as part of the Reorganisation

subscribers situated in the zone-centre towns. (Manchester, where a completely new trunk exchange has to be provided and installed—in an existing building, fortunately—will come in a little later, and Belfast presents special difficulties which, however, may yet, I hope, be overcome.) Of course, it is obvious that the toning up of the inter-zone and important secondary routes will improve speech transmission, not only on the terminal traffic between the zone centres, but also on a very large number of long distance calls which are not originated and terminated in zone centres, but which are routed by them. But there will remain areas where the outgoing and incoming long distance traffic cannot satisfactorily be dealt with without new cables. The line of action here is, as I have indicated, to concentrate first on those areas—each being taken as far as possible as a whole—which are most promising from the point of view of attracting new traffic. This, then, is what we are doing, measuring our rate of progress each year by the general financial position of the telephone service.

Fig. 6 shows a map of the telephone cable routes. Those of the cables brought into service last year (that is, since Mar. 31, 1931) which serve routes formerly without direct cable, are indicated separately, and also cables (on new routes) proposed in the programme (not yet finally authorised) for 1932-33. It must be remembered that a great deal of money has necessarily to be spent on new cables (not indicated in the map) which duplicate old cables already filled to their capacity with traffic: in fact, at present, a considerable part of each year's cable expenditure is necessarily on such cables. (The new Derby-Leeds cable, for example, will be one of the largest in the country.) To this extent the map is misleading, but I think, nevertheless, that it does give some indication of the rate of progress found possible in this country at the depth of the world trade depression—progress which we are making, of course, without departing from the principle that the telephone service must each year be financially self-supporting.

You will see the immediate prospect of marked improvement in the South Western Counties area, where Salisbury and Yeovil are being developed as cable centres with new repeater stations. Another point of interest is the main route from London to Scotland. This is at present served by one cable only (that means a large number of valuable eggs in one basket), via the East Coast (this cable, though good, is not quite of the most modern type), and some very exposed open-wire overhead circuits going by the West Coast over Shap Fell—these are of inferior reliability and transmission characteristics, and may soon be rendered useless by inductive interference from power lines. Obviously, more cable circuits by a second route are urgently required. Now, ultimately, we shall need a new telephone cable to Scotland via the West Coast; but this would cost—together with the ducts—something of the order of half a million pounds, and at the moment the prospective traffic and the general financial position would not justify the expenditure of so large a sum on this particular single route. Faced by this dilemma, the engineers have proposed an extremely economical scheme, costing only about £40,000, which by loading some suitable circuits in an existing telegraph cable, will not only provide very quickly a dozen first-class telephone circuits, in cable throughout, via the West Coast route, but will also materially help the telegraph service. As the figure shows, this scheme is now being carried out.

In parenthesis, the technical and economic relations between the telegraph service and the inland trunk service are at the moment particularly interesting, in view of the progressive standardisation of teleprinter working over channels which can be formed out of our telephone plant very economically in various ways; but this, like the forthcoming development of telegraph exchange service, though it bears materially on the problems of the inland trunk service, is really a separate story, with which I cannot hope to deal in this paper.

I now come to the second aspect of the administrative problems connected with the Telephone Trunk Reorganisation Plan and Demand Working, that is, the organisation of the work. There are two points, first to co-ordinate all the different jobs involved in any one extension of the plan, so that they fit into each other without any one holding up the others; and, secondly, to arrange on each particular job for collaboration at every stage between all the experts concerned. A typical single piece of work involves four or five expert branches, for example, people concerned with circuit design, with transmission problems, with trunk traffic problems and with local traffic problems. Now in this world it would be too much to hope for the ideal solution from the point of view of any one of the expert sections concerned in these things to coincide with the ideal solutions from the other people's point of view. There is therefore always present the danger summarised in the French proverb to the effect that the best is the enemy of the good. If any one branch or department holds too fast to perfection, it may be led, by the very virtues of conscientiousness and branch *esprit de corps* (excellent things in themselves) to take too narrow a view and so quite unintentionally to delay the completion of the job.

The practical remedy for this has been found to be organised group working. What I mean is this. While research work, circuit design and traffic or financial studies and so on, connected with the Trunk Reorganisation Plan and the extension of Demand working, continue of course to be pursued in the ordinary way, each one by the specialist branch responsible for it, the detailed application of the results to each particular practical job is as far as possible assigned in the first instance to a group of individual officers, representing between them all the branches concerned, with one of them as chairman, who arranges the discussions and sees that agreed minutes are circulated, and so on. The agreed minutes on any point can quickly be submitted to higher authority when necessary, and in nearly all cases they can be acted on without delay—incidentally, of course, each member of the group can get guidance from his own chief orally at an early stage on

APPENDIX

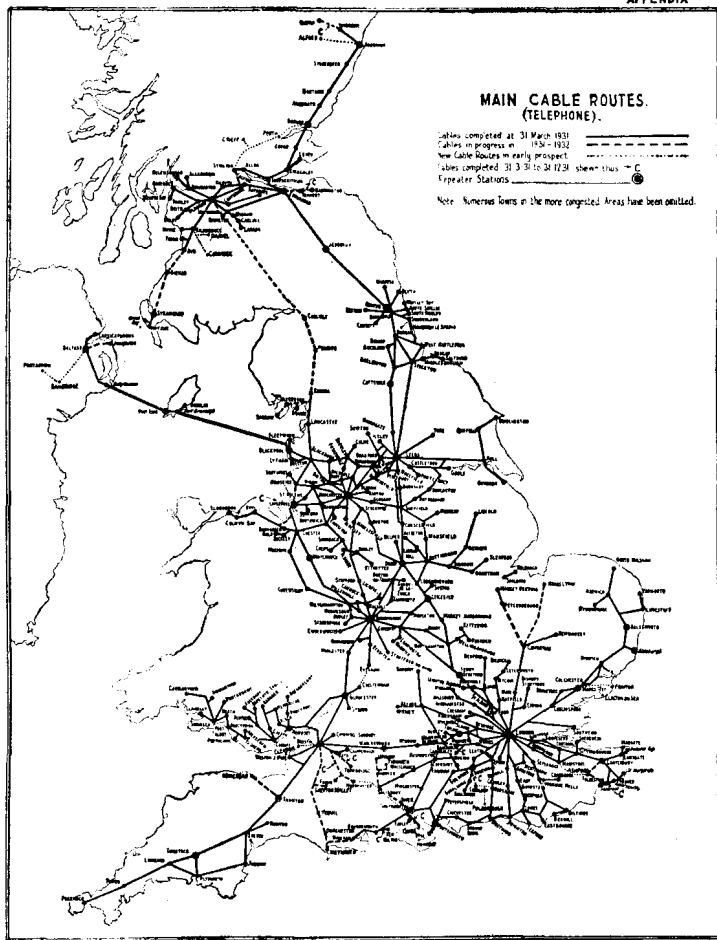


FIG. 6.

Plan—again at comparatively small cost, though additional repeaters are a material item—technical rearrangements which provide a number of groups of circuits with an attenuation loss of 2, 3 or 5 decibels.

Speaking generally, this, together with exchange equipment (of an entirely new design, which is as far as possible being standardised) already provided, or ordered for provision and installation in existing buildings during this calendar year, will enable us by the end of 1932 to give a substantial measure of Demand working with uniformly good transmission between

any point about which he may feel doubtful, or ask him to attend a meeting if some particularly knotty point is to come up, so that the group's recommendations can nearly always be approved without a discussion on paper. Moreover, the representation of any group can be varied from time to time as the early stages of its work are completed and new ones taken in hand—for example, local representatives sometimes come in at a later stage than Headquarters representatives.

It was this type of informal group organisation which produced the rapid results obtained last November, when the first stage of Demand working was opened from London to Birmingham; and the further extensions are being tackled on the same lines.

The co-ordination of the different pieces of work is in practice dealt with very similarly—for example, the preparation of preliminary programmes of dates for the introduction of Demand working on various routes, the co-ordination of arrangements for providing generally throughout the country particular facilities, like through clearing, and so on.

Fig. 7 shows the new Demand positions at Birmingham, not those in London now in use, but those which will come into use in a few weeks' time, when the Birmingham subscribers will get Demand working to London, Bristol and Manchester.

You will see that I am a whole-hogging believer in organised team working by means of groups and sub-groups. I have not called them committees and sub-committees because I have found that the word "committee" frightens some people. I fancy the word may suggest a picture of a sort of minor Royal Commission, which, after prolonged and solemn pontification, attended with all possible formalities, may be expected in a year or so to produce what is known as a "Report," commencing with an elaborate discussion of the precise scope and meaning of their "Terms of Reference," analysed from a quasi-legal point of view, and documented at the end with a number of more or less unreadable appendices—a Report from which a harassed Administration may be able to find excuses, or reasons, or even, if it is very lucky, justification, for doing what, in fact, it has already been doing all the time—namely, nothing. But I do assure you that this is not how the thing works in practice at all. Indeed, I do not see how a series of complicated and interlocking technical jobs, whether at Headquarters or locally, affecting a number of branches of a large organisation, can be pushed through at top speed and at the same time synchronised so that no one piece of work delays the others, in any other way than by *organised* oral discussion from the earliest stages. For what, after all, is the alternative? It is simply argument on paper, helped out from time to time, whenever it becomes clear that progress is too slow, by sporadic and *unorganised* oral discussion. If an attempt is made to begin by tackling this sort of detailed job on paper, an element of delay is introduced at the outset, because only one branch can have the papers in their complete form at any one time and the temptation is terrific for people, heavily loaded with work, who have not got up-to-date papers on the subject, to regard something else (on which the ball is in their court) as more urgent, and wait to begin thinking about the subject of the distant papers till these papers come round. One (ordinary) remedy for this is simultaneous working in the different branches in local papers based on extracts, and this works well for certain types of problems. But on an urgent job, when no branch has time enough to discuss the points unofficially with the other branches really thoroughly before committing their own views to writing and passing them on, it tends to crystallise the "branch" points of view separately, so that by the time the next stage is reached, when the general papers have been round to everybody, each branch is officially committed to a "departmental" view formed without a thorough knowledge of what the branches whose reports come afterwards really think on the matter. The last branch to deal with it, perhaps the administrative branch, can then only act at once at the cost of to some extent overruling all the others. In practice, under these conditions it does not act at once (hence another delay), but arranges a conference, which might just as well have been done at the outset, before the people attending it were committed personally—and, what is often worse, the branches which they represent committed officially—to views, ideal in themselves, but mutually inconsistent. Moreover, even apart from speed, I think the stimulus to resourcefulness and initiative which *regular* personal contact affords for everyone, and the practical convenience of everyone concerned in any branch having a file of mimeographed minutes showing the *agreed* and up-to-date views of experts on *all* the points in which he is interested, and also the stages to which the various parts of the work have got at any time (so that it is not necessary to call for papers on which somebody else is working, in order to find out) are probably enough in themselves to justify the time occupied in informal committee meetings. But it would be interesting to have other views in the discussion which will follow this paper. I am optimistic enough to hope that no one will dispute the general truth of the principle that the object of official *papers* is not to arrive at decisions, but to record them for action and reference.

I want now to say a few, very sketchy, words on mechanisation in the Inland Trunk Service. The aim of trunk mechanisation, as I have mentioned, is to handle as many trunk calls as possible, not fully automatically as in the local service, but by means of only one operator, furnished with the best possible mechanical aids for her work. I am not going to deal at all with the mechanical aids to controlling operators which form part of the Demand working scheme, and which are being put in as fast as circumstances permit (and that is, and will be, quite fast), in connexion with the application of that scheme. I am not going to deal with these because they are fully described in the other papers which I have cited. I only want to refer to a *further* step in mechanisation, namely, the provision of apparatus by which the controlling

operator can communicate directly with the *called* subscriber. The Demand plan will, of course, give her direct communication and through signalling with the *caller* on all inland calls, so that the further step of which I am speaking, where it is practicable, will enable the controlling operator, given full Demand working conditions, to do the whole of the operating herself. The further step involved is dialling or key-sending from zone and group centres over trunk routes into the distant local automatic network.

The history of this is rather curious. Although I have spoken of it as a *further* development of Demand working (and this is accurate in so far as the main trunk routes are concerned), dialling-in is, in fact, almost as old as automatic local service, which (at the incoming end) must, of course, precede it. As soon as the first big automatic exchange in this country was opened, at Leeds, 15 years ago, arrangements were made for the operators at a number of neighbouring trunk centres including, I think, Manchester and Sheffield, to dial in to Leeds subscribers; and such dialling-in has ever since been the normal policy all over the country, wherever conditions permit. So you see the trunk service has not been behind the local service in mechanisation! Nevertheless, the extension of dialling-in, *pari passu* with the growth of the local automatic networks, in recent years, proceeded under rather restrictive technical conditions. The reason for this is that the digit impulses are transmitted by direct current—the ordinary method, standard in local automatic networks—so that the post-war development, as the standard form of trunk line-plant, of repeated cables which will not carry direct current, drastically limited the progress of further trunk

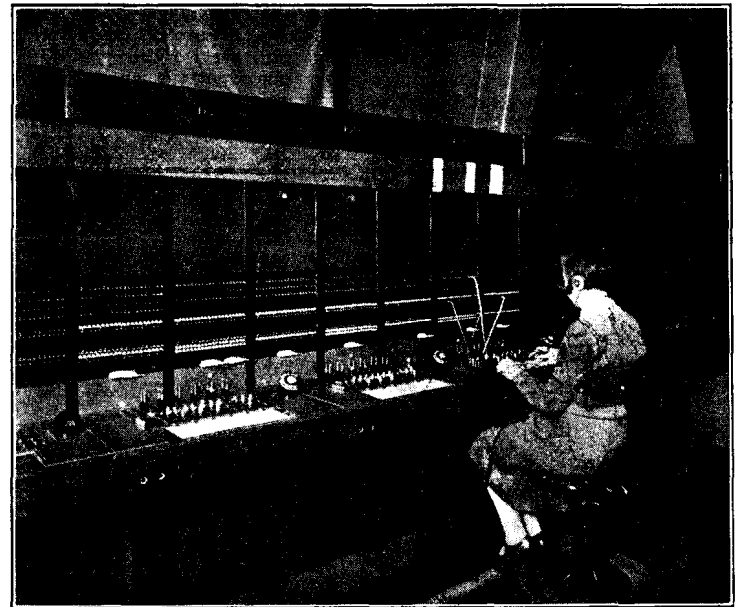


FIG. 7. THE NEW DEMAND POSITIONS AT BIRMINGHAM.

mechanisation. Fortunately the comparatively recent development of voice-frequency key sending (by means of code signals for the digits using 4 alternating-current frequencies within the voice range), makes key-sending available in principle over any circuit that will carry speech, that is to say, in principle over any trunk route whatever. (I understand that Strowger impulse dialling on a single voice-frequency tone is now also technically practicable.) Extensive experiments on the London-Leeds route have now definitely demonstrated the practicability under actual working conditions of key-sending by controlling operators over main trunk routes; and although this has not yet been brought into actual service (some further experiments to determine the best operating conditions are in hand), there is every likelihood of its becoming the standard method of operating over *direct* trunk routes—that is, for the large majority of long distance calls, as well as for a substantial proportion of shorter distance trunk calls. (Over indirect routes the system has economic limitations—at least with existing methods of automatic selection of idle trunks.) Incidentally, voice-frequency key-sending can very conveniently be associated with voice-frequency signalling, so as to give the controlling operator full "through supervision," even on calls over repeated cables.

It is also possible (I cannot put it higher at present) that these trunk developments will react in turn on the local service, by facilitating to some extent, from the economic point of view, the conversion of comparatively small group centres from manual to automatic *local* working, and thus help to fill up the economic gap which I understand, speaking in general terms, at present exists between the rural automatic exchanges on the one hand, and on the other hand the comparatively large local networks where automatic working, as a local service proposition, normally proves in.

Since the average length of an Inland non-local call in this country is only about 30 miles, and 88% of non-local calls are over distances of less than 50 miles, I am afraid of having to meet the criticism that I have taken

up a disproportionately large amount of time in talking about long-distance problems, that is to say, that I have neglected the problem of trunk service *within* one or other of the big industrial tracts of the country, in favour of the problem of trunk service between different industrial regions. I will try to anticipate this by saying something—again, I fear, very sketchy—about the *internal* trunk service of the London and South Eastern Area, which as I have mentioned, includes 950,000 out of our total of two million telephones.

This area has had for a long time what is in some ways the best trunk service in the country. Mr. Trayfoot's paper which I have cited, describes the early history of the London Toll Exchange, which gives, and has given for the last 9 years, the most important feature of demand working, that is to say, connexion while the calling subscriber remains at his telephone, to a substantial proportion of the non-local calls within the area of which I am speaking.

Since the London Toll Exchange was opened, there has been a persistent tendency to extend the area served by it, and therewith the benefits of this kind of service. By about 1927 or 1928, however, a point was reached at which the further extension of the London Toll Service by means of the provision of circuits on a no-delay (junction) basis was becoming uneconomic. The solution of Demand working was not at that time available; but long before that date it had been found possible to give a good many of its benefits, including the main one which I have mentioned, over comparatively short routes, without incurring the cost of line plant provision on a junction basis, by means of "special control"; and in 1928 a large extension of the Toll area was made on this basis. The area served by the London Toll Exchange, therefore, now comprises two parts, an inner circle with no-delay line-plant provision, and an outer ring with delay-basis line-plant provision but with no-delay service, save on exceptional occasions (for example, during an hour or two in the morning for a few weeks at the busiest season of the year in the case of some of the coastal resorts). The further extension of this outer ring was originally contemplated; but it is now probable that such places in the London Toll area, as it may not prove economical to serve by means of line-plant provided on a junction basis, will ultimately be transferred back to the trunk exchange, when Demand working can there be given them. (This, of course, will involve a further improvement, not a retrogression, in the quality of service which they get). At the same time, however, a process has been going on, partly in order to improve the service by providing better mechanical aids to the controlling operators, and partly to get over temporary accommodation difficulties, by which the Toll A Exchange is ceasing to *control* its calls; already all Toll calls outgoing from exchanges within the London Telephone Service area but outside the 5-mile circle are controlled at the originating local exchange; and we are pressing on as fast as possible with the transfer of control of the Toll A calls originated within the 5-mile circle (they are a substantial proportion of the total), to the local exchanges. On the auto-manual boards at exchanges within the 5-mile circle, segregated positions will be provided for controlling these calls, with full automatic aids to the operators. (By segregated, I mean, of course, separate from the O-level positions where the local assistance work is done.) At the manual exchanges, until their conversion to automatic, similar arrangements are being made whenever possible.

This will leave Toll A almost, if not entirely, a mere switching (or tandem) centre, as distinct from a controlling centre, so that the question of its automatization arises. This problem is now under consideration, together with the corresponding (but in some respects essentially different) problem of the automatization of Toll B—the latter, of course, deals only with incoming calls and is not a controlling centre at all.

I ought perhaps to mention that the development of the Toll exchanges has, up to now, been a good deal hampered by accommodation difficulties, particularly in the Carter Lane building at G.P.O. South. The completion, due at the end of this year (1932), of a large new building in Queen Victoria Street, to be known as "Faraday Building," (on the site of the old London Telephone Service headquarters), connected by bridges with the existing Carter Lane building, will, I hope, definitely remove this obstacle.

I have still said nothing about very short distance service, that is, about the numerically and financially important group of non-local calls over distances of less than, say, 15 miles. This is the large block of calls which lie on the borderline—a necessarily ill-defined borderline as I have mentioned—between the local service and the trunk service; and the problems they present are curiously difficult. Some of them depend on the policy of the local service on such questions as automatic multi-registration, and these are at present being considered by a committee on which both the local and the trunk services are represented. I am afraid I have nothing useful to say about them; but I wish to mention the fact that they are being tackled. This is also the position in regard to certain problems of trunk service peculiar to the rural areas.

That would be all I have to say, but for the fact that there is one aspect of the service which I have not yet mentioned, which is, I think, in the long run the most important of all—I mean the dual problem of personnel and public relations.

It is very difficult to say anything true about personnel problems generally without falling into platitudes. Those of you who have tried to read much of the voluminous current literature on business management, industrial psychology and so on, will know what I mean. I cannot hope to escape the general fate, but at least what I am going to say will be brief. If it seems too dogmatic, please put that down to the necessity of brevity.

The general management problem of personnel has four aspects. First, recruitment, that is, to attract the right people into the service; secondly,

training, that is to train these people adequately for their jobs; thirdly (broadly speaking) promotion, that is, to see that the right man or woman is in the right place at the right time; and, finally, incentive, or motivation if you prefer that word, that is, to ensure that everyone is working under conditions which tend to keep up and stimulate, and not to damp down or allow to die out, the natural keenness which, if the first three parts of the problem—recruitment, training, and promotion—have been solved, he or she will feel in what is essentially interesting work.

I have a word to say about each with reference to the trunk service. As to recruitment, we are very fortunate. As to training, this is a matter of getting the right balance between specialisation and breadth of experience. The recent tendency is to increase specialisation on trunk service problems. I think, both among engineers, traffic men and accountants (and also to some extent among exchange staff). This should have good results, provided the correlative to specialisation is not neglected, i.e., the diffusion of *general* knowledge of the lines on which other people are working, and of their difficulties. I have an impression that we are stronger in the matter of training for specific work than in the circulation of general information, though, of course, a lot is being done by the publication of the papers read before our Society and other similar Post Office societies, and of special Reports, such as that of the Committee of Traffic and Engineering officers which visited the U.S.A. in 1929 and of the Report of the Committee on Private Service Tariffs. In regard to the trunk service I should like, if I may, strongly to recommend any engineers and accountants and traffic men working on trunk service problems, to read, if they have not already done so, the papers to which I have referred—not only those which were given to their own Societies, but also those which were given by specialists in the other branches. I am inclined to think, also, that there may be room for a somewhat more definite and generally recognised demarcation between what is known in big business as "staff" and "line," that is, roughly, between advisory specialists, and people with executive responsibility; the latter may have expert knowledge, but the use they have to make of it is essentially different. Transferability between the two is good, but the change of outlook which it involves is sometimes difficult. The third and fourth problems, promotion and incentive, particularly the latter, solve themselves if, and only if, their importance is always kept in mind by everyone in regard to the staff under his or her immediate control.

Now as to public relations. This matter has two aspects; positively, what is known as "publicity"—the spreading of knowledge among the public of what the trunk service can do for them—and negatively (but that adverb must be read with the qualifications which I will mention later) the treatment of complaints from people who are dissatisfied with the service.

I hope I shall not be misunderstood when I say that I do not mean to try to deal at all with the question of publicity for the trunk service. It is extremely important and is receiving a lot of attention, but it can only be adequately treated as part of the general problem of telephone publicity by someone who knows more about that than I do. (In parenthesis, I have for an exactly similar reason left out altogether certain very important general financial problems affecting the inland trunk service.) I do, however, want to say a word about the treatment of complaints. I forget who it was—but I suspect it was an American telephone man—who said that every complaint represents potential good publicity; that is absolutely the right attitude. The first object to be aimed at in dealing with any complaint is to try, not only to satisfy the complainant in the sense of pacifying him, but to please him so much by the treatment he gets that he is converted from a dissatisfied subscriber into an active friend of the service; I mean, so that he will not only be *indisposed* to complain himself of any minor troubles which he may meet with again, but so that he will be disposed to discourage any of his friends from indulging in unreasonable criticism, by telling them, when they do, how satisfactory his experience of the service has been. I can say quite definitely that in practice this is very often far easier than it sounds. (It differs in that from most of our problems!) It is, of course, easier to do at an interview or by a telephone conversation than on paper, but it is frequently possible to bring it off even by a letter, provided the letter is written, not from the official point of view, but from the point of view of the man to whom it is addressed. This is true, of course, of letters in general; but it is specially important in the case of letters of reply to complaints. After all, the only object of a letter is to produce some kind of an impression on the person who reads it, and it is just as easy, with sufficient care, to produce the right impression as it is, by overlooking the reader's point of view, to produce the wrong one.

I suppose most of us, when we first read "Alice Through the Looking Glass," practised doing looking-glass writing. At first, you have to use an actual looking-glass, and to go slowly and carefully, but with practice, you will remember, one gets to be able to see at a glance what one's writing looks like from the point of view of the other fellow behind the glass, and can do it just as easily as if one was writing for one's own perusal. I leave the moral of this reflection to you. I hope no one will think that I am alluding to what the Civil Service Commissioners call "The Importance in the Public Service of Good Handwriting."

To get back to the trunk service, I think that, at the stage we have now reached, it is hardly possible to exaggerate the importance of paying active and unremitting attention to public relations. It is so important that, at the risk of getting still further into generalities, I am going to quote from a paper which does not specifically relate to the telephone service at all. It is by Mr. Carlill, of the Board of Trade, and was published in the April 1930 issue of "Public Administration," under the title "Administrative

Habits of Mind." "Red Tape," says Mr. Carlill, "is the application of a rule to the exception, and it is a malady to which any large organisation is prone." I do not mean to suggest that red tape in quantity is present in the inland trunk service; I do not think it is, but I have known cases in which we have been in danger of applying a rule to the exception. But to get back to Mr. Carlill. "Much of the criticism," he says, "that one generally hears and reads of Civil Service methods is due to the fact that the Civil Service is so bad at explaining what it is about We do not go out of our way to justify ourselves. . . . We want a little more practical psychology; we want to get the habit of putting ourselves in the other man's place. We do not always remember (what, I suppose, a politician or a business man never forgets) that we are dealing with human beings" (It is Mr. Carlill who is supposing). "The best of us will tend at times to regard a letter as a work of art and not a means of conveying something to somebody's mind. . . . It needs a certain effort to realise that what is familiar—indeed, transparently clear—to ourselves, is very often quite obscure to a member of the public and yet it ought not to be so difficult."

I cannot resist another quotation from Mr. Carlill bearing on the question of specialisation, on which I have just touched in this paper. "It is, to my mind," he says, "essential that the administrative worker should, as far as possible, try to understand the sort of principles on which the specialist worker thinks, even at the risk of displaying a certain amount of ignorant curiosity. I like to recall," goes on Mr. Carlill, "a saying of Lord Balfour's, that, while he had the greatest respect for experts, he had never come across one who was not the better for 20 minutes' cross-examination by a layman." Personally, by the way, I have never come across a layman who did not feel better after cross-examining an expert for 20 minutes, so I recommend the process in the hope that the benefit is mutual. The point, of course, is that, in dealing with the sort of practical questions which I have referred to, co-operation is nearly always necessary between several people who are each expert in different aspects of it; practically every one is a layman in respect of the work of some, at least, of the other people with whom he has to collaborate.

I am going to yield to the temptation to give you one more quotation—this time still further afield, since it is from a French novel. The author, I understand from a review of foreign books which was broadcast the other day by the B.B.C.,* was at one time a stationmaster, that is to say, an official, like ourselves, of a big public utility service. The scene is the railway goods yard of a fishing port; a train has to be made up in a hurry to take a heavy consignment of fresh fish to Paris, for the market. The stationmaster has ordered 30 trucks, but the shunters have got into difficulties, and after furious efforts, the train has to start short of trucks, leaving some of the consignment behind. The stationmaster is on the spot, and as the train is signalled out, he speaks sharply to the foreman of the goods yard—"disciplines him with a dry discourse." I translate literally:—

"All the same, he was a fine fellow, this foreman. He had been shunting trucks for fifteen years.

"This practical experience ill fitted him to meet the unexperimental criticism of an office man (*critique inexperimentale d'un homme de bureau*), to whom all things are represented by figures on a piece of paper. The habit of seeing nothing of realities but their image in figures (*figuration*), their statistics, makes the theoretician lose hold of the notion of the indocility of matter. He exacts the doing of things in measure with thoughts (*choses faites à mesure que pensées*), his orders carried out as quickly as they are given, without appreciating the difference between moving one's tongue to say '30 trucks,' and moving the 30 trucks, tare ten tons, total 300,000 kilogrammes.

" . . . The axles turned quietly. Climbing up on to a footboard, the stationmaster releases the foreman with a final menace: 'I will send you a memo.'

"For, in his mind, the end of things was not in matter but on paper, and all reality had to lead up finally to a written explanation for filing in the Registry.

"The foreman, disgusted at the idea of receiving the detailed Minute (*minutieux rapport*) ending with the formula '*Veuillez me fournir des explications*'—'Be good enough to furnish your explanation'—goes off, gripping his signalling-lamp, his soul full of maledictions.

"'I wore myself out trying. I failed. I have told him why three times. Now I have to tell him again in writing. *Quel métier!*—What a life!'"

Well, perhaps I seem to have got a long way from the subject of my paper. I wonder. "The formula 'Be good enough to furnish your explanation.'" That is quite a literal translation—and yet, one seems to have seen this "formula" before. One's mind goes back to Mr. Carlill's "practical psychology." One wonders whether it is only towards the public that we need to cultivate "the habit of putting ourselves in the other man's place." Can it be the case that psychology, like charity, begins at home? These things are all rather vague, perhaps, not easily handled, or satisfying to our minds, trained and accustomed as we are—and rightly so—to base conclusions on mathematics and statistics and accounts, "the figuration of realities." What Mr. Carlill calls "practical psychology" is not really science, I agree. But yet, I think, it is more than mere rhetoric. It seems, somehow, to give scope for constructive thought. Perhaps, after all, it may be worth while, even for busy people immersed in the concrete problems of a scientific profession, to make time to give it that thought.

* See the *Listener* of Jan. 6, 1932.

I have, I hope, made it clear that the management of the inland trunk service is essentially a matter of team-work. That is also true of the writing of this paper; there is practically nothing in it which I have not obtained directly from the sayings or writings, official or otherwise, of my colleagues. It would take too long to mention everybody who has been kind enough to help, but I do want specially to thank Mr. Gunston, whom you all know as a telephone statistician. He has prepared the diagrams—the Engineer-in-Chief's office was good enough to prepare two of the maps—and also got out for me the statistics on which they are based. I am not going to apologise to you—although, perhaps, I ought to apologise to him—for not doing this work myself, because Mr. Gunston has done it much better than I should have. I should like also to mention that Mr. Hart has been good enough to let me consult him about the future prospects of research in transmission problems. I hope I have "transmitted" what he told me without undue "distortion."

I have one final word. It is dogmatic, and this time intentionally so. It is this. There is no reason, so far as I know (and I think I *do* know), there is no financial reason, no engineering reason, no reason connected with traffic, operating or personnel, there is, in fact, no reason at all why, within a very few years, the inland trunk service of this country should not be recognised as a model public service of its kind. The optimum conditions of efficiency are here: it is for us all to see, and to keep on seeing, that they are used.

RETIRED OFFICERS' (C.T.O.) OBITUARIES.

"God's finger touched them and they slept."

SINCE the very happy gathering of Retired Officers of the C.T.O., on Jan. 13 last, three have since passed over, and of these two were actually present on the above-mentioned occasion.

Strangely enough, Mr. Rowland (Bob) Howle was actually travelling homewards from this function, when he collapsed and died. Those who sat in his vicinity during the function, as did the present writer, noticed nothing that in any way presaged the tragic event of his last and 65th year, he having retired in 1924 with the rank of Assistant Superintendent. "Bob" was an unassuming personality, which included a high sense of duty towards both the Department and those under his chargeship. He joined the Telegraph Service in 1884.

There was an impressive funeral service at the City of London Cemetery, Little Ilford, at which the following friends and colleagues were present:—Messrs. W. Barry, R. Comben, G. A. Costello, M.B.E., H. T. Elvey, W. S. Fisher, R. A. Furness, R. Hurley, W. E. Jones, C. S. Keen, A. W. P. Ludlow, G. Meyer, J. F. Miller, A. Nettle, S. F. Pace, Herbert Parker, J. Rees, J. E. Sayers, W. Turner, E. Veale, A. A. Watts, A. E. Wheeler, and S. J. Wheeler.

Twelve days later, on Jan. 26, Mr. H. A. Bolton, Asst. Superintendent, C.T.O., who was retired prematurely in 1927 at the age of 59 years owing to rheumatic trouble, and who was also present at the January gathering, also "fell upon sleep" after but a few hours of medical attention. Many in their recollections of Harry Bolton will recall Mrs. H. Bolton, and will associate themselves with the kindest and sincerest expressions of sympathy for their "Met," colleague of years ago, in the person of Clara Evans. He also had given nothing to indicate the possibility of approaching ill-health. On the contrary, he was very much "his normal self," in vivacity and good humour. In fact he afterwards related to those at home how much he had enjoyed meeting his old friends and colleagues. Following on an inquest, the medical verdict was "death due to *Angina pectoris*." The interment took place at Bandon Hill Cemetery, Wallington, Surrey, on Jan. 29th last. There followed to the grave, from the C.T.O., Messrs. H. Andrews and J. Davis of the present staff, and Messrs. W. G. Godden, C. W. Smith, and F. W. Turpin, retired. Touching appreciation of the chaplet, sent from his old colleagues, has since been received from Mrs. Bolton and family. Thus, then, we parted from our colleague, a man of sterling worth, of whom Nature might stand up and say, "Here is a Man"!

Though not present at the January meeting—he was in his eightieth year—and though known only to a comparatively smaller circle of the C.T.O., the decease of Mr. Edwin Gooding, Overseer of the Cable Room, occurred two days later, on Jan. 28, at his home in Ilford, and will be deeply regretted by all those of his old colleagues who may have survived him. To write the history of Gooding is to go back to the very early days of Anglo-Continental Telegraphy, for it was in 1866 that our departed friend joined the Submarine Telegraph Co., which company was taken over by the British Post Office twenty-three years later. All foreign circuits in the 'sixties were Morse, and during the Franco-Prussian war of 1870, Mr. Gooding was regularly allocated to the London—Havre circuit, then the main Anglo-French communication.

To Mr. E. Gooding—himself Asst. Superintendent in the Cable Room, who maintains so well the prestige of his father—and his family, there is the double consolation in the fact of the peaceful passing over of one who had worthily lived out a life well beyond the normally allotted span, and whose good-humour and blunt sincerity were outstanding features of his stewardship. He was laid to rest in the family grave on Feb. 1 last in the City of London Cemetery, Ilford. J. J. T.

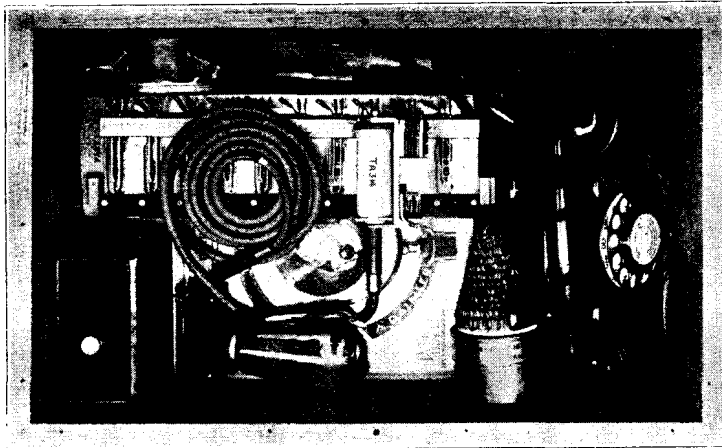
FARADAY BUILDING.

THE LORD MAYOR OF LONDON PRAISES THE TELEPHONE SERVICE.

An interesting Ceremony took place on Feb. 10 when, in the presence of a distinguished assembly, the Lord Mayor of London, Sir Maurice Jenks, laid the Foundation Stone of the new Telephone Building in Queen Victoria Street, which is being erected to augment the accommodation of the Trunk, Toll, Central, and City Telephone Exchanges, and will be known as Faraday Building.

The Lord Mayor was met by Sir Kingsley Wood, the Postmaster-General. After the singing of the National Anthem the Postmaster-General addressed the company and called upon the Lord Mayor to lay the Foundation Stone.

The time-honoured practice of depositing in a cavity below the stone some evidence relating to the building was followed,



THE CASKET, WITH APPARATUS *in situ*.

Included are hand-microphone with automatic dial; subscriber's instrument protector; strip of jacks with plugs and cord; standard relay; 4 cable samples; thermionic valve for repeater stations; and London Telephone Directory (the 2 sections). The casket was filled with nitrogen and then hermetically sealed.

and in this case the evidence was provided by a sealed box containing sections of modern telephone cables, instruments, a Telephone Directory, &c.

The Lord Mayor spread the mortar with a Silver Trowel handed to him by the First Commissioner of Works, and after the Assistant Postmaster-General had checked the level of the Stone and the Postmaster-General, followed by the Lord Mayor, had struck the Stone with a maul, the Lord Mayor declared the Stone to be well and truly laid.

After appropriate prayers had been offered by the Rt. Rev. the Lord Bishop of London, the Postmaster-General proposed a vote of thanks to the Lord Mayor who, in his reply, said a number of nice things about the Telephone Service. It was especially gratifying to hear from his lips that there had been a very definite improvement in the service and that in addition to the advantages offered by the Long Distance and Overseas Telephone Services, he personally appreciated the advantages afforded by the London Toll Service.

After the Stone Laying Ceremony, the company left for the Central Telegraph Office. On the way the Lord Mayor inspected a Guard of Honour provided by the Post Office Rifles and also detachments of the St. John Ambulance Brigade (London Post Office Corps); London Postmen; Post Office Special Constabulary

Reserve; Post Office Headquarters Boy Messengers; and the Lines of Communication Signals Supplementary Reserve.

On the Third Floor, Central Telegraph Office, an attractive Exhibition of Telegraph and Telephone apparatus had been provided, and there was no doubt about the widespread interest



THE LORD MAYOR OF LONDON LAYING THE FOUNDATION STONE.

Photo by Courtesy of "Sports & General Press Agency."

which it evoked on the part of the Lord Mayor and his party and of all the assembled guests.

An interesting interlude was provided by a conversation between Sir Maurice Jenks and the Mayor of Cape Town which, by the aid of loudspeakers, could be heard by all visitors to the Exhibition.



THE LORD MAYOR OF LONDON SPEAKING TO THE BURGOMASTER OF CAPE TOWN.

Photo by Courtesy of "Sports & General Press Agency."

Tea was served most efficiently and tastefully by the Central Telegraph staff, and in conclusion, Mr. E. T. Campbell, Parliamentary Private Secretary to the Postmaster-General, expressed the delight of all associated with the Post Office that the Lord Mayor had done them the honour of coming among them and seeing for himself how the telegraph and telephone services were being handled.

M. C. P.

TELEGRAPHIC MEMORABILIA.

It is not too much to say that the *T. and T. Journal* is in a full sense an international journal, for the present writer is confident in the assertion that all or nearly all the Telegraph and Telephone Administrations of the world subscribe for or are supplied with a monthly copy. It would therefore appear appropriate that the inauguration of the A.P.A. (All Peoples' Association), Association de tous les peuples, Verein Aller Völker, at present conducted from London, should be permitted just a few lines in the valuable space of our own *Journal*. The objects of the association may be said to be (a) to seek to remove prejudice and misunderstanding between the peoples of the world, (b) to promote friendship among them, and (c) to co-operate with every organisation aiming at promoting international amity. Among the presidents and vice-presidents of the British Branch of the Association may be mentioned the Rt. Hon. Viscount Cecil, Viscount Astor, the Marquis of Londonderry, K.G., John Galsworthy, Sir Josiah Stamp, G.B.E., Miss A. Ruth Fry, and the Archbishop of York. It should interest telegraphists and telephonists, specially those associated with the Anglo-Foreign Telegraph and Telephone services to learn that a small club will be opened at 99, Gower Street, London (the British headquarters) for the use of members, and that already on two evenings each month, a Language Meeting is held at the Coventry Restaurant, where one may meet and converse with French, German, and several representatives of other credited European natives at the nominal cost of a few pence. Further particulars are obtainable by application to the Hon. Sec., Mr. E. D. W. Chaplin, 99, Gower Street, W.C.1. *Telephone*: Museum 1721 (5 lines). It may be added that, Scotland well to the fore, has already opened a branch in Edinburgh.

A Judge and the Telephone.—Maybe this little item may be considered as "misplaced" in the Telegraphic Memorabilia columns, but lest our telephone friends should feel too modest at the suggestion, publicity is offered herewith. It appears that Judge Crawford, at the Edmonton County Court, recently suggested that a monument should be erected in the Temple (London) by the barristers, as an expression of gratitude to the Post Office. This was at the end of a short speech in connexion with a case which he had just dealt with, which speech opened thus: "Ever since the introduction of the telephone it has been the cause of much litigation. Telephoned conversations and the different interpretations placed on them have caused endless litigation and, I suppose, have been a fruitful source of income to barristers and solicitors."

German Long-Distance Telephone and Telegraph Cables.—No doubt a number of the readers of the *T. and T. Journal* are regular readers of the *Electrical Review*, and will have carefully perused an article in No. 2828 (Feb. 5th) of our esteemed contemporary, with considerable profit. There are others, students, for example, who though not regular subscribers would undoubtedly wish to study an article on the above subject by Herr Paul Friek of the Reichspostamt on pages 187-8. They will find quite a small mine of information therein.

Personal.—The retirement of Mr. R. J. Lawson, M.I.E.E., is noted in certain of the technical press. Mr. Lawson joined the Post Office as a messenger in Dundee in 1885 and has thus 46 years of service to his credit. In 1900 he transferred to the E.-in-C.'s Department and was appointed clerk in the Superintending Engineer's Office in Glasgow, two years afterwards he was appointed Sub-Engineer in the Metropolitan District, London, and ten years later saw him as a second class engineer, and well across the border at Aberdeen. Nine months later he appeared in Dundee as Asst. Engineer. Mr. Lawson was chairman of the Dundee Sub-centre of the Electrical Engineers in 1929. His departure was suitably marked by the presentation of an "all-mains" wireless set.

Congratulations to M. Fis, Directeur de l'exploitation telegraphique and M. Lange, Directeur de l'exploitation telephonique of the French Administrations, who have nominated Members of the Superior Council of Post, Telegraphs and Telephones for two years.

It has been my great pleasure to read an appreciation, from a German point of view, of the character and services rendered to international telegraphy by the British Post Office Engineering Department, in the person of one of its Staff Engineers, Lt.-Col. A. C. Booth, recently retired. The writer of the eulogium in "Telegraphen-und-Fernsprech-Technik" is himself fully qualified to judge, for his personal experience of and contact with Colonel Booth is spread over a couple of decades. Were it not for sparing the blushes of the gallant officer one would fain quote in full, yet none would deny the accuracy of the assessment.

ALBANIA.—*World-Radio* states that an American concern has submitted plans to the Government for the erection of a high-power broadcasting station. It appears that transmission has been proceeding for sometime between a station at Zevoli and one at Vallona. Originally using frequencies of 662 and 652 kc. respectively, that of Zevoli has now been reduced to 645 kc. and that of Vallona to 622 kc. in order to obviate interference with other stations.

AUSTRALIA.—Mr. E. T. Fisk, of the Amalgamated Wireless (Australasia) Ltd., is reported to have stated that the amount actually saved by the public through using the Beam wireless service from its inception in 1927 to 1931 for telegrams to and from the United Kingdom alone, amounted to nearly £650,000. *New Broadcasting Station*.—The Postal Department has just opened what is described as "the most modern and powerful broadcasting station in Australia," at Corowa, N.S.W. Its wavelength is 536 metres, the longest of any in the Commonwealth. The service range is about 90 miles. The Yalbourn electricity works supply the power. *Melbourne Wireless Exhibition*.—The Victoria Radio Association has decided to organise another wireless exhibition. It is to be held in the Town Hall from April 7 to April 15. It will be recalled that such an exhibition was held there last May. *On the B.B.C. model*!—The Australian Federal Cabinet has decided to transfer the control of broadcasting programmes from the Australian Broadcasting Company to a Commission, which will eventually have powers similar to those of the B.B.C.

CANADA.—*Speeding up the Imperial Cables*.—*The Electrical Review* reports that steps have recently been taken by I. and I. Communications Ltd., to speed up cable communication between Great Britain and Canada. The company is now working on the regenerator system, two direct cable circuits between London and Montreal, and is able to offer a very expeditious and reliable service with Canada. Over this route, formerly, messages had to pass through relays, either at Fayal or Harbour Grace, Newfoundland, and then be retransmitted at Halifax to Montreal. The "Regenerator" has eliminated the human element at intermediate stages, and transmission rendered automatic between London and Montreal. *Radio Nationalisation*.—Reuter's Ottawa agency informs us that the Government is to consider the demands presented by the Canadian Radio League and its supporters for the improvement of the quality and quantity of broadcasting in Canada. This decision was announced on Feb. 9 by the Minister of Marine upon receipt of information that the Judicial Council had confirmed the Dominion Government's authority to control radio throughout the country. The Province of Quebec, in opposing the Dominion's claim to this authority, had appealed to the Privy Council. The nationalisation of the radio services of Canada was recommended by a Royal Commission in 1929.

A Hold-up of Teletype Service.—Commercial Teletype services appear to be taboo, for a time at least, in Canada. Neither the Bell Telephone Company or the Railway Telegraph Company will take any steps towards development of this service, on account

of "Business depression and the uncertainty which did not appear to warrant it, also the service not considered essential." It is understood that the two companies unitedly came to this conclusion.

EAST AFRICA.—*Giraffes and overhead wires.*—Reuter's Nairobi Agency, reporting on the linking up of Mombasa and Nairobi by overhead lines, for telephone and or telegraph communication, a connexion which took fifteen months to build, and the operation of which for telephone purposes was inaugurated on the 2nd of last month—records the fact that the overhead standards had to be quite a few feet higher than the usual regulation "to avoid the possibility of the wires being carried away by giraffes!"

GERMANY.—Despite a decline in every other branch of revenue, the Ministry of Posts and Telegraphs has had the pleasure of announcing that the number of licensed radio listeners is now fully four millions, including 275,000 free licences issued to blind people, hospitals, &c. The cost of a German licence is sixpence per week. 60% of the revenue is retained by the Ministry and the remainder pays for the cost of broadcasting. The Berlin correspondent of the London *Observer*, in referring to piracy, states that "pirates" are few, as such miscreants, in addition to being fined, risk confiscation of their receiving sets. "Pirates" are few, and he adds, "common informers" are very active!

GREAT BRITAIN.—*World-wide I. E. E. graduates.*—A supplementary list of candidates who sat for the Institution of Electrical Engineers graduates examination abroad in November last shows the following interesting results. Forty-seven passed the whole examination, 13 passed Part I only, and 10 passed Part II only. One candidate was examined in Brazil, one at Hong Kong, two in S. Australia, three in Ceylon, eight in S. Africa, 18 in New Zealand, and 37 in India.

Telegraphs, Telephones and Broadcasting.—The following particulars are excerpted from a recent White Paper covering twelve months of 1930-31. Telegraphs, a deficit of £1,005,669: preceding 12 months deficit £800,312. Telephones a surplus of £343,219, a decrease of £169,995. Telegraphs income decreased 10.38%. Telephones increased 4.35%. Telegraphs expenditure fell 5.37%. Telephones increased 5.25. Decrease in telegraph operating income for 1930 not entirely due to decline in telegraph business. The accounts for 1929 included contribution of £171,944 in respect of Beam wireless and Imperial cables, operated by Post Office up to September, 1929, as an agency service. *Broadcasting.*—Wireless licences receipts £1,812,171, less 12% for management and contribution to cost of conversion of "spark" wireless station, left total of £1,581,056. Payment to B.B.C. £1,069,648. Balance to Exchequer £511,408. *Oscillators Beware!*—There were 4,475,000 broadcast radio receiving licences in force in Great Britain and Northern Ireland, an increase of nearly one million in 12 months. A small number of licences whose holders have been found guilty of persistent oscillation have been cancelled! *Television Developments.*—An interesting Television experiment was made on Feb. 1 last by a party of radio and television experts on a moving train of the L.N.E.R. by means of the normal television transmission broadcast through Brookman's Park B.B.C. station by means of the Baird Company's process. Though the train reached a speed of 70 miles per hour between Sandy and Huntingdon, the dancer at the studio at Long Acre could still be seen. The *Daily Telegraph* remarks that "this is the first time that television broadcast by wireless has been received on a rapidly moving railway train, no experiments of this nature having been tried elsewhere in the world. *And yet more Television!*—The same reliable daily newspaper recently reported that "a new agreement between the B.B.C. and the Baird Television Company regarding television transmission by the Baird process, was under consideration." Other interesting reports were mentioned, which having no sign of confirmation must for the moment be treated with caution. *A New Wireless Beacon.*—A new type of wireless directional beacon

is to be erected at the London Air Port, Croydon, states the *Electrical Review*, by the Marconi Company to the order of the Air Ministry. The apparatus is a visual course indicator and will act as an automatic guide to aircraft approaching the aerodrome on the Continental route. The special lightweight receiver dial has a black background on which appear two vertical white lines. If the aircraft deviates to either side of the correct course, the white line on that side of the dial increases in length and the white line on the other decreases.

INDIA.—Professor Mitra, of the Calcutta University, says the special Indian correspondent of the *Electrical Review*, before the Indian Science Congress, has described the results of his investigations regarding the estimation of the height of the conducting radio atmosphere in Bengal. The height has been found to vary between 45 miles in the evening to 60 miles in the early morning, heights which are lower by about 30% than those found in England. **IRISH FREE STATE.**—The firm of Brown, Boveri Co. have recently received the order for the new Athlone high-power broadcast transmitting station high-voltage d.c. plant consisting of two 230-kw. 12,000-v. rectifiers, and a rectifier transformer for regulating the d.c. voltage between 6,000 and 12,000 v. **SOUTH AFRICA.**—*The Changes of Time.*—Kodak House, Shortmarket Street, Cape Town, was previously the home of the Wireless Telegraph Co. The latter operated the Beam service but was amalgamated with the Eastern Cable Co. Now the Overseas Communications Co. of South Africa has moved its headquarters into the same Kodak House, where the new instrument room occupies the entire third floor of that building. **U.S.A. Budget Proposals.**—Among the many proposals submitted to congress with a view to increasing revenue are mentioned special taxes on telephone calls, telegrams, cable messages, and broadcast wireless receivers. *New Submarine Cable.*—A newly designed submarine cable has recently been laid between Key West and Havana, says the *Electrical Review*, in order to provide more telephone (and telegraph) facilities between the United States and Cuba. The cable has a single central conductor and a concentric tape return, and it is insulated with "paragutta." Three carrier telephone channels are available at present, but the use of a wider frequency range would furnish additional channels. Thus, if the ultimate capacity were six telephone channels, two of them could be used for telegraphy. The cable would then carry simultaneously a total of four telephone and twenty-four or more two-way telegraph messages. *Broadcasting.*—According to the U.S. Census Bureau the number of broadcast radio receiving sets in use on April 1, 1930, was 12,563,000. The Columbia organisation estimates that since that date about 4,750,000 sets have been sold to people who did not previously possess receivers. The Squire wired-wireless "Neophone" system is to be used for distributing broadcast radio programmes in Cleveland. Superimposed upon 60-cycle electricity distribution network, there will be a 13-kc. carrier current which will be stepped up in multiples of 13 to deliver three separate programmes at frequencies of 26, 39, and 52 kc. simultaneously into the homes of subscribers, who will simply plug their reproducers into the ordinary lighting sockets.

Memo for the respected Editor of the "T. and T. Age."—The announcement that "Sir Kingsley Wood is the new Postmaster-General in Great Britain," is perfectly correct, but the statement which follows in your January issue that "the British Post Office supervises all telephone and telegraph communications within the Empire" is not quite so solid a fact!

The vast Universe.—"The apparent vastness and emptiness of the universe and our own insignificant size therein, need cause us neither bewilderment or concern. We are not terrified by the sizes of the structures which our own thoughts create, nor by those that others imagine and describe to us."—"The Mysterious Universe," J. H. JEANS.

J. J. T.

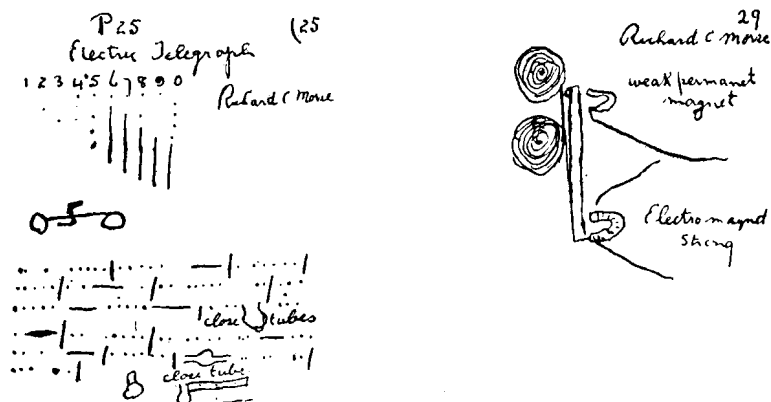
MORSE OR STEINHEIL ?

BY ROBERT FILLIATRE (*Editor of "Le Relais."*)

(The following interesting article, translated from the French is published for our English speaking readers without comment, except to express the sincerest thanks for the privilege of reproduction in extenso.—J. J. T.)

WE telegraphists all know that the electric telegraph was not the work of one day or one man, yet by a very large number of the public the inventor of this means of communication is none other than Samuel Morse! Quite recently, too, we have read in a professional journal, an Australian contemporary, that the electric telegraph was spontaneously invented by Morse during his return to the United States on board the packet-boat *Le Sully*. Samuel Morse, having had conversations with various personalities on the boat, had been dreaming of the immensity of the ocean when, at once, by one single glimpse, he conceived that marvel which constitutes the electrical telegraph.

Such manner and method of presenting facts gives something of a legendary and fanciful air to an invention which, so far as the young generation is concerned is almost in the domain of the



TWO PAGES FROM THE NOTEBOOK OF SAMUEL MORSE.

The figures are taken from the *Australian Postal Clerk*, and are reproduced from the pages of *Le Relais* of January.

pre-historic. It is about 100 years ago that Samuel Morse, while homeward bound to the United States on the *Sully*, discussed the latest scientific discoveries with Dr. Charles F. Jackson of Boston, and amongst other things the conversation turned on the electro magnet. These conversations determined Morse to experiment later, but the evolution of the electric telegraph should not have been presented to us in so abridged a manner, that it almost looks like something in the nature of spontaneous generation!

We have no intention whatever of depriving Morse of any of his deserts, but it is not without interest to throw a rapid glance over the actual history of the electric telegraph in order to gauge the merits of everyone concerned. We shall then see once more, that, generally speaking, big discoveries are made little by little, that they are the fruit of the collaboration actual or unconscious of several persons. Each one brings his stone to the edifice, and he who finishes his attempts by attaching his own name to it all, is not always the one who begins it nor he who finishes it.

Samuel Finley Morse was born at Charleston (Mass.) in 1791. The eldest of three brothers, he was encouraged by his father to follow his artistic bent as a painter. Morse was therefore above

everything a painter and exhibited his first picture in 1813. The diploma of Professor of Literature and Design of the New York University bestowed upon him was a honorary one. He often went to Europe to copy pictures, and it was during one of these voyages that he found himself on board the *Sully*. Now Dr. Jackson, already mentioned as travelling on the same boat, had been present at the Poulet Conference in Paris on "The electro-magnet." Morse was amazed and unceasingly returned to the conversation on the subject. It was thus that the personalities present came to mention the possibilities of transmitting signals by utilising the phenomena of electro-magnets.

These talks and discussions took place between the 8th and 15th November, 1832. They caused Morse to think deeply. In 1835, after various trials of electro chemical telegraphy, he made some experiments with electro-magnetic telegraphy which gave minus results. Two years later, however, he received some information on certain work done in these directions, amongst others, by Wheatstone and Steinheil. An article then appeared in America on the work of Steinheil declaring that the electric telegraph had been discovered, by which announcement Morse was deeply moved. One of the two brothers of Morse was editor of an American journal, and through this medium it was made known that it was he, Samuel Morse, who was the inventor of the electric telegraph, and that five years before he had conceived the general idea of it on board the *Sully*. This particular article had one result—numbers of people wished to see this electric telegraph invented by Morse, and among other visitors arrived one of the two who, subsequently became his special collaborators—Alfred Vail! In September, 1837, aided by Gale and Alfred Vail, Morse experimented with certain apparatus of which the results were not particularly brilliant, but which, however, did not hinder Samuel Morse from pretending that he, Morse, was the only, the veritable, inventor of the electric telegraph. This appeared in a letter which he sent on Feb. 1, 1838 to the captain of the *Sully*, recalling his famous voyage! He even insisted in affirming that all the other European systems were based on different principles, and without any exception were invented after his own.

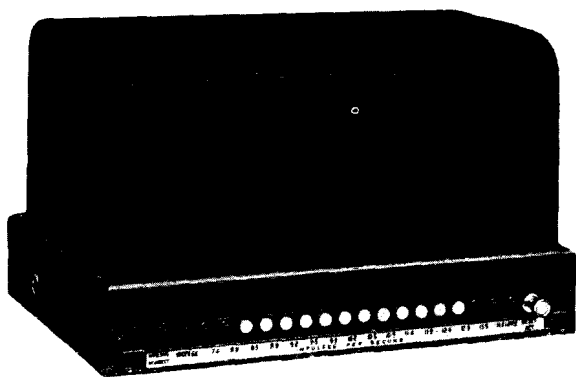
This obstinacy to endeavour to maintain that he was the first inventor of the electric telegraph is not founded on facts, but is so well incrustated little by little that for many folk the Morse system was certainly the first, and that it still survived in its initial principle.

We will not go back as far as Chappé, who, as everyone admits had first thought of electricity for long-distance communication. He was a fore-runner, nothing more, but it must be said that at that period electricity was much less known than in the days of Morse. We will not insist even upon the experiments of Lomond to establish a system of telegraphy with a pendulum, experiments which date back to 1787. But in going back no farther than 1810, the year when Morse graduated at Yale University, it was at Munich, the home of Sommering, that the first galvanic telegraph known actually worked. Schilling, twelve years before Morse, constructed an electro-magnetic telegraph which was exhibited at Bonn and then at Heidelberg, and was eventually introduced into England by Cooke. Another telegraph, constructed on the same system as that of Schilling, worked over a wire 1¼ miles long in July 1837. This was forty-one days before the none too favourable trial of Morse in September, 1837.

At that period the experimenters were numerous and their results overburdening. The Morse system, such as we know it in its simple form to-day, found the outline, the framework of that form, thanks to the brothers Vail. The first line established in the United States was finished in 1844 and this crowned the efforts of Morse himself, who in spite of all the foregoing, is not to be despised. What we have to remember in the history of Samuel Morse is that he was not fitted for the association of his name with an electrical discovery. It would rather appear that he should have remained in the artistic domain of his first love! Certainly he knew how to follow an idea, which in spite of all may be called clever—seeing what befell at the time of the conversations on board the *Sully*.

G.E.C.

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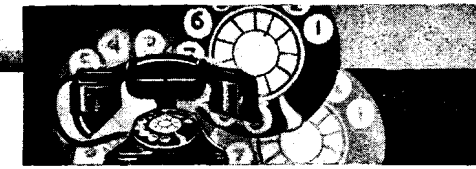
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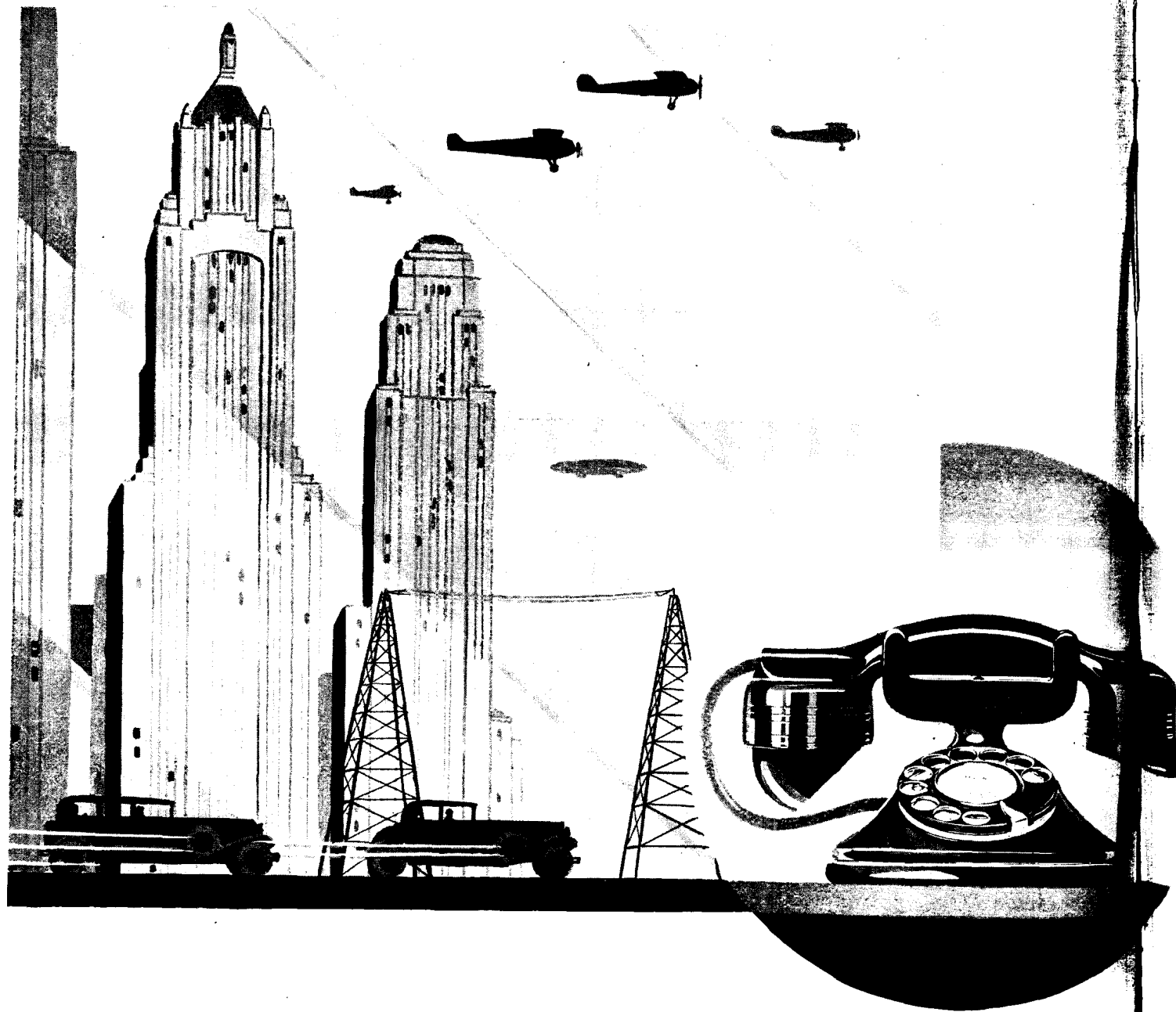
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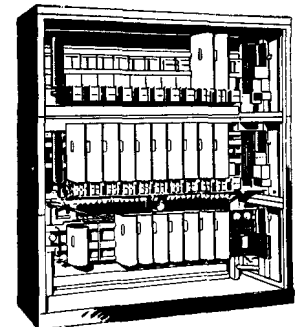
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LONDON ENGINEERING DISTRICT NOTES.

Hampstead Automatic Exchange.

THE new Hampstead Automatic Exchange was brought into service on Saturday, Jan. 23, at 1.30 p.m., by the transfer of over 5,000 lines from the old manual exchange, which is now under process of recovery.

The equipment, which is housed in an imposing building in Finchley Road, one of the main arteries of North West London, was installed by Messrs. Ericsson Telephones Ltd., and is of the old double-sided rack type, Hampstead being one of the last few exchanges to be fitted with this kind of apparatus. The initial capacity is 6,730 and the ultimate 10,000.

This transfer is the largest effected in London since the opening of Holborn in November, 1927, and the successful nature of the operations can be gauged by the fact that less than 20 faults were found on the post-transfer engineering test of subscribers' lines.

A total of 870 new junctions was also brought into service at the same time.

A Public Demonstration Set was installed on the Exchange premises for the education and instruction of subscribers. Largely owing to the favourable position of the set in premises in the main road a considerable number of subscribers visited the demonstration and evinced great interest in the new method of working.

Association Football: L.E.D. Reach the Semi-Final.

By virtue of a splendid win at Reading on the 20th, L.E.D. have reached the semi-final of the Civil Service Challenge Cup. The L.E.D. Team gave a splendid display of football and the score 6-0 does not fully represent their superiority, which, but for the splendid exhibition by the Reading goalkeeper, would have easily reached double figures.

Team: Donegan (XW), Lever (XSW), Finall (INE), Toleman (INE), Maris (XCY), Maguire (N.P.), Harris (C.P.), Smith (XCT), Pulling (XN), Brocklesby (ISW), Trimmer (ICY).

A great encouragement to the team was the number of supporters who accompanied them to Reading—four charabanc-loads departed from London—as was also the welcome and hospitality extended to them at Reading before and after the match.

Arrangements had been made by our Postal colleagues for an excellent tea to be prepared for us at the conclusion of which the Chief Superintendent made a very neat and happily-phrased speech, and confirmed the welcome to all the London visitors. He complimented us on our success in the tie, and hoped that, at last, we should have the pleasure of lifting the Cup. Mr. Ridd, our Chairman, made a felicitous little speech in reply.

Semi-Final Draw.—L.E.D. are drawn against the Inland Revenue in the C.S. Cup Semi-Final. The match will be played at Chiswick on Feb. 24. Kick-off 3.45 p.m. Admission 6d.

The next match arranged for the representative team is against Brentford on Feb. 17 at Griffin Park. Kick-off 3.30 p.m.

Team: Fudge (INE), Finall (INE), Punchard (ICY), Toleman (INE), Maris (XCY), Maguire (NP), Harris (CP), Smith (XCT), W. Codling (XCT), Brocklesby (ISW), and Trimmer (ICY).

A charity match in aid of the Sutton Hospital will be played on the Sutton United ground on Mar. 9. Admission will be 6d. Stand 6d. extra. Kick-off 3.30 p.m.

Athletics.

The L.E.D. finished 5th in the London Business Houses A.S.A. Cross Country Championship.

C. W. S. Tolley (I.S.W.) finished 6th.

Swimming: L.E.D. Win Service Water Polo Championship.

Drawn against Buckingham (S.W.D.O.) in the Final replayed tie on Jan. 19, L.E.D. put up a brilliant performance in beating the very strong Bucks team by 2 goals to 1. Hunter (ICY) scored in the 1st half and Crow (INE) in the 2nd. Brenton (ICT) at half was brilliant. Crow, the strongest shot in the Service, was rather erratic at centre, missing many excellent chances, but was a continual worry to the "Postmen." Allen (ICT) in goal and Broadley (XNW) and Smith (ICT) at back were sound. Hunter and Thompson (ICT) in the wing forward positions were fast and with Crow completed a strong forward line.

Social.

The last dance of the Season will be held at the Princes Hall, Kennington Road, on Saturday, Mar. 12. All enquiries for tickets should be addressed to Mr. E. C. Durham, Hop 8,000.

Chess.

So far this season our first team have had an indifferent season in Division II of the Civil Service and Municipal League, having played five matches, won two and lost three. The second team have certainly done better, for out of the nine matches played they have won six and lost two. The other game is awaiting adjudication on two boards.

The necessity for new blood is evident as members are reaching the official age limit and retiring, and although in some cases our old club mates are still rendering us good support, this cannot go on indefinitely. There is no reason why the Club, as a whole, should not do better as there are several chess players in the District, not actively helping in match play, who would certainly stiffen our playing strength.

Any enquiries can be made to Mr. C. W. Cornwell (Match Captain), or Mr. G. E. Day (Hon. Secretary). Telephone: Hop 8,000.

A pleasant incident marked the retirement of our late Secretary, Mr. A. J. Nevill, on Feb. 4. Mr. Nevill has been our Secretary for the past eleven years, and to mark his affection for his club has presented us with a handsome silver cup for competition for the Club Championship.

CENTRAL TELEGRAPH OFFICE LIBRARY.

THE Annual Report and Balance Sheet of the C.T.O. Library, as adopted by its Members at the Annual Meeting on the 10th ult., once more gives evidence of the excellent service rendered by its trusty and competent Officers and Committee, and, let it be said, the persistent loyalty of the membership. Taking full cognisance of the economic stress, which has been the particular feature of 1931, all concerned are to be congratulated upon the results obtained. For example:—"The total number of books is approximately 3,000, and during the year 952 have been added, 860 sold, and 640 rebound; the decrease in membership due to all causes was barely 5%; while the number of hours open for the exchange of books was increased by 3%; i.e., an increase of facilities with a decrease of income.

Thanks to the Controller, Mr. J. Stuart Jones, M.B.E., and the Deputy-Controller, Mr. G. T. Archibald, the writer understands, the Library is to be removed—or will have been by the time these lines are in print—from Roman Bath Street to Room 14, G.P.O. West. In reviewing this Report of the Library, it should not be forgotten that the present position has been maintained not only despite the financial stringency of the staff, but despite an actual reduction of the staff itself and is still handing over "Cash in hand" to 1932. All library officials offered themselves for election and were re-elected.

J. J. T.

"THE NORTHAMPTON"

Or, to give the society its full official name, the United Kingdom Postal Telegraph and General Civil Service Benevolent Society, has now been founded over 50 years and has proved itself one of those friendly societies which have proved well worthy the name. It has had its vicissitudes, but with goodwill and good management to-day stands well in the eyes of all those best qualified to judge. Prior to 1909 societies of this description could carry on without registration, but in the year named the Assurance Act introduced compulsory valuation. The first valuation (1912) proved that the society was actuarially unsound, though up to that time it had met every demand made upon its funds. In 1916 tables actuarially prepared were adopted in full, which were accepted by the then members to cut the losses, although to not a few of these members such acceptance meant considerable financial sacrifice. Later on the very wise move, that of a change to the form of a registered friendly society, was made. Since that date its membership has increased and the valuation for the quinquennial periods of 1922, 1927 and 1930 have produced total surplus funds of no less than £137,000, all of which has been allocated by delegate conferences as bonus additions to the benefits. Invested funds now total over half a million pounds, the average rate of interest earned over the last financial year being 5½%. The House purchase scheme has also proved most useful to a large number of the membership, the rules at present permitting up to 95% on the survey value. Therefore, examined in whatever direction and by whatever professional expert, the Society has every right to submit that its affairs are ably managed, and are a credit to the Post Office officials in particular responsible and to the Civil Service as typical of the business capacity of State servants when given the opportunity. These last remarks have been prompted by the final appearance this year, as active officers of the society, of Col. Brain, Mr. Horner and Mr. Bristowe, all too well known to the Post, the Telegraphs and the Telephone Departments to need any eulogia.

J. J. T.

He followed this idea in a remarkable fashion and with a delicate touch. Morse, indeed, revealed himself more in the nature of an artist rather than a savant, . . . because if artists are jealous of *their* talents, if they love to defend *their* rights, *their* priority in a new fashion, we see very many savants working with complete modesty, and the greatest disinterestedness.

But what also helped Morse in his labours was possibly the fact that he belonged to no party or clique. Probably, too, in ignoring many of the mysteries which the physicians then discovered while exploring the domains of the fairy "Electricity," he never found himself at the crossing of any ways. One thing, however, does not fail to be troublesome. It is the fact that from 1833 the Germans, Gauss and Weber, provided their observatories with a telegraphic alphabet, very imperfect, no doubt, but one which laid down the basis of the Morse alphabet. He should not have ignored all the researches which had been made in Europe; while his brother, placed at the head of a newspaper, as we have already noted, should certainly have informed himself better on this subject.

It was Steinheil who worked on the telegraph with Gauss and Weber, and M. Harry C. Sellars, author of "A Brief Chronology for Students of Telegraphs, Telephones and Posts," does not hesitate to call Steinheil "the father of the telegraphs, printing and accoustical," as this apparatus which functioned in 1835—two years before the focussing of the first Morse telegraph—used positive and negative currents producing points on a band of paper or different sounds by two bells of distinct notes.

In this system we thus see the two methods of reception and without, however, reducing to nothing the labours of Morse, even while admiring his genius, we cannot but find as exaggerated his pretention to be the *first* inventor of a system of electric telegraphy, and render to Steinheil the historic homage due to him.

PROGRESS OF THE TELEPHONE SYSTEM.

The total number of telephone stations in the Post Office system at Jan. 31, 1932, was 2,039,506.

The growth for the month of January is summarised below:—

Telephone Stations—	London.	Provinces.
Total at Jan. 31, 1932	730,864	1,308,642
Net increase	38	(dec.) 69
Residence Rate Stations—		
Total	226,388	332,522
Net increase	232	234
Call Office Stations (including Kiosks)—		
Total	7,616	29,343
Net increase	59	141
Kiosks—		
Total	2,716	9,655
Net increase	26	185
Rural Railway Stations connected with Exchange System—		
Total	17	2,030
Net increase	—	2

The total number of inland trunk calls in October, 1931 (the latest statistics available) was 10,764,277, representing an increase of 181,188 (1.7%) on the total for the corresponding month of the previous year. International calls in October numbered 112,946, the increase over October, 1930, being 7,685 (7.3%).

Further progress was made during the month of January with the development of the local exchange system. New Exchanges opened included the following:—

LONDON—Acorn (Acton), Southall, Hampstead (all automatic):

PROVINCES—Denton, Heaton Moor, Stockport, Woodley, St. Helens, Prescott (all automatic); Bridgemere (Crewe), Bratton (Trowbridge), Barton-on-the-Heath (Moreton in the Marsh), Crofton (Wakefield), Chapmanslade (Frome), Camrose (Haverfordwest), Colney Heath (St. Albans), Enstone (Chipping Norton), Fownhope (Hereford), Evershot (Yeovil), Greatford (Peterborough), Glyn Garth (Bangor), Hawkedon (Bury St. Edmunds), Kimberley (Nottingham), Kingscliffe (Peterborough) Kincardine O'Neil (Alloa), Llansilin (Oswestry), Meriden (Coventry), Morwenstow (Bude), Pattishall (Northampton), Riseley (Bedford), Staunton (Gloucester), Southrop (Faringdon), Shurdington (Cheltenham), Sturton-le-Steeple (Retford), Stone Cross (Eastbourne), Stelling Minnis (Canterbury), Woodseaves (Stafford), Woolaston (Lydney), Yarnfield (Stone) (all rural automatic):

and among the more important exchanges extended were:—

PROVINCES—Andover, Ashford Kent, Byleet, Hinckley, Ripon, West Bromwich.

During the month the following addition to the main underground system were completed and brought into use:—

Kendal—Barrow;

while 71 new overhead trunk circuits were completed, and 75 additional circuits were provided by means of spare wires in underground cables.

NORTH WESTERN DISTRICT NOTES.

THIS month we intended to indulge in some profound and highbrow encomiums on the subject of Staff Meetings, but unfortunately the data collected contained much which was calculated to stimulate our risible faculties, and as hard work goes down a lot easier after a laugh, we cannot refrain from recapitulating the good things which emerged at the various "Coffee" stages. So here goes.

Call Office Discrepancies—apropos of.—A lady, using a multi-coin box at a Call Office, recently asked why London could have Coin boxes which gave "change" while similar boxes were not available in her home town. In support, she instanced a case where in London she wanted a call for which the charge was 10d. Having no change—and also no doubt being a bit muddled—she placed a 1s. in the box and pressed button B, getting back her shilling and an additional 2d. When the call matured she placed her shilling in the box and walked out with her 2d. change. This lady was highly indignant because she had tried the same procedure locally without similar success. It took the monitor about half an hour to placate the lady, and the monitor—recording "one transaction"—pondered deeply whether the powers-that-be realise that such mentalities exist when they are fixing "unit" valves.

Another case.—Lancashire caller—after pressing button B for ineffective call—tries to leave the box. Evidently the door was stuck, so he dialled "O" and addressed the operator as follows:—

"Tha dos'nt need t'lock me in because a've gotten mi tuppence back. . . . Unlock do-or, ah tell thi."—Collapse of operator.

Mrs. Malaprop becomes Caretaker Operator.—One of "ours" obtaining verbal report re subscriber who complained of delay during a time of pressure, was informed:—

"You see, Sir, he is very *h'agnostic* in his manner, and if every subscriber had been like him we should have been *undulated* with complaints."

Phonogram Room.—

<i>As Message should have read.</i>	<i>As Message actually read.</i>
"Send two stone Codling filets."	"Send two stone Toddling filets."
"Despatch to-day certain—customer pressing."	"Despatch to-day certain—customer cussing."
"200 loins arriving Talbot Station by 10.30 train."	"200 lions arriving Talbot Station by 10.30 train."

Visits to Exchanges.—One of our Engineering Colleagues showing Sewing Class of ladies—rising 40—over automatic apparatus room, during lull in his able—but simplified—discourse was asked:

"Eh lad—How do'st ta get such a polish on't flo'or."

Preston.—Our heartiest congratulations are offered to Mr. R. M. McLarty on his appointment to the District Managership of Gloucester, which post he takes up on Mar. 2, 1932. Mr. McLarty graduated with the Glasgow Corporation and the Post Office Telephone Service, and joined the N.W. District (then divided) in April, 1921. We wish him the very best of luck in his new sphere of activities.

ON GETTING BUSINESS.

IN a recent number of *Telephony*, the American Telephone Journal issued in Chicago, particulars are given of a scheme under which some surprising and gratifying results were obtained in a short "Sell-a-Phone Campaign" conducted during the month of August, 1931, in a group of small towns.

Many stories come "across the pond," and we are at times as sceptical of them as of the yarn about the skyscraper, so tall that it took two men and a boy to see to the top of it. However, the figures quoted in the article referred to above seemed somewhat convincing, and it was decided to give the idea a fair try-out in a small country with two telephone districts not 1,000 miles from London.

In these districts we had seen our rate of increase in telephones making a nasty downward curve for some months, and whilst we had not quite reached the point at which the withdrawals exceeded the new installations, our efforts to avoid such a disaster did not appear to be equal to the occasion.

This country is feeling the world depression quite as much as other countries. We have our unemployed, old-established businesses have gone under, crops have suffered from the disturbed weather conditions of the past year or two, exports and imports have diminished, in short things have looked anything but roseate for a considerable time. In spite, however, of this unfavourable position we are still working under better conditions than obtain in other countries.

A study was therefore made of the methods in which our American friends carried out their "Sell-a-Phone Campaign" and adapting it to suit our own conditions we launched it.

The results plainly indicate that business is to be had if we will really go after it.

A meeting of the senior staff of all branches was convened and the following procedure was duly put into force.

A commission roughly amounting to 10s. for an exchange line with proportionate amounts for extensions, P.B.X.'s and other subsidiary apparatus, was authorised to be paid to those members of the staff securing contracts, and approximating to these amounts a system of points was evolved, to be counted individually and collectively. Thus an exchange line counted 10 points, an external extension 2 points, and so on.

The entire staff was then divided into teams of varying sizes. In the suburban areas, telephonists were grouped with the maintenance staff, so that the combined local knowledge would be used to the greatest advantage.

After agreeing on the number of points which it was thought each of the two cities should produce, these points were portioned out amongst the respective teams, endeavour being made to handicap them, having regard to their normal contact with the public. Obviously a cable man would be less likely to procure new subscribers than an instrument faults man, a telephonist less than a district office counter clerk, &c.

A captain was appointed to each team, and at a meeting of these captains the whole scheme was explained in a manner which compelled their enthusiasm. Incidentally, of course, the dire necessity of bringing in new business if sufficient work was to be found for existing staff was not lost sight of.

The captains of teams in their turn discussed the matter very fully with their team members. Pamphlets showing installation and annual charges of all types of apparatus, and of conditions of service, were distributed to every member of the staff, so that he or she would be in a position to quote immediately for any telephone facility within our power to furnish, blank contracts were made easily available to all, and all were furnished with simple forms of application on which the applicant could state his desires, together with his name and address.

When filled in these forms were countersigned by the member of the staff, who had canvassed the applicant, and then handed in to the captain of the team who filled in the contract. The more intelligent members of the staff who were conversant with the nature of a contract did this themselves, but obviously it was not a job to be successfully undertaken by the lower grades of staff, some of whom can read and write only with great difficulty.

It was arranged that each night during the campaign the total of points gained by each team would be posted on a number of bulletin boards, so that the progress made by each team would be known to all.

In the storeyards tall hoardings were temporarily erected on which tracks were painted in various colours, a separate colour for each team. The margin was scaled to indicate the percentage of points and a toy motor car suitably coloured took a position on each track.

At the last moment it was decided to extend the period of the campaign by advancing the date of commencement, because the staff showed considerable impatience to begin, and it was thought advisable to let them get off the mark whilst they were eager.

The number of points to be gained was not increased because of this, but the psychological effect was kept in view, and we increased the scale on our hoardings by 100%, thus hitching our wagons (or motor cars) to stars.

A small newspaper, half foolscap size, was concocted every three days, in which comments and skits on the affair were published. Items of interest which arose during the campaign were also to be found on it, and a considerable amount of license was permitted in the ragging of one team by another.

It not infrequently happened that one employee stepped in at the right moment and secured a contract from an individual who had been canvassed by another. In the natural course of things some people were canvassed by several employees in succession. One obliging individual signed contracts for members of 3 separate teams.

In the dim shadow of a doorway one employee stated a very excellent case for installing a telephone only to find that his eloquence had been expended (I nearly wrote "wasted") on his General Manager.

A grocer, after being touched by several enthusiasts in succession put up a card saying, "I haven't got a telephone and I don't want one." Alas for the grocer! A still greater enthusiast tackled him. He was reminded that whilst the notice was intended to scare away future canvassers, unfortunately his clients at the counter had read it also, and so damning a piece of evidence of his reluctance to move with the times could only be refuted by a recantation. He was converted and a telephone was installed within a couple of days. He now has asked for one at his house also. Methinks his good lady appreciates that sauce is good for geese as well as ganders.

These little stories are but a few of the incidents which lightened the labours of a heavy campaign, conducted without interference with the ordinary work of the staff. Quite a lot of canvassing was

done during evenings, on Sundays and holidays, as also was the work of installation, as obviously in a campaign of this sort the shorter period between the securing of the contract and the working of the instrument the better for all. Naturally not every distributing point had spares sufficient to cope with all the new orders obtained, but all difficulties were overcome in one way or another. Peter was robbed to pay Paul, but he has now been repaid.

The progress of the various teams was an interesting subject to observe, but as this was the first campaign we had tackled, it is not to be wondered at that we were as hopelessly out in our estimates of what the campaign would bring us, as in our handicapping of the various teams. We are wasting no tears on that, however, as events have shown that depressing business conditions over many months had not been without their moral effect, and have proved that our expectations were decidedly on the conservative side. Briefly the total number of points gained was exceeded by nearly 100%, whilst with one exception every team exceeded the quota of points allotted.

To give all the figures would necessitate more space for explanations than your Editor is likely to permit, but it will probably suffice to say that within the period beginning Nov. 23 and ending on Dec. 31, we secured an increase in lines, stations, and revenue of 6%, or say 1% per week, during the campaign. As our rate of growth for the preceding 10½ months was something less than 4%, we have reason to feel satisfied.

It should perhaps have been stated that prizes were given in each city to the teams with the highest per cent. scores and to the individuals obtaining the highest number of points. Whilst under ideal conditions commissions and prizes to staff should not be necessary to induce them to promote the business which furnishes them with a livelihood, Utopia is not yet. On the other hand, it is the considered opinion of the writer that the personal contact (even when made by individuals untrained in canvassing, and when quite unsupported by any advertising scheme, as in this case) is a bigger factor in the promotion of the telephone business than many of us are disposed to admit.

And the cash cost of this "Sell-a-Phone Campaign" is a natural query that the reader will raise. Well, it seems to be rather less than 10% of the additional new revenue brought in, and it is, of course, a non-recurring expense.

We are still gathering some further fruits from the campaign. Obviously when it ceased, at the end of the year, we did not forthwith abandon all our "prospects." By no means. Some have since been roped in and others are yet in process of being brought within the fold. And when we have got in all that we think can be obtained, then we must just go out and get some more.

When we cannot get in any more, then we telephone folk have another wonderful field. Let us promote the service itself. Just visualise the revenue increase which would be derived from one additional paid call originated daily on each telephone, even at the unit rate.

In a recent circular to our staff they were recommended to think telephones, talk telephones, dream telephones, and then to go out and get telephones. They certainly have done the latter. We have yet another slogan for them, however, and that is "Go out and get some more." They will do it. The writer is confident on that score.

Admittedly a campaign of the nature here described cannot be maintained indefinitely, but there is no reason why a telephone man or woman should not be an agent for the telephone business continuously, whilst he or she obtains a livelihood from it, and few of us can review our past without coming across some occasions on which we omitted an opportunity of getting business.

H. A. H.

THE STORY OF THE THERMIONIC VALVE.

B. S. T. WALLACE, C.T.O.

A COLLEAGUE in the throes of studying for a Departmental technical examination, while wrestling with the intricacies of voice frequency, asked me to trace for him "the path of the current" in a rather elaborate diagram containing various valves, transformers, condensers, L.T. and H.T. batteries.

A failure to grasp readily the fundamental principles of a valve as a relay and amplifier led to a long discussion, going back to the origin of the thermionic valve and its romantic history: a story, it is thought, which might prove entertaining and also helpful to other readers who have not previously given the subject consideration.

In these days of the mass production of comparatively foolproof wireless receivers the valve is usually taken for granted, much in the same way as an electric lamp, and the hidden wonders it contains overlooked. The event of a breakdown occasionally arouses curiosity as to the precise nature and functions of the valve, and only its complete history can give an adequate comprehension of them.

The Great War pushed forward the development of the thermionic valve ten years or more, and it was due to the necessary secrecy by which such an important device was shrouded in those days that its full significance was hidden from the public gaze and its history allowed to slip by more or less unnoticed.

The principle of the thermionic valve is based on the phenomenon that electrons emitted by a heated body can be utilised to control a source of electric energy for a variety of purposes. This short review will be confined to the development of the valve up to its three-electrode stage as a rectifier and amplifier.

Metals, metallic compounds and certain other substances, when heated above a certain temperature, emit electrons. In a valve the filament is essentially the electron source, and the aim in the manufacture of this item is to find a substance that will emit the largest number of electrons with the minimum expenditure of energy in the form of heat. The search for what might be termed the most electro-active medium and the ultimate ideal of a "cold" valve has resulted in use being made of various rare metals which hitherto had no particular importance attached to them, such as the comparatively new element hafnium, and we are consequently continually being presented by the research workers with valves of increasingly high emission efficiency. A literally cold valve would not seem to be an early possibility. Electrons in motion are a form of energy which can only be created by the expenditure of energy, and it is difficult to visualise any cheaper and more convenient method than heating. Let us now delve into the story of this mysterious phenomenon.

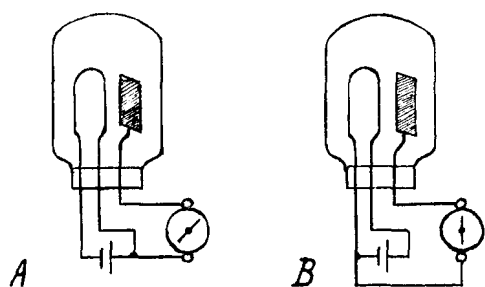
The electrons from a heated filament in an evacuated glass vessel free from other obstructions will bombard the inner surface of the glass. Edison, in America, although ignorant of its cause, observed this effect in 1883, and toyed with it to the extent of interposing a metal plate between the filament and the glass, his object being to investigate the cause and endeavour to find a cure for the darkening and consequent shortened effective life of his new carbon filament lamps. He found that this plate obstructed the electron flow and also that if the plate was connected through a galvanometer to the positive pole of the lamp battery, a current would flow from that pole to the plate, via the intervening space to the filament, and back to the negative pole. When the

galvanometer was connected to the negative pole no current would pass. (Fig. 1.) The lamp was found to possess one-way or unilateral conductivity. This became known as the "Edison effect," and constituted the germ birth of the thermionic valve. In fact, this was actually the first thermionic valve made.

Edison himself got no further with his discovery. That he fully realised some very deep significance lay behind it is evidenced by the principle being embodied in an elaborate patent suggesting the device might be used for wireless communication, and actually detailing drawings strangely like modern aerials and valve circuits—all this before aerials and wireless proper had come into existence!

It should be explained that this versatile man already held patents for methods of communicating without wires by means of direct electro-magnetic induction, principally for use between moving trains and stations en route, but also visualising future communication with ships at sea. The term "etheric force" is frequently found in his writings.

The "Edison effect" patent was subsequently purchased by the Marconi Wireless Telegraph Company. Sir Wm. Preece, Engineer-in-Chief to the G.P.O., in 1884 obtained some of Edison's plate lamps for investigation, but made no practical use of them beyond expounding a theory that the molecules thrown off from the filament travelled only in a straight line, which, so far as it goes, subsequently proved to be correct.



Connection A, indicating passage of a current. B, no current.

FIG. 1. The "Edison effect."

Professor Fleming, of London University, who at this time was associated with the Edison Electric Company, made investigations into the Edison effect extending over a period of years. In 1889, before the Royal Society, he showed that particles thrown off by a heated filament carried a charge of negative electricity and that they could be employed to convey a current in one direction only. He also established the fact that the negative leg of the carbon lamp was the active agent in producing the Edison effect, and in his experiments utilised for the first time a separate plate battery of one cell—the first "High Tension" battery! Having gone so far, the device was put away for the time being. It is necessary here to turn aside to other scientific developments, all of which probably had some bearing on Fleming's later dramatic return to the Edison valve.

In 1897 and the following years, science became absorbed in Professor J. J. Thomson's definite proof of the existence of the electron and that electricity emitted from a heated body consisted of electrons. Not long after, in the world-wide search for a more efficient means for detecting Marconi's feeble transatlantic signals, Picard, in America, discovered that certain crystalline substances, such as carborundum and zincite, possessed the peculiar property of rectifying these weak wireless oscillations. Here, again, was another mystery, for although many theories to account for this action were put forward at the time, none of them could be confirmed. It is not yet entirely proved, though there is very strong experimental and mathematical evidence that the action is essentially electronic.

It was at this time that Fleming, in his own words, was "seized with a sudden inspiration" and insisted in there and then unearthing all the old "Edison effect" apparatus he packed away ten years back, and overriding the protests of his laboratory assistants at such apparently unwarrantable enthusiasm, hastily erected a wireless transmitter with the aid of a few oddments, such as Leyden jars for condensers. A short distance away a receiver was connected to one of his own plate lamps and he straightaway succeeded in operating a galvanometer in the plate circuit by high frequency oscillations. This he patented in 1904, calling the device for the first time a "thermionic valve."

This first valve rectifier was not more sensitive than the crystal detectors then in use, and though its utility at the moment was limited, it was a more tangible medium for the purpose, and presented to the electrical world a sensationally new and revolutionary principle. It was sensed that a development of this valve might at any moment supply the long-hoped-for "missing link" in electrical progress and so make wireless telephony an imminent possibility. It was conjectured that some means of controlling the flow of electrons would probably give a clue to the secret.

America, which in the early days encouraged free and unfettered wireless research work, had many brilliant minds investigating the discoveries continually coming to light. Lee De Forest was one of these men. He put in a prior claim for an idea similar to Fleming's, but the American courts decided in favour of Fleming, stating that "Fleming was first to apply to a new and very practical field of usefulness what has long been known as the Edison effect." De Forest, like many other contemporary workers, appears to have concentrated his efforts on the action of electric discharges in gas of one sort or another. Fleming's conception of electrons in a vacuum was the correct one.

De Forest was a born inventor, and though he was disallowed his claim for a two-electrode valve, he eventually succeeded in discovering the missing link by a very cute piece of observation and deduction.

While experimenting with high tension discharges he observed that the light intensity of an ordinary incandescent gas mantle nearby was diminished by these discharges and that when the burner was shielded by a piece of wire gauze the effect ceased. He diverted all his energies to studying this new effect, and made some very interesting discoveries, which culminated in the placing of a wire mesh between the grid and plate of Fleming's valve and investigating the effect of potentials on this third electrode, or "grid," as he termed it.

It was found that when the grid was positively charged the current in the plate circuit increased and that when a negative charge was given to it the current decreased, thus revealing for the first time the capabilities of the valve as a relay and amplifier of feeble oscillations.

Although De Forest apparently did not fully understand the working of this grid at the time, he took out a patent for it in 1907. Its validity was disputed, the courts subsequently holding the idea to be "merely an improvement of Fleming's master patent and could only be made and held under licence from him."

It would require volumes to record all the bitter controversies and lengthy patent actions, costing millions of pounds, that now sprang up all over the world in the scramble to claim priority and apportion due credit for all the seemingly small but essential details connected with valve development, chief among which concerned regeneration or reaction. After seven years' litigation on this latter function alone, the American courts eventually gave De Forest control of all oscillating valve patents. By this time it had become abundantly evident to all concerned that the "mere

improvement" was a very vital and fundamental thing, without which the two electrode valve is in these days of no particular importance beyond its use as a rectifier of alternating current. It is now being robbed of even this function by the metal rectifier.

The result of these disputes and the holding of patents by one concern that were useless without the inventions of another led to general chaos and wholesale piracy, that continued for a number of years. Arguments over the question of vacuum and whether a patent should be granted for it have only recently been settled after ten years, by mutual agreement and pooling arrangements among the various organisations for jointly carrying on the highly technical and very costly work of valve development.

A very large number of scientific developments have consisted in slight variations or improvements on previous inventions. Indeed, there are a number of very clever men whose sole life work is the study of other people's inventions for the purpose of improving on or evolving new ideas from them, but nothing in the whole history of science dimly compares with De Forest's simple act of placing the grid in the valve, thereby turning an idea worth pounds into a device valued at incalculable millions and destined to remould the whole of civilisation. In justice to De Forest, it should be stated that he claims to have developed his three-electrode valve independently altogether of Fleming's work.

So far as mere discovery and invention are concerned, the honours seem equally divided between Edison, Fleming and De Forest.

It is not inappropriate here to recall the recent death of Edison. His real standing in the world of science has often been questioned. He himself would have been the last to proclaim himself a scientist in the generally accepted sense of the word in England. He was neither a mathematician nor theorist, but a keen, persistent experimental investigator: a man of great vision who knew instinctively the inevitable scientific developments that some day must come to pass, especially in the electrical world, and particularly in the economical and efficient generation and storage of electrical energy: and went his own way in an effort to solve these problems. In the endeavour to obtain electric energy from a primary source instead of the cumbersome, inefficient methods of indirect generation by means of steam or internal combustion engines and also for some better medium for storage than lead cells, his name is associated with what is probably the most scientific primary battery—the Edison-Lalande—and the only storage battery suitable for traction purposes, the Edison nickel-iron cell; both contributions of merit in a direction that has baffled scientists for nearly a century.

Edison made the first practical electric lamp 40 years after the idea was invented by Starr and King in 1845. The filament of the original glow lamp was a thin carbon rod, which confined the device to the laboratory stage. Edison made it a success after many years of patient experiment by inventing a process for manufacturing thin carbon filaments from cotton and bamboo, thus setting the great electrical industries of the world in motion. He is also credited with saving America £4,000,000 in telegraph lines by his invention of quadruplex working. It is not necessary in any way to belittle the work of later investigators, but the plain fact is that wireless telephony and broadcasting as we know it to-day is a direct offspring of Edison's discovery of the "Edison effect." This alone was the birth of the thermionic valve, still in its infancy and destined to be the basis of what will one day become the world's greatest industry—thermionic engineering. Only the snobbery of England could have prompted such a question as was allowed to appear in a London daily paper at the time of his death, and obviously written with scorn: "What degrees did Edison possess?" He attained the highest degree any man can possess: The whole-hearted, universal lamentation of a hard headed, practical nation at the passing of one of its greatest men.

(To be continued.)

ANNUAL REPORTS OF TELEPHONE PROGRESS.

YEAR ENDING DECEMBER 31, 1931.

We append some extracts from the reports issued by London, Liverpool, and Manchester, which we think will be of interest to our readers.

LONDON.

For some time past there has been no appreciable alteration in the boundary of the London Telephone Area, but, as already announced in the Press, the boundary will be extended early in 1932 to include certain important towns such as Gravesend, St. Albans, Watford, Staines, Weybridge, and Walton-on-Thames, Uxbridge, Leatherhead, Dartford and Feltham. The London Telephone Area will then cover approximately 1,200 square miles.

Sixty-seven Provincial exchanges serving about 25,000 subscribers' lines will thus be brought into the London Area and included in the London Telephone Directory.

A point of special interest marking a stage of the development of the service is that in June, 1931, the 2,000,000th telephone to be installed in this country was accepted by His Majesty the King for use in Buckingham Palace. The instrument, which is of the new handset type, is finished in old gold and bears a decorative plate surmounted by a crown with the inscription:—

"This instrument, installed for His Majesty King George V. is the 2,000,000th telephone connected with the Post Office system—June, 1931."

Growth in the London Area.—There are now 154 telephone exchanges in London, viz., 36 automatic exchanges, 114 manual exchanges, 2 Toll exchanges, and the Trunk and Tandem exchanges.

The number of direct exchange lines on Dec. 31, 1931, was 426,000, the increase for the year being 16,800, i.e. about 4.1%. Approximately 28% of these lines are connected to automatic exchanges.

The number of telephones in the area increased by 27,500 to 731,000 at the end of 1931.

The total number of calls originated in the area during the year was 681 millions, the increase over the previous year being about 2%.

The growth in the number of Private Branch Exchanges has continued, the total number in London now being 30,887, of which 138 are automatic.

Improvements in Telephone Apparatus.—Reference was made last year to the introduction of a device for enabling the operators at manual exchanges to reach subscribers connected to an automatic exchange without the aid of an operator at the latter exchange. With this device the required number will be keyed direct from the manual exchange. The keyed figures will be transmitted by various combinations of currents of four different frequencies, which will operate tuned relays at the automatic exchange to obtain the required line. The installation of the necessary additional apparatus and the modification of the operators' cord circuits at 64 manual exchanges is nearing completion and the new system will be brought into use early in 1932.

Arising out of modifications in the methods of effecting transmission it has been found possible to operate a number of circuits without any loss by attenuation of speech. Trunk circuits have been provided on this basis between London and Glasgow, Aberdeen, Edinburgh, and Newcastle.

It may be stated that this achievement puts this country in the van of progress with transmission. This improvement will be extended to the main Trunk lines in the country as quickly as possible. Modifications of a similar nature are being made in the groups of lines between the London Toll exchanges and the larger Provincial centres.

Automatic Exchanges.—Steady progress has been made in the conversion of the London Telephone system to automatic working, and the under-mentioned new Automatic exchanges have been opened during the year:—

Gulliver (Kentish Town area), Gladstone (Cricklewood area), Pollards (Norbury area), Leytonstone, Whitehall.

Within the 10-mile radius from Oxford Circus there are now 36 automatic exchanges with fitted accommodation for 178,860 lines and capacity for extension to 300,000 lines. Approximately 32% of the subscribers' lines in this area are now connected to automatic exchanges. By the end of the coming year the percentage will be increased to 44.

Equipment is now being installed at the following automatic exchanges:—

Southall, Acorn (Acton area), Hampstead, Prospect (Barnes—Richmond area), Perivale, Byron (South Harrow area), Bayswater, Merton Abbey, Mayfair, Regent, Grosvenor, Langham, Hither Green, Tulse Hill, Colindale, Wordsworth (Kenton area), Bethnal Green, Bowes Park.

LIVERPOOL.

The work of installing the new Automatic exchanges at St. Helens and Prescott is approaching completion, and it is expected that both exchanges will be opened early in the New Year. New Rural Automatic exchanges have been opened during the year at Lydiate and at Sulby and Marown, the Isle of Man. A Rural Auto exchange at Manley, to replace the existing Manual exchange, is in course of installation and will be opened in 1932.

During the 12 months ended Sept. 30, 1931, the net increase in the number of new telephones fitted, after allowing for cessations, was 1,699, or 2.26% on the total at Sept. 30, 1930, which is not so satisfactory as in the previous year and shows a further decline in the net increase of telephones for this district. There was an abnormal number of cessations consequent upon the prolonged trade depression and the present economic conditions.

The number of telephones has increased in the district from 34,910 in September, 1912, to 76,697 in September, 1931, a growth of 120% in 19 years.

During the year the Convassing Staff has been kept busy, and every effort has been made to ensure that the non-subscribing public are made conversant with the rates and the advantages of becoming telephone subscribers.

A very considerable amount of literature of a varied character, advertising the telephone service rates and facilities, has been continuously distributed and has produced tangible results.

During the year the local cables in the Liverpool District have been extended to meet anticipated requirements and further extensions are contemplated. The new main cables from Liverpool to Birmingham and London, and from Liverpool to Colwyn Bay, referred to in last year's report, have been completed and brought into use. A new cable between Widnes and Runcorn is now being laid. On completion, addition circuits between these towns and Manchester and Liverpool respectively will be available.

MANCHESTER.

During the year ended December, 1931, the number of telephones in the Manchester District increased from 94,931 to 97,069, a growth of 2,138 or 2.25%. The number of telephones fitted was 11,632 and the cessations 9,494. The large number of cessations is due to the continued depression of trade. The number of telephones has increased from 32,946 in September, 1912, to 96,659 in September, 1931, a growth of 63,713.

During the year ended Dec. 31, 1931, effective Trunk Calls and Telegrams totalled 6,526,263, as compared with 6,848,019 for the corresponding period of 1930, a decrease of 321,756, which in all probability is due also to the existing trade depression. Local Calls for the twelve months show that approximately 71,250,000 calls were originated, or an increase of about 540,000 as compared with an increase of 460,000 for the previous year.

Considerable progress has been made in the development of the Manchester Automatic Scheme.

The gradual diversion of the through junction work from Manchester Central to Manchester Toll Exchange was carried out during the period May-July. The equipment for dealing with this traffic is of the most up-to-date type and has resulted in an improved and accelerated service.

In June, Blackfriars Automatic Exchange was opened and involved the replacement of the manual exchange of that name and the transfer of a number of subscribers' lines from Central and City Exchanges, making a total of approximately 3,000 lines. Further transfers from Central and City Exchanges were effected in September-December, giving a total of approximately 6,000 lines on the Blackfriars Automatic Exchange at the present time.

On Dec. 12, the Sale and Longford Manual Exchanges were replaced by Automatic exchanges similarly named. The opening of the Longford Automatic Exchange also involved the transfer of a number of subscribers from Urmston, Chorlton, and Trafford Park Exchanges to the new exchange.

It is now possible for a subscriber on any Director Automatic Exchange in the Manchester area to dial direct to subscribers on the following Automatic and Manual Exchanges:—

Ardwick, Blackfriars, Collyhurst, Longford, Moss Side, Sale (all automatic); Broughton, Cheetham Hill, Chorlton, Central, City, Didsbury, Droylsden, East, Eccles, Prestwich, Radcliffe, Rusholme, Swinton, Trafford Park (all manual).

In addition, special facilities have been provided whereby Sale subscribers can obtain the Altrincham Exchange direct by dialling "221."

The continuation of the Manchester Automatic conversion programme provides for the conversion in 1932 to Automatic working of the following exchanges:—

Ashton-under-Lyne, Denton, Failsworth, Gatley, Heaton Moor, Main (Oldham), Middleton, Pendleton, Stockport (from Non-Director to Director), Urmston, Walkden, Woodley.

CORRESPONDENCE.

HOW TO IMPROVE THE TELEGRAPHS.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Sir, As a small contribution to this problem, perhaps the following may add a few more suggestions to the many already explored.

The Night Telegraph Letter Service. The present facilities are too restrictive and appeal mainly to business people who are already well catered for by a 24-hour Telegraph and Telephone Service, late postal deliveries, and a fast and frequent train service. These facilities may influence to an appreciable extent the unpopularity of this service.

There is, however, a real need for a service guaranteeing delivery by first post in less important provincial areas. It is realised that difficulties arise in guaranteeing delivery by first post to all parts of the U.K., also that telegrams are already delivered by first post when handed in too late for delivery the same day, and that under any extension of the Night Telegraph Letter Service, these telegrams would be tendered for the cheaper service with perhaps a small initial loss of revenue.

Psychologically, the fact that there is a cheaper telegraph service giving to outlying areas a definite advantage over ordinary postal facilities, would appeal to the public, especially when, during fog, snow, storms, &c., train services are disorganised, and for island addresses (Channel Islands, Orkney and Shetland Isles, Isles of Wight and Man, Inner and Outer Hebrides, Ireland, &c.), storms dislocate steamer services.

Another psychological trait of human nature is the tendency to compare costs, and, other things being equal, to take the cheapest service. This is noticeable when the cost of a long telegram compares unfavourably with the cost of a trunk call to the same address, the scales being weighted in favour of the direct person to person trunk call.

In considering these two psychological facts, the possibility of reaping some advantage for the Telegraphs shows itself.

In the first instance, the Night Telegraph Letter Service could be extended to include all Head Telegraph Offices, the Night Telegraph Letters being handed in at any time up to say 8 p.m., and dealt with during slack periods. It would further simplify matters if each zone and or group centre, posted these telegrams direct to the addressees where nothing would be gained by telegraphing them to the terminal office. For instance, a Night Telegraph Letter for Worcester received by telegraph at Birmingham would be posted from Birmingham if it would fall into the first delivery, otherwise Birmingham would telegraph it to Worcester for delivery by post. As the system developed rural areas could be introduced into the scheme.

In the second case, by reason of the universal minimum of 1s., the Telegraphs can never hope to compete with the shorter trunks, but can hold their own with the longer calls. This fact might be used to ease the burden of disadvantages resting on the older service. When a business man wishes to send a long telegram, his business training instinctively weighs the relative costs of a telegram and a trunk call to the same address, and even if the difference is only a matter of a few pence, yet that instinct compels him to take the cheaper monetary course and telephone. If in addition to the present minimum of 1s. for 12 words, another minimum of say 2s. 6d. for 30 words was made, after which all words are charged one halfpenny each, the Telegraph Service would stand a better chance of competing with long distance calls. A telegram under these conditions would be charged as follows: 12 words or less 1s., then 1d. per word up to 30 (2s. 6d.), then ½d. per word without limit. Thus a telegram of 59 words would cost 3s. 3½d. instead of 4s. 11d. Ready reckoners could be provided.

Again, the Telegraph Service does very little advertising, while the Telephones are at the moment engaged in an intensive advertising campaign. One of the chief boons of a telephone is its day and night service, and one of the chief drawbacks of the telegraphs is its restricted service in both delivery and collection. The increase in the number of kiosks and call offices makes it possible to despatch telegrams at all times, but the public do not realise this. An attractive advertisement in call offices and kiosks and a transfer on the window of the cabinet calling attention to this facility, would help to educate the public in the telegraph habit. The notice inside should give the tariff (U.K. and Irish Free State), Sunday rate, replies Night Telegraph Letter Service and other useful information, as well as the method of passing a telegram. Telegrams delivered in urban and rural areas in the late evening could have a printed notice enclosed, calling attention to this facility, in the event of a reply being necessary to the delivered telegram.

We have, so far, been content to concentrate upon the speeding-up of the available traffic, but—is not some of the speeding-up due to the lack of traffic? The public do not think in minutes, time is seldom money to the casual sender of a telegram, but the *monetary cost* and the availability of the service appear to be their chief concern.—I am, Sir, Yours truly,

Telegraphs, Portsmouth.

C. H. J. HARLEY.

A VETERAN TELEGRAPH CHIEF.

TO THE EDITOR OF THE "TELEGRAPH AND TELEPHONE JOURNAL."

Dear Sir,—By the merest chance a copy of your Journal, that of last month, has fallen into my hands, and the obituary notice in respect of a telegraphist who was, in early days, employed at the West Strand office aroused my interest intensely, especially as all the officials with whom the late Mr. Cecil Baines was friendly were well known to me; it has induced a reminiscent feeling which I cannot suppress. I don't know the situation of the West Strand Office to-day, but in my day it was the last building on the right-hand side of the Strand, directly opposite the road leading to Hungerford Bridge.

I was a learner at Gosport in 1864 and was given an appointment at Portsmouth in 1865; I remained there 15 months and was then transferred to Gosport. While at Portsmouth, and on the night of Jan. 16, 1866, a violent snowstorm set in, the most destructive that ever happened to the Telegraph Service. London was cut off from all the Provinces for several days. A double needle circuit from Portsmouth to Brighton, a distance of about 40 miles, was silent just a month. Such was the force of the gale that engine drivers on the L. & S.W. and the L.B. & S.C. had to pull the trains up occasionally to clear the wires and posts from the railway tracks. Although the cost of renewals was a very big item to the telegraph company, every member of their staff was given a bonus of a fortnight's pay, and this gift was repeated when we were handed over to the G.P.O. in 1870.

I was transferred from Gosport, where I stayed about four months, to Southampton, then I was transferred to Waterloo in Jan., 1867. I soon chummed in with some of the bhoys at LY (now TS), also with a telegraphist at the Strand office, whose name I have forgotten.

We occasionally did a bit of sampling at the "Butler's Head" when we went over to LY to meet the boys.

In my short service with the company I was employed at no fewer than eight offices, viz., Gosport, Portsmouth, Southampton, Waterloo, Wolverhampton, Poplar, Euston and Kensington (Russell Road) (West London Extension Railway).

There may be some of the old boys still occupants of this sublimary orb, who would be interested in reading this account of one's doings in the principal telegraph company that existed before the P.O. stepped in.

I retired at the age of 60 and have passed the Psalmist's three score and ten by nearly 24 years, and like "Johnnie Walker" am still going strong. —
S. Garfield Terrace, Stoke, Devonport. Feb. 16, 1932. P. J. SULLIVAN.

[Mr. Sullivan enclosed for our perusal some interesting documents: (1) a cutting from the *Birmingham Daily Post* of May 11, 1908, giving an account of his retirement as Chief Supt. of Telegraphs, Birmingham; (2) an official letter from Mr. P. I. Scudamore, dated August, 1872, appointing him to a 1st-class Clerkship in the Birmingham Telegraph Establishments; and (3) a testimonial, dated May 17, 1867, addressed to him while in the service of the Electric & International Telegraph Co., by Mr. W. H. Preece.—Ed., T. & T. J.]

C.T.O. NOTES.

Promotions.—Messrs. W. R. G. James, A-Supt. to Supt. (L.G.), A. W. Leaver, Overseer to A-Supt., W. A. Dellbridge, Overseer to A-Supt., W. W. Hodge, Tube Attendant to A-Inspector of Messengers.

Retirements.—Messrs. E. R. Jones, W. M. Knight, Superintendents (L.G.), F. Webb, W. J. Young and H. J. Ramsden, Telegraphists.

C.O.D.O.C.—"The Pirates of Penzance."—The "Centels" Operatic Club, it has been stated, is the finest in the Civil Service, but then they have fallen from their production. "The Pirates of Penzance" was certainly not up to past standards. The whole production lacked the essential vitality to "get over." Yet there were encores after encores. Why? The answer is a simple one. "The Pirates of Penzance" is short, and whoever was responsible must have been in a generous mood in giving full measure and overflowing, which caused the performance to creak like an ancient barn door on its rusty hinges.

The sparkle of "Veronique," the breezy gaiety of "Tom Jones" and the fun and beauty of "A Country Girl" were lacking. The girls' chorus most certainly enlivened the gloom, but even they appeared to be affected by the atmosphere. If "The Pirates of Penzance" is Sullivan at his best, then surely it is Gilbert at his worst—or was it the ineffective acting of the principals which made the story dull and uninteresting?

Walter Norley, although he sang well, did not sing well enough to excuse his poor acting, but he is comparatively young at the work, while J. Blundell's cumbersome voice was lost in a fog.

The honours of the show undoubtedly go to Ellaline Gascoine, Hylda Stock and Fred Urquhart. The orchestra, directed by Charles Daggett, was the success of the evening.

The time has come when the C.O.D.O.C. must return to the uphill fight. Their opportunity is next season, when, with a new theatre at Cripplegate, they will have the chance to come back to life and gaiety!

RETIREMENT OF MR. J. SHEA.

On Jan. 31 Mr. Joseph Shea, M.I.E.E., Assistant Superintending Engineer, Leeds, retired on superannuation. Mr. Shea entered the service of the late National Telephone Co. in September, 1890, and, after serving in various grades, was promoted to the rank of Engineer in January, 1905. On the acquisition of the company's local telephone system by the State on Jan. 1, 1912, he was employed for a short time in the Engineer-in-Chief's Office, but in May of that year he was transferred to Liverpool; in November, 1913, he became Executive Engineer at Manchester; in March, 1925, he came to Leeds in a similar capacity; and on Jan. 1, 1930, he succeeded Mr. G. S. Wallace as Assistant Superintending Engineer.



MR. J. SHEA.

(Reproduced by courtesy of the "Yorkshire Evening Post.")

During the course of his career, Mr. Shea, in his capacity of Inspector of Overhead Lines for the N.T. Co., visited every part of Great Britain and Ireland, and by his genial manner and obvious sincerity made a host of friends. The esteem and regard in which he was held in the North Eastern Engineering District were very clearly demonstrated at a social gathering held at the Victoria Hotel, Leeds, on Jan. 29, when he was presented with a wireless set and a smoker's lighter. The chair was taken by Capt. J. E. Fletcher (Sectional Engineer, Leeds), who was supported by Messrs. J. W. Atkinson (Superintending Engineer), W. Stewart (Asst. Superintending Engineer), H. E. Ashton (Sectional Engineer, Lincoln), W. D. Scutt (Sectional Engineer, West Yorks, Internal), Capt. F. A. Linsell, M.C. (Sectional Engineer, Bradford), Messrs. J. Bownass (Assistant Postmaster, Leeds), J. F. Murray (District Manager, Leeds), J. N. Lowe (Contract Manager, Leeds), E. A. Pink and J. J. Edwards (Engineer-in-Chief's Office), and a representative gathering of all grades of the Engineering staff; also, last but not least, most of the staff of the Telephone Building Refreshment Club. Others present included Messrs. T. B. Johnson (late Superintending Engineer, Leeds), J. D. Taylor (late Superintending Engineer, Scotland East District), G. S. Wallace (late Asst. Superintending Engineer) and E. H. Farrand and W. S. Tinsley (late Sectional Engineers), whilst letters of regret for absence were received from Major H. Brown, O.B.E. (Assistant Engineer-in-Chief), Col. A. A. Jayne, D.S.O. (Postmaster-Surveyor, Leeds), Messrs. T. A. Bates (late District Manager, Leeds), E. S. Francis (Asst. Superintending Engineer, Reading).

Many speakers testified to the work and good qualities of Mr. Shea, one and all wishing him the best of health during a long period of retirement.

The presentation was made, on behalf of the staff, by Mr. J. W. Atkinson, who paid a personal tribute to the efficient and willing assistance he had received from Mr. Shea, and to his progressive outlook, which had been maintained to the last week of his official career. Mr. Shea, in a humorous speech which included reminiscences of his long service, expressed his thanks for all the good wishes and the gifts which symbolised them.

An excellent musical programme, organised by Mr. F. Worth, was much enjoyed by the company present.

LEEDS DISTRICT NOTES.

THE staff of the Leeds Head Post Office had the rare distinction, on Feb. 17, of a visit from Sir H. Kingsley Wood, the Postmaster-General, who made an extensive tour of the Telephone Exchange, the Instrument Room and the Sorting Office, and met many of the Supervising Officers and representative members of the staff. Later in the day Sir Kingsley addressed the Leeds Business Men's Luncheon Club at the Metropole Hotel on the work of the Post Office, and concluded his visit with a look round the Leeds Automatic Exchange.

An interesting demonstration of the efficiency of the Overseas Telephone Service was given at the Annual Dinner of the Leeds Publicity Club, on Jan. 22, when Mr. E. Osborn (Chairman), who is the general manager of the *Yorkshire Post*, exchanged greetings and good wishes with Mr. Gilbert Hodges (President of the Advertising Federation of America). The call to New York matured precisely at the appointed time, and every one of the 200 guests heard the whole conversation by means of loud-speakers provided by the Engineering Department. The very extensive Press notices regarding the demonstration call made it of considerable value to the Department as a publicity effort.

On Feb. 2, at 7.15 p.m., a unique gathering of 375 members of the West Yorkshire District Telephone Staff assembled in the Philosophical Hall, Leeds, and closely followed an excellent lantern lecture by Mr. J. F. Darby, of the Headquarters T. and T. Traffic Section, on the American "Demand Trunk Service." Some idea of the widespread interest evoked may be gathered from the fact that over 90% of those present were supervisors and telephonists, representing every area in the district.

The proceedings were presided over by Col. Jayne, D.S.O., O.B.E., M.C. (Postmaster-Surveyor), supported by Mr. J. F. Murray (District Manager) and Mr. J. Bownass (Assistant Postmaster), whilst among the visitors was Capt. H. A. Berry (District Manager, North Eastern District). The lecture was preceded by a short concert by "Telephone" talent, which was heartily appreciated. Notwithstanding the need for catching early trains and buses to some parts, a stimulating discussion followed the lecture, and the thanks of the gathering to Mr. Darby were shown most generously at the close.

The Leeds Telegraph Messengers' Annual Concert and prize giving was held on Thursday, Jan. 28. Col. Jayne, who occupied the chair, was supported by a distinguished platform party. The large audience voiced enthusiastic appreciation of the excellent entertainment which was provided. Misses Brown and Boland and Mr. Hedges sang most pleasantly, and Miss Paylor danced delightfully. Mr. Pearson (Humorist) and Mr. Edmanson (Ventriloquist) won unstinted applause. Boy Messengers Temple, Lindsey, Bartle, Buck, Lonsdale, Peterkin, Evetts, Young, Briggs and Wilkinson contributed musical items including vocal and instrumental duets and the "piece de resistance"—a stimulating mouth-organ band performance. Mr. A. Dickinson was an admirable accompanist.



(Reproduced by courtesy of the "Yorkshire Evening News.")

QUESTIONS ON TELEGRAPHY, TELEPHONY, ELECTRICITY AND MAGNETISM.

SOLUTION OF QUESTION XI.

Two methods of governing the speed of a Multiplex Distributor are in use in the Telegraph Service of this country. (1) The Vibrator and Phonic Wheel; (2) The Mendonea D'Oliveira Governor. The former method is described by a number of students and the latter by Mr. W. D. Thomas, of the Central Telegraph Office, London, whose contribution is adjudged to be the best. Three diagrams were given: two of these, with the subject matter slightly amended, are as follows:—

A Baudot Distributor employing a Mendonea Governor has a 1/20th h.p. motor, M, Fig. 1, fitted in the base of its supporting framework. The motor, by means of a pulley wheel and a belt of twisted cotton, transmits the drive to a second pulley wheel P, and steel cone C, mounted on an axle A. At the inner end of A is a helical pinion which gears with the Distributor. The cone and pulley are free on the axle, which is keyed to a steel sleeve S, Fig. 2. Two hollow steel arms H, H, pivoted to a cross-arm, form part of S, which

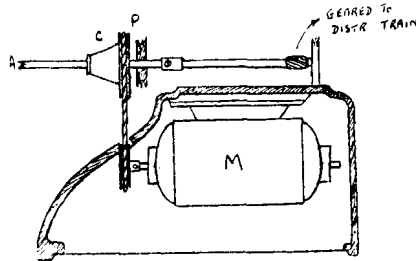


FIG. 1.

is capable of a sliding movement, lengthwise upon A, by means of an adjusting screw. The free ends of the hollow arms carry cylindrical wooden friction pieces which rest upon the cone with a pressure regulated by two pairs of strong springs. It is arranged that the cone and pulley rotate at a speed above that required for the Distributor. The governor functions owing to the fact that as speed increases centrifugal force acts on the arms in opposition to the spring tension, so that they tend to fly outwards from the cone: as a result, the friction pieces slip on the cone and, at a certain critical speed the "driven axle" is partly freed from the drive. This slipping clutch

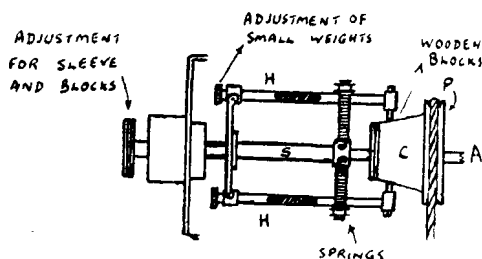


FIG. 2.

arrangement maintains a uniform rate of rotation for the axle and, therefore, the Distributor. Two main adjustments are required to enable the governor to function correctly. First, the tension of the four springs must be equal in each case and of a certain value; second, the point at which the friction pieces engage the cone is important. Adjusting screws are provided to enable regulation of these parts. Small weights, shown shaded, inside the arms H, H, are adjustable by means of thumb-screws at the ends of the arms. They provide means for making slight changes in the action of the governor after it has been balanced. One great advantage of this form of governor is that it is a self-contained unit compact with the Distributor."

The prizes, which, in the absence of Mrs. Jayne through indisposition, were presented by Mrs. Bownass, were awarded for the highest educational results, smartness, general ability and good conduct. Mr. Mansell (Chief Supt. T.) proposed a vote of thanks to Col. Jayne, Mrs. Bownass, the artistes, and the Committee of the Leeds Telegraph Messengers' Institute. He made special reference to the invaluable labours of Mr. Smith (Inspector) in promoting the welfare of the boys and in securing such a satisfactory measure of discipline and service from the messengers.

The Supervisors and Telephonists of the Leeds Exchange, with the support of other Post Office colleagues, gave a party to over 200 poor children on Saturday, Jan. 30, in St. Clements Schoolroom. A tastefully decorated hall, loads of good things on the tea tables, the gaiety of balloons, fancy caps and mascots, and the happy faces of the children well repaid the promoters for their untiring efforts. Miss Morfitt, the Chief Supervisor at Leeds, and her "girls," made a magnificent team and the "speed of answer" to the clamorous "on demand" calls of the children was a record one.

Community singing followed, and the children rapturously enjoyed the performance of a playlet, "The Christmas Waits," and a pantomime, "Dick Whittington and his Cat," by members of St. Clements Church organisations. All too soon for them the little ones had to be speeded homewards, but with bags of fruit, sweets and toys to complete their "perfect day."

Promotions.—We congratulate Mr. R. J. M. Parsons, on his promotion from St. Albans to the post of Staff Officer in the District Manager's Office and extend to him a warm welcome from all sections of the Leeds Telephone Staff.

Hearty congratulations are also tendered to Mr. W. H. Thornburn, Higher Clerical Officer, Superintending Engineer's Office, Leeds, on his promotion to be Staff Officer in the Superintending Engineer's Office, Reading (S.M. District), and to Mr. A. Gregson, Inspector, Electric Light and Power Section, Leeds, who has been appointed Area Motor Transport Officer in charge of the Leeds Area.

MANCHESTER NOTES.

Transfers to Automatic Working.—Further advance was made in the Manchester Automatic Scheme on Jan. 30, 1932, when the Denton, Heaton Moor, Stockport and Woodley Exchanges were transferred to the Manchester director system. Details of these transfers are given elsewhere. When these notes appear a further transfer of 1,650 lines will have been made from the City and Central Exchanges to the Blackfriars Automatic Exchange on Feb. 20. The series of transfers to the Blackfriars Exchange will then have been completed and there will be approximately 17,000 subscribers' lines connected to the automatic system.

Social Club, Telephone House.—A dance was held in Telephone House on Jan. 23. Some 240 were present, including Mr. Whitelaw, District Manager; Mr. Field, Sectional Engineer, Manchester West; and Mr. Crombie, Traffic Superintendent, accompanied by Mrs. Crombie.

A dance was also held at Telephone House on Shrove Tuesday, Feb. 9. Mr. Whitelaw, District Manager, and Mr. Crombie, Traffic Superintendent, were again present. The increased demureness which the reversion of feminine fashion towards Victorianism has presumably produced among the members of the gentle sex was temporarily overcome by the announcement of a Leap Year dance.

A dance has been arranged to take place at Telephone House on Mar. 5.

Head Post Office.—A carnival dance, organised by the Trunk Telephone Supervisors and staff, in aid of St. Mary's Hospital, was held in the Head Post Office Dining Room on the evening of Jan. 22. Over 160 tickets were sold, and with donations will enable a sum of about £5 to be contributed to a very deserving institution. The big attendance included the Chief Superintendent, Telegraphs, and a large body of Telephone and Telegraph Supervising Officers.

It is surprising what difference an imitation fez can make to a usually austere countenance; and the spirit of gaiety prevalent was ample evidence of the success of the function.

By the time these notes are published the Postels Amateur Dramatic Society will have given, on the evening of Feb. 18, a play reading of Noel Coward's "Easy Virtue" at the Head Post Office.

Teleprinter Demonstration.—At Telephone House a teleprinter demonstration was given on Feb. 1 to the members of the Manchester Telegraph and Telephone Advisory Committee. Afterwards advantage was taken of the occasion to demonstrate the instrument to some members of the telephone staffs.

GLASGOW DISTRICT NOTES.

Promotion of Mr. J. Reid.—On Saturday, Feb. 6, Mr. J. Reid (Asst. Traffic Superintendent) left the Glasgow Traffic Office to take up appointment as Traffic Superintendent, Class II, at Edinburgh. Mr. Reid had only been with us a short time, having been transferred last year from the Scotland Western District, but he soon became one of us and will be really missed now that he has gone. This is the second time within two years that Glasgow has furnished Edinburgh with a Traffic Superintendent, Class II, and we feel sure that Edinburgh has in each case gained thereby. Mr. Reid was presented with a silver cigarette case from his colleagues in the Glasgow Office as a memento of his stay there.

War Hospitals' Entertainments.—The Ralston Hospital for disabled ex-soldiers was again visited by a Post Office party on the evening of Tuesday, Feb. 16. This time the entertainment was arranged by the telephonist and supervising staffs of the Western and Govan Exchanges, together with their friends, and consisted of tea, followed by a short whist drive and ending with songs and community singing. Mrs. Coombs, who accompanied Mr. Coombs (District Manager), presented the whist prizes won by the disabled men and nurses, and Mr. L. G. Allen led the community singing and also ended the evening with some lively banjo music. Songs were also rendered by Miss A. Campbell and Mr. Hunter.

Resignations on Account of Marriage.—Miss A. Cook (Trunk Exchange) and Miss A. Paterson (Govan).

Scotland West Engineering Department Notes.—Whitley Committee Whist Drive.—As a rule we are prone to criticise Whitley Committees, but the Engineering Department representatives in the Scotland West District clerical staff can congratulate themselves on the occasion of their annual Whist Drive in the Ca'doro Restaurant, Glasgow, on Saturday, Jan. 30. A company of 130 guests thoroughly enjoyed the arrangements made for their comfort and amusement and the evening was voted a huge success. The organisation was of the best, and if the Committee show the same push in other matters—well!!

Further Education of the Staff.—Is it not going too far that this should be extended to the office mice? The last two issues of the Journal are reported by one subscriber as having been partly devoured overnight. The following result is awaited:—

Night Operator: "Number, please?"

Office Mouse: "Put me through to the Dining Club." [Local name for house of refreshment. —Ed.] "Yon papers were awfu' dry."

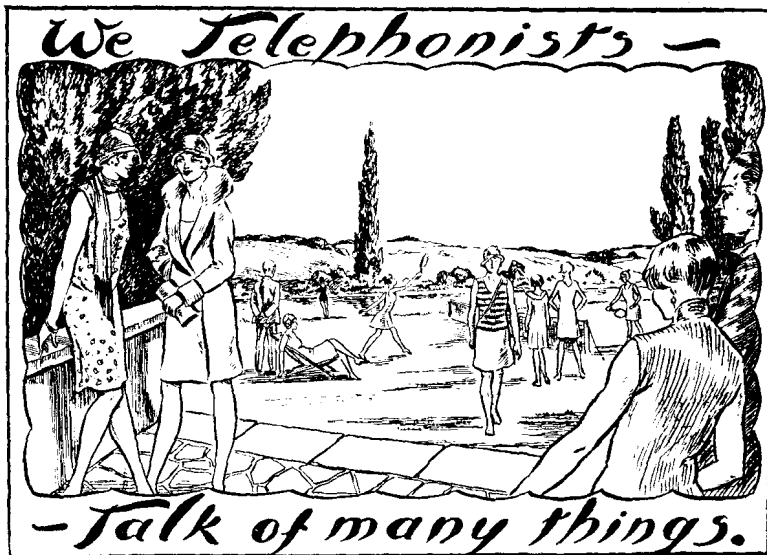
On Punctuality.—Be in time, be in time, be in time! Be true to your time in the morning!—("Old Curiosity Shop.")

The virtue of punctuality has been proclaimed by many moralists. There is something repugnant about the smug arguments in favour of such things with which nineteenth-century moralists filled their pages, and the advice of American steel and oil kings who began life with nothing and ended up with untold millions. The young man of to-day will not be made punctual, industrious, and so forth, by being assured either that such conduct leads to a feeling of righteous satisfaction, or, conversely, to the accumulation of vast fortune. He regards life from a more common-sense and from a more sceptical stand-point. Tell him, for instance, that punctuality will make life easier for him and he may listen to you; tell him that he will be a better or a richer man, and he will smile. Everybody knows that punctuality is a virtue—has it not, indeed, been called the virtue of kings?—but a great many people make almost a virtue of disregarding it. They think it rather stylish to be unpunctual in business. This attitude of mind is largely the result of the unctuous remarks of professional moralists and successful adventurers. If we want to appeal to the youth of this generation, it is useless to talk down to it. Youth's idea of a prosperous life is not always bound up with a Sunday-school conscience or an overflowing bank account. Generosity of spirit appeals to youth, which conceals many of its ideals under the rather vague term "playing the game." And, after all, to be punctual is to play the game. A person who is unpunctual is just as likely as not unreliable in other things. The capacity for invariable punctuality is a pretty good test of character. And punctuality is not in the least difficult. It is just as much a habit as is unpunctuality. A man with a punctual mind orders his existence in such a way that he saves himself trouble. It is simply an automatic result of precision and tidiness of the mind. As for the trouble he saves the people with whom he comes in contact, that cannot be measured. The running of our complicated social machine must inevitably be based on a time-table, and it is the people who keep to that time-table who make life possible. Unpunctuality is a crime which should not be tolerated. The slovenliness of mind which is really at the back of it is a menace to the whole fabric of organised life. If the young people of to-day would only realise this they would better appreciate that unpunctuality, far from being a sign of cleverness, is a sign of stupidity. One often has great temptations to be unpunctual, but I am quite sure that one ought to resist them with a determination which may not always appear necessary. For unpunctuality is often the start of that "soft spot" in character which is the beginning of the end.—(Blunt.)

Punctuality is the politeness of princes.—(Fletcher.)

You can tell a whole lot about your men from the way in which they come in and the way in which they go home. But because a fellow is in the office early it doesn't always mean that he's panting to begin work; it may mean that he's been out all night. And when you see a fellow poring over his books after the others have quit, it doesn't always follow that he's so wrapped up in his work that he can't tear himself away from it. It may mean that during business hours he had his head full of horse-racing instead of figures, and that he's staying to chase up the thirty cents which he's out in his balance. You want to find out which. . . . Always appoint an hour at which you'll see a man, and if he's late a minute don't bother with him. A fellow who can be late when his own interests are at stake is pretty sure to be when yours are.—(Old Gorgon Graham.)

Clocks are the shackles on the feet of mankind.—(O. Henry.)



Gardening Notes.

Is the spring-time a young man's fancy lightly turns to thoughts of "getting the jolly old garden going strong this year," so I thought that a few gardening hints might or might not be found useful. First of all everything depends upon starting in the right way, and for this nothing is more useful than a large quantity of the dirt that real gardeners call mould. Next you want a plan or lay-out to show where you're going to sow the seeds and plants. The plan, which need not be a blue print, should be prepared during the winter. The plan is important because, besides being systematic, it enables you to identify the stuff as it comes up. Anything which doesn't conform to the plan is probably buttercup or twitch—or both—and can be ignored. Preferably the plan should show the Latin names of the plants which it is estimated ought to appear in due course. Latin looks well and it doesn't make an atom of difference to the plants. "The rose by any other name would smell as sweet" as Adam is supposed to have said to Eve.

Next the ground must be dug deep all over and levelled. For this one or more men should be engaged in order to get the job done in time for the projected harvest and to save backache and corns on the hands. Let us suppose you have decided to have a lawn, some winding paths, flower beds and a rockery—all quite usual in a garden. Very well, then—the lawn. This may be grown from seed on flannel and planted out or it may be turfed. If you decide on seed, don't make the mistake of sowing it on the area selected for the lawn. Sow it on the paths. Nature will do the rest. If you decide on turf, walk over the golf links on Monday morning for a week or two and pick up the divots with a spiked stick. This will secure you all the turf you need and the Golf-Club secretary will be awfully grateful to you for tidying-up. This is known as "gleaning." The rockery is the next question but if the ground has been properly dug, this should not cause much difficulty—just make use of the bricks and chunks of rubble which have come to the surface. Failing that take a holiday in North Wales and fill your trunks with the odds and ends of mountains you find scattered about and send them home "luggage in advance." Then as to plants for the flower-beds—or what you hope will be flower-beds. My advice is to buy them but your choice will of course depend largely upon taste and expense and what your friends give you. But it's no use going to the park. You may be a ratepayer, but even if you've always paid your rates, the plants in the park are not *all* yours to take away. Don't try raising from seed. Cats and birds are far more expert than you in seed-raising. With plants care must be taken in selecting the right spot in which to set. Harmoniums should be set well away from the house as they require plenty of air. Pneumonias require a warm sheltered situation. For the rockery try creeping paralysis. Hysterias and palpitations want a quiet corner. Peppermint should be trained up red sticks. Flocks are usually put in any spare bed. Squints will do well against a wall if the site is favourable, and neuralgias want to be out of the track of cold winds.

If you follow these few hints you should have quite remarkable results, but if things don't go just as you want them, blame the soil or the weather but don't blame me.

PERCY FLAGE.

We quote a contemporary's comment on the recent decision of the L.C.C. to abolish prizes in schools.

All Together, Girls.

O Elsie, see! The L.C.C.
Have took away our prize.
O isn't it a shame! They say
They must economise.
But just you wait till I've a vote.
Then, when they call on me,
I'll make a nasty face, and say
You go to—L.C.C.!

Lines on being Rung up When Out.

Can C.A.S. know
I've nine strings to my bow?
There's Archway and Enfield,
Hillside and Mountview,
Tottenham and Waltham
And Palmers Green, too:
And Tudor and Barnet—
Why, jolly well darn it,
I've too much to do.
When I'm out and about,
Why grumble and shout?
If I stayed in all day,
They'd be in a way,
The pegs wouldn't count,
The calls wouldn't mount,
The jacks wouldn't end,
The curves wouldn't bend,
The Ex's would change,
And the cords get the mangle:
The rules wouldn't slide
And I couldn't abide
To think of the woe
If I didn't go
Out visiting—oh,
The staff and the subs.
Would burst into blubs
And Conservative Clubs
Would thump upon tubs,
And wish they were dead—
(Please stop it.—The Ed.)

P. F.

Next month:—

Birdie Twilfit interviews a Subscriber.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

LIVERPOOL NOTES.

ON Saturday, Jan. 30, 1932, the first automatic exchange in the Liverpool district was successfully brought into commission.

During the long period of preparation the St. Helens operating staff displayed zeal and enthusiasm under trying circumstances and much of the success of the undertaking was due to the admirable spirit displayed by the Supervisor, Miss F. Floyd and all the other ladies on her staff in their training for the new system.

After the actual transfer there was a formal inauguration ceremony on the following Tuesday, at which the Mayor and Mayoress of St. Helens and members of the St. Helens Corporation, and the Urban District Council of Prescott (which is included in the area and was simultaneously converted to automatic working) were present. Lt.-Col. Kempe, M.C., Postmaster-Surveyor of Liverpool, welcomed the visitors, and short speeches were made by Mr. T. E. Herbert, M.I.E.E., Superintending Engineer, South Lancashire Engineering District, and Mr. W. E. Gauntlett, District Manager of Liverpool. The Mayor of St. Helens and the Clerk to the U.D.C. responded, and the visitors were then shown the working of the system, after which they were asked to partake of a cup of tea and light refreshments provided under the arrangement of Mr. D. Stirling, the Postmaster of St. Helens.

On the following Saturday evening the St. Helens operating staff arranged a jollification at the Royal Raven Hotel in commemoration of the occasion. The party met at 6.30 for a real Lancashire sit-down high tea under the chairmanship of the Postmaster. Many members of the Engineering and Traffic Departments were present with their wives and a bright and happy evening was spent in dancing interspersed with song and recitation by members of the St. Helens staff until a late hour. Mr. Jackson showed himself to be a genial and efficient Master of Ceremonies.

We are pleased to announce that the promotion of Mr. S. J. Swinnerton, a well-known and popular member of the Liverpool traffic staff, to the Post of Traffic Superintendent, Class I, has been approved. It is understood that he will initially take control of the Liverpool Traffic Department on the retirement of Mr. Staito on Mar. 31 next. His many friends throughout the country will, we are sure, be pleased to hear of his well-deserved promotion.

Extracts from subscribers' letters:—

"Please find my cheque . . . with my thanks for most efficient and courteous service."

"I write to express my appreciation of the excellent service given by the exchange. . . . Perhaps you will be kind enough to express to those concerned my appreciation and thanks for their good service."

"The telephone service, given a proper chance, is a great deal better than in some other parts of the country which I am in the habit of visiting."

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

THE business transacted by the Contract Branch during the month of January, 1932, resulted in a net gain of 3,136 stations. It is interesting to observe during these difficult and anxious times that the above figure has only once been exceeded since May, 1931.

The latest returns of orders received for the new hand-microphone shows that the demand continues, and the number of applications has increased from 1,000 to 2,000 per week, following the despatch with the January quarterly accounts of a pictorial postcard.

The number of orders received up to Feb. 6, 1932 was 88,137. A year ago the total was 27,613, which reveals an increase during the last 12 months of 60,524.

We welcome the opportunity of recording the promotion of two members of the Contract Branch.

Mr. W. C. R. Watson, Executive Officer, has been promoted to the rank of Staff Officer, and Mr. W. King, Clerical Officer, has received a Higher Clerical appointment.

The result of the efforts of the staffs in the various London departments of the Staff Salesmanship scheme since September, when the scheme started, up to Feb. 12, 1932, has been as follows:—

	<i>No Ordered.</i>
Exchange lines	371
Extension lines	325
Private lines	4
Plugs and sockets	59
Hand-microphones	1,427
Extension bells	105
Miscellaneous	165

Records show that this time of the year is usually the most propitious for pushing forward telephone development and aided by the recent advertising campaign, staff salesmen will find many of their friends more responsive to their appeals.

A ceremony of special interest took place on Feb. 10 in connexion with the new London Telephone Building in Queen Victoria Street, which will be known as Faraday Building, when the Lord Mayor laid the foundation stone. A large and distinguished company was present at the ceremony. An article on this subject appears elsewhere in the Journal.

Retirement of Mr. J. G. S. Rutter.

Another link with the early days of Post Office Telephones has been severed by the retirement, on the 5th ultimo, of Mr. J. G. S. Rutter, District Contract Manager, South East District, after 30 years' service.

Mr. Rutter entered the Post Office Telephone Service on Jan. 1, 1902. He became a second-class clerk in 1909, first-class clerk in 1911, and was appointed District Contract Manager, South East District, on Nov. 6, 1925.

He has seen the Post Office London System grow from one exchange to 153 exchanges with 731,000 stations at the beginning of the present year. For some four years he was the Secretary of the old General Post Office (South) Refreshment Club, in the Carter Lane building, and also the local representative of the Civil Service Insurance Society (North British & Mercantile Insurance Co., Ltd.), in which he has always taken a great interest.

Although then well over age, he joined the army shortly after war was declared in 1914 and served continuously until after the armistice.

During his official career Mr. Rutter has gained the respect and affection of all with whom he has worked, and his numerous friends unite in wishing him many years of good health, happiness and prosperity.

The retirement was marked by the presentation, on the 4th ultimo, of a very fine mahogany sideboard and an attaché case, to which officers of all grades and departments in the L.T.S. subscribed. The presentation was made by the Controller, Mr. W. H. U. Napier, C.B.E., who referred to Mr. Rutter's long connexion with Post Office Telephones, and to the able manner in which he had always carried out his official duties.

Mr. C. W. Muirhead, Staff Officer, Contract Branch, in the absence of Mr. Taylor, Principal Clerk, who was unable to be present owing to illness, in a supporting speech, paid a tribute to Mr. Rutter's many excellent qualities.

London Telephone Service Sports Association.

Table Tennis Section.—The annual tournament which has now been concluded proved as successful as in previous years. There were 64 lady competitors and 45 men. The final games were played at Cornwall House, on Friday, Feb. 5.

The semi-finalists on the ladies' side were Miss D. Head (Accounts) *v.* Miss P. Yound (Staff) and Miss D. Fitt (Accounts) *v.* Miss P. Gardiner

(Accounts), winner for the past 3 years. This resulted in the Misses Head and Fitt playing the final, and the latter proved to be the winner.

In the men's competition the semi-finalists were G. Lewis (Accounts) *v.* F. Beazley (Contracts) and F. E. Young (Accounts) *v.* W. King (Contracts). This round resulted in Messrs. Lewis and Young reaching the final and in Mr. Lewis once again securing the championship.

Mr. Hugh Williams, in presenting the prizes on behalf of the Association, referred to Mr. Bold's generosity in presenting cups for the winners and also to his hospitality on this and several other occasions, not only in connexion with table tennis but also other sections of L.T.S. Sport, in which he took such keen interest.

Annual General Meeting.—This was held in Cornwall House Refreshment Room at 6 p.m. on Friday, Feb. 19. The chair was taken by the President, Mr. W. H. U. Napier, C.B.E., who was supported by Mr. Pink, Deputy Controller, and the officials of the Association.

After the minutes of the previous meeting had been read and confirmed, Mr. R. Tinniswood, O.B.E., the Association Chairman presented the annual report and balance sheet. He referred to the successful year they had, in spite of adverse conditions, and to the satisfactory financial statement, which showed a balance of £59 14s. 8½d. at Dec. 31, 1931.

It is also reported that the men's Swimming Club had been revived and would be in full swing when the season commenced.

The annual report and balance sheet was unanimously adopted.

Next followed the election of officers. Mr. Tinniswood, the retiring Chairman, is succeeded by Mr. Pink in that office.

Mr. Hugh Williams was re-elected Vice-Chairman, and Mr. C. Drabwell was again elected treasurer, while Messrs. Silby and H. Baker were elected as auditors for the coming year.

Mr. Napier then called upon Mr. A. E. Watson, Vice-Chairman of C.S. Sports Council and Chairman of the finance committee of that organisation, to address the meeting.

Mr. Watson congratulated the L.T.S. on the interest they had maintained during the past year, both in the matter of Civil Service shareholdings and their own organisations. He gave some interesting details of the activities of the council, particularly in the Provincial areas. So far as London was concerned, several new schemes had been launched. The boat-house at Chiswick was one that had now fully matured and was being carried on very successfully.

The meeting concluded with a combined vote of thanks to Mr. Watson and the President, proposed by Mr. Pink and seconded by Mr. J. R. Salter. Mr. Napier, in responding, said he would continue his ungrudging support to the L.T.S. sports movement and as a proof of such offered the committee a trophy, the type and object to be decided by them. Mr. Pink, on behalf of the association, warmly thanked the President for his interest and generosity in such tangible form.

The meeting was followed by a social and concert, which was quite up to the standard of the L.T.S. events of that character. A report of this meeting would not be complete without an expression of appreciation to all who helped to make the gathering so successful, particularly to Miss Faulkner and her fair colleagues who worked so hard in the refreshment arrangements.

Football, L.T.S. The football club is now a force in Civil service football. At the moment they are at the head of affairs in the league, and have played 16 games, of which 15 have been won and one drawn, thus acquiring 31 points out of a possible 32.

In the Lewis Cup, the blue riband of Civil Service football, we entertain Rampton State Institute in the semi-final, on Mar. 2, at Chiswick, kick-off 3.45 p.m.

The club has also reached the semi-final of the Civil Service League knock-out competition, but at the moment we await the draw, to know the opponents for the next round.

London Telephonists' Society.

The fourth meeting of the Society was held on Feb. 5, at the City of London Y.M.C.A., when Mr. Ernest Young, B.Sc., delivered a lantern lecture entitled "A New Way to Look at Old Buildings."

On this occasion our President vacated the chair in favour of Mr. Horace Dive, to whom the lecturer was personally known, and who introduced him as one who had been his mentor in far distant days, but who still remained "both earnest and young."

At the commencement of his talk, Mr. Young mentioned that the title which had been announced for his lecture was only one of many which it possessed, as it covered a multitude of subjects. We soon learned, as we listened, that this was indeed true, for Mr. Young deftly wove into one harmonious whole fascinating details covering a wide range of subjects connected with buildings. We heard how methods of construction had been influenced by materials readily to hand; how buildings constructed of stone and other durable materials often retained features which indicated their development from some more primitive form; of the way in which conditions of climate had affected the styles of building: some being built to resist snow and rain, and some to provide the maximum protection from excessive sunshine.

Each point was effectively illustrated by examples shown in the beautiful slides with which Mr. Young accompanied his lecture, and when he announced the approaching close of his talk each member of the audience must have involuntarily glanced up at the invisible clock with a gasp of surprise that the time had passed so quickly.

The vote of thanks which was proposed by the Secretary and seconded by Miss Epps, was obviously no mere matter of form, but voiced the delighted appreciation of all present.

We also desire to acknowledge our indebtedness to Mr. C. W. Brown, of the Engineer-in-Chief's Department, for his kindness in placing his lantern at the disposal of the Society, and to Mr. L. W. Craft for his capable assistance in undertaking its operation.

Battersea Exchange.

On Saturday, Feb. 6, the Battersea Exchange staff held their annual tea and entertainment for poor children at St. Philip's Parish Hall. About 130 children from the local schools enjoyed an excellent repast, in the serving of which supervisors, telephonists and their friends lent willing aid. The meal was followed by "Community singing," conducted by Mr. Rowland—a visitor—a conjuring exhibition by a lady performer and a pantomime, "Babes in the Wood," specially written by Miss Hatherly. The following artistes took part in the production, which met with the enthusiastic approval of the audience, and evidenced histrionic ability of a high order.

Misses Wessel and Thirkell	...	...	...	...	Babes.
Miss Hatherly	...	...	...	...	Baron.
" E. Clarke	...	...	...	...	Robin Hood.
" Thompson	...	...	...	...	Maid Marion.
Misses Eileen Moore, Baron and Laxton	...	...	...	...	Fairies.
" Ely and Larner	...	...	...	...	Gipsies.
" Gardiner, Lancaster, Milton, Mugeridge and Webb	...	...	...	...	Robbers.

Miss Newbury was the accompanist.

The young visitors left at about 7 o'clock, after being made the recipient of balloons, "tuck" and three new pennies each, and expressing their appreciation by cheering lustily, led by the popular Vicar, Mr. Gibson. This gentleman kindly permitted the retention of the hall for the remainder of the evening for a social and dance, at which all those present evidently enjoyed themselves thoroughly. The Chief Supervisor (Miss Searle) was, unfortunately, prevented by illness from attending. Many visitors were present, including Mr. A. C. Abbott (formerly the Service Superintendent), who brought Mrs. Abbott and their son, Mr. Willis (Contract Officer), Traffic Officers from Headquarters, Battersea, Putney and Chiswick, and former members of the Battersea staff who have either resigned or been transferred to other exchanges.

Miss Stallan was in charge of the catering arrangements, which were on the usual generous and highly satisfactory scale. The stage lighting effects were efficiently managed by the local engineers, while Mr. Rowland was a host in himself as a pianist throughout the dancing.

The proceedings terminated at about 11 p.m. with a hearty vote of thanks (proposed by the M.C.—Mr. Saunders—and carried with acclamation) to the Vicar, the pianist and the ladies who had subscribed so successfully to the general entertainment.

Personalia.

Resignations on Account of Marriage.

Telephonists.

Miss A. E. Warren, of Toll "A."	Miss D. E. Bailey, of Greenwich.
" N. E. Grant, of Toll "A."	" E. M. Hodson, of Kingston.
" E. M. Greaves, of Toll "A."	" N. C. Woolford, of Sutton.
" V. B. Turnage, of East.	" M. V. Bishop, of Trunk.
" M. E. N. Janes, of Victoria.	" M. I. Day, of Avenue.
" D. E. Archer, of Gladstone.	" V. W. E. Hutton-Pennan,
" H. G. L. Tarrant, of Holborn	of Welbeck.
" Edith D. Hobbs, of Holborn.	

SCOTLAND (WESTERN DISTRICT) NOTES.

In recent years several changes in the personnel of the Traffic Staff in this district have taken place. Assistant Traffic Superintendents have come and gone, but it gave general satisfaction to the staff as a whole when the announcement was received of the promotion to Traffic Superintendent, Class II (Headquarters, Edinburgh), of Mr. J. R. Reid, Assistant Traffic Superintendent. Mr. Reid was appointed in 1920 as Assistant Traffic Superintendent to this district from the telegraph side. During his stay he had, by his ability, shown himself worthy of the promotion that has now come his way. Prior to his leaving to take up his new duties he was met in a social capacity by the staff and presented with a gold watch as an expression of their good wishes. The presentation was made by Mr. Thyne, District Manager, who, in a few well-chosen words, expressed on behalf of the staff their appreciation of the services rendered by Mr. Reid. The occasion was also taken advantage of by Mr. Finlay, Traffic Superintendent, Mr. Craig, Traffic Superintendent, Class II, Mr. Dunn, Staff Officer, and Mr. Buchanan, Assistant Traffic Superintendent, to express to Mr. Reid in suitable words their appreciation.

WESTERN DISTRICT NOTES.

A ROWLAND HILL Benevolent Fund Lecture, entitled "His Majesty's Mails," and concert was held at Barnstaple on Wednesday, Jan. 20, 1932, the chair being taken by Mr. A. O. Spafford, O.B.E., Surveyor of the Western District. The Lecture was given by Major Gawthorn, O.B.E., M.C. (Head Postmaster of Wisbech). The Chairman said it was very gratifying to see the response made by the local patrons (the local patrons who desired to be associated with the Fund numbered over 100) in this difficult time. The Rowland Hill Fund was started 50 years ago, and it was made for voluntary assistance. His hearers could rest assured that none but the most deserving cases received assistance. In recent years the Fund had been supported largely by voluntary contributions received from the Post Office staff and the Post Office itself. Last year the Fund was able to afford relief to really deserving and necessitous cases to the extent of over £14,000. Before the war Major Gawthorn organised a campaign to interest the public in the Fund. Since the war there had not been a similar campaign, but the trustees of the Fund thought another campaign should be launched. He believed that in the first campaign London was chosen as the home of the first concert. On this occasion, however, the town of Barnstaple had been chosen for the first concert and lecture.

As a result of this effort, an appreciable amount has been sent to the Secretary of the Fund (Mr. F. J. Tickner, Secretary's Office, London).

An unsatisfactory test resulted from a visit of a Service Inspector to a small country district. When the matter was taken up with the Sub-Postmaster it brought forth the following report:

"Re Service Inspectors visit on . . . Mrs. — has nothing to grumble about as her calls are answered before others who comes through just before hers. I make it a rule to answer her first, as Mrs. — comes on the phone just like a lion, shouting hello, hello often times I have to ask her 2 or 3 times, number please, before she stops shouting hello and give me the number she requires. One call in particular that Mrs. — wanted at this time our O.C. Junctions was engaged, I told her they was engaged and I would ring her when junctions was disengaged, Mrs. — deliberately demanded me to cut the other subs off to let her through, and I said I am sorry but I cannot do that, she at once said she would report me, and rang off speaking unkind of me . . . Mrs. — also said on this call that the subs who was occupying the 3 junctions was only talking about something that was no good to themselves, so please did I do right not to cut the others subs off to let her through. On the . . . Mrs. — had a call to the person whom Mrs. — wanted was very quickly on the line speaking to her . . . was in circuit for a few seconds and you could hear the talking going on between them Mrs. — at once started shouting and flicking up here I asked her if she was calling and she demanded me to put my receiver up and not touch it until she had finished her call, as she could hear the people in our Post Office talking, I said, I am sorry but there is not a soul in the office or in the house but me, it is . . . you hear speaking, and she again said she would report me for having a noise in the Post Office, but it was not here at all I was here alone myself. I told Miss — the Travelling Supervisor about her and Miss — said I must not cut any call off to let Mrs. — go through and Miss — advised me to make a complaint to the Head Postmaster about it I didn't do so because I don't want to make complaints about anyone, But I have been told that Mrs. — is an old habitual grumbler with the Sub Pmr previous to me and also the Sub Pmr previous to him who was Mr. — he lives next door to me and he also told me to beware of Mrs. — his words was quite true.

"P.S. Mrs. — has never waited 59 seconds for an answer since I have been here."

The second Staff Whist Drive and Dance of the season was held at Deller's Cafe, Exeter, on Friday, Jan. 29, when approximately 300 members of the staff and their friends spent an enjoyable evening. Among those present were Mr. T. A. Beck (District Manager), Mr. W. S. Kay (Staff Officer) and Mrs. Kay, Mr. S. E. Stanbury (Staff Officer, Surveyor's Office) and Mrs. Stanbury.

The prizes for the Whist Drive were presented by Mr. Beck, while other prizes given in the ballroom for special features were presented by Mrs. Kay.

The committee appeared to have given wholehearted support to the scheme for the co-operation of the staff in advertising "Telephones." On entry into the ballroom one's attention was immediately arrested by a high scale model of a candlestick pattern telephone, complete with automatic dial (the work of Mr. Cyril Frost, son of Mr. F. J. Frost, Traffic Supt.). An advertising novelty was also devised during the dancing, when the "Excuse me Dance" was introduced as the "Excuse me, you are wanted on the 'phone." In this case dozens of model toy telephones were issued to the dancers in place of the customary "excuse me" cards. F. J. F.

BIRMINGHAM NOTES.

Birmingham Telephone Society.—The largest attendance of the present session assembled on Jan. 21 last, under the Chairmanship of Colonel Brain Postmaster-Surveyor, to hear Miss A. B. Straughan, Higher Clerical Officer, give her paper on "The Work in the Fees Section." It was the first occasion on which a lady had addressed the society, and it was evident that the inauguration was exceedingly popular. A short discussion, in which the District Manager (Mr. J. L. Parry) was prominent, followed. A really excellent concert, arranged by the ladies of the Central Exchange, together with a little dancing, terminated a most enjoyable evening.

THE Telegraph and Telephone Journal.

VOL. XVIII.

APRIL, 1932.

No. 205.

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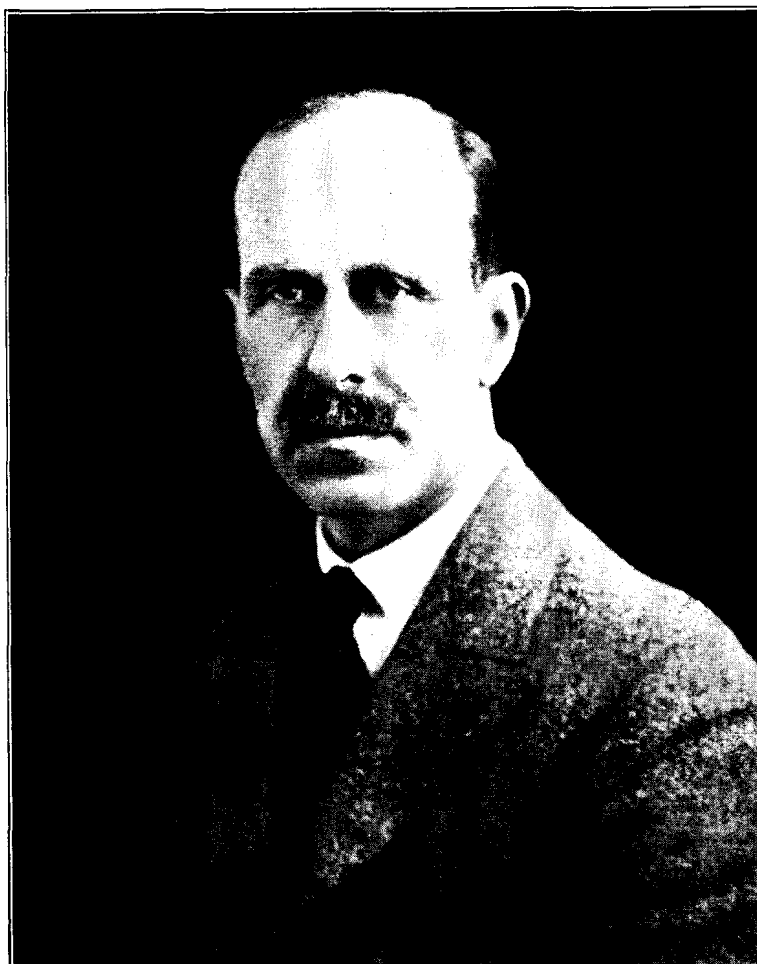
TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCVI.

MR. OLIVER J. HARVEY.

THE subject of our portrait this month is Mr. Oliver J. Harvey, Chief Superintendent, Telegraphs, Bristol.

Mr. Harvey spent the greater part of his official career at Birmingham, at which office he had reached the rank of Superintendent, when in 1929 the "call" to Bristol assailed his ears. His varied experience



at the former office and his active participation in staff revision work from 1923 to 1929 enabled him to shoulder his new responsibilities without hesitation, his work at Bristol has justified his selection for the post.

In private life Mr. Harvey is unassuming and he does not court the limelight. Something of a golfer and a keen motorist, it would not be unfair to say that his greatest joy is in the brilliant scholastic achievements of his family.

The
Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

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		W. D. SHARP.
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Managing Editor - -	}	J. W. WISSENDEN.
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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

VOL. XVIII.

APRIL, 1932.

No. 205.

NIGHT TELEGRAPH LETTERS.

WE are grateful to a correspondent, Mr. C. H. J. Harley, a letter from whom appeared in our last issue, for what he modestly calls "a small contribution" to the problem of improving the telegraph. He, and possibly others of our readers, may be interested to learn that the night telegraph letters service is in fact being extended more or less on the lines he suggests. Within the course of a few months it will be possible to send a night telegraph letter to any town postal area in Great Britain, with the possible exception of a few outlying places, and to make sure that it will be delivered either by the postman on the first delivery or by messenger shortly afterwards. If the telegraph office at the town of origin is closed, the message may be dictated by telephone to the "appointed office."

It is doubtful, however, whether it will be possible to bring within the scope of the service all the outlying islands that our correspondent mentions. It is difficult in some of these cases to escape the dilemma that if telegraph transmission is used throughout, the cheap-rate service would not be financially justified; and if part of the transmission is by mail—particularly the sea transit—there would be little, if any, gain to the sender in comparison with the mail service. These details are, however, being examined, with a bias in favour of making the service as comprehensive as possible.

To devise alterations in the telegraph tariff is a fascinating pastime; and it may well be that Mr. Harley is right in supposing that the service would gain by a reduction in charges for longer messages. But there is in the nature of things very little evidence

on the subject; and the exact point at which the diminished revenue would be offset by the increase of traffic could probably only be determined by experiment. Unfortunately, there is no scope for such experimentation; any alteration in tariffs requires the authority of Parliament, and though it might be comparatively easy to make an experiment of this sort, it would be extremely difficult to drop it, whatever its results might be.

On the subject of publicity, we must needs be non-committal. But (to use a time-honoured phrase) Mr. Harley may "rest assured" that the telegraph service is not blind to the uses of advertisement—especially of the sort designed to make existing facilities more widely known.

FORECASTS DISCOUNTED.

IN our January issue we ventured to predict that the world's telephone development in 1931 would reflect the financial depression from which most countries suffered in that year. We confess that we expected a small increase, but the figures which are to hand so far discount all attempts at prophecy. As our readers may be aware, an average increase of upwards of a million and a half telephones took place from 1919 to 1929 with tolerable regularity. In 1930 the world's increase fell to 850,000, but we were hardly prepared for an actual decrease in 1931. Although we have seen only the figures for the United States, Germany, Great Britain, and one or two of the smaller European countries, there is no possible doubt that a decrease will be exhibited. The United States, which does everything on a large scale, has gone back altogether by some 500,000 telephones to a total of 19,700,000; Germany has fallen by 91,197 to 3,157,657, whilst this country has increased by about 82,000 to 2,080,000 telephones. To set off, therefore, the loss of nearly 600,000 telephones in the two largest telephone-using states, the only predictable increases of any magnitude (besides the 80,000 of Great Britain) likely to arise, are those expected from France, Holland, Belgium, Italy, Russia, Sweden, and a few other countries, and even these are likely to be balanced—as far as we dare prophesy—by loss in several other states and dominions. It is probable, therefore, that when the total figures for 1931 are available, a total decrease of nearly half a million will be evident. We hope for better things from 1932 and we are sure that it will not be due to the sparing of effort by the principal telephone organisations if some figures of a more encouraging character are not available by this time next year.

HIC ET UBIQUE.

PUBLIC telephone service was opened between this country and Bulgaria on Mar. 14. The service will be available on this side to and from all parts of Great Britain and Northern Ireland, but in Bulgaria it will, at the outset, be available only to and from Sofia. The charge for a three-minute call from London to Sofia is 21s. 6d. between 8 a.m. and 7 p.m. and 13s. 0d. at other times.

We hear from Mr. F. Gill, at present in Shanghai, that the Shanghai Telephone Company had 38,428 stations working at the end of last year, an increase of 2,996 over 1930. The Company operates in the International Settlement and French Concession and also does work in some adjoining areas.

The Government of South Africa has under consideration proposals to take over the Durban municipal telephone system. Last year the Council tentatively quoted £1,600,000, but it is not expected that the Government will pay any such sum, and it is believed that compensation will be submitted to arbitration.

The Spanish Telephone Company recorded a net increase during 1931 of 28,000 telephones, an increase of approximately 13% over the 1930 figure. In addition, orders for 5,000 more telephones are pending installation.

On Jan. 25 the Governor-General of Canada (the Earl of Bessborough) formally declared open the trans-Canada telephone system now established by co-operation of the seven major telephone organisations in the Dominion. The new line extends from Halifax, N.S. to Vancouver, B.C., a distance of 4,263 miles, and has cost approximately five million dollars. The establishment of the new link provides a rapid all-Canadian service, and obviates the routing of calls through the United States. Work was begun in 1930 after each of the seven co-operating systems had agreed to provide the facilities required within its own territory and at its own cost.

The seven co-operating systems are: British Columbia Telephone Co.; Alberta Government Telephones; Saskatchewan Government Telephone Service; Manitoba Government Telephone System; the Bell Telephone Company of Canada; the New Brunswick Telephone Company; and the Maritime Telegraph and Telephone Company. Starting at Halifax, Nova Scotia, the new line runs to Saint John, New Brunswick, thence to Quebec and Montreal, in the Province of Quebec, and on to the Ontario cities of Oshawa and Toronto. The balance of the line through Ontario runs via North Bay, Sudbury, and Fort William, and then on to the Manitoba capital, Winnipeg. The line continues west to Regina, the capital of Saskatchewan, and passes through Medicine Hat and Calgary, Alberta, and finally traverses British Columbia to reach Vancouver.

SOUTH ESSEX REUNION OF C.T.O. RETIRED COLLEAGUES.

OVER a score of old C.T.O. colleagues, now residing in South Essex, held their inaugural reunion at Garon's Restaurant, Southend-on-Sea, on Monday, Feb. 29, Mr. C. J. Faunch, a former Chief Superintendent at TS, TNS and SG, was in the chair, and was supported by Messrs. F. W. Harrison and C. S. Keen, who came as honoured guests. The cordial invitation sent out by Mr. S. Pearse, another former C.T.O. Chief Staff Superintendent, resulted in a highly satisfactory response. It was unanimously agreed that the gathering was a most successful one, while it was confidently hoped that the function would be the forerunner of many more, and with even a larger attendance. The *doyen* of the reunion was Mr. W. F. Jackson (77 years). Formerly of the old Submarine Telegraph Co., he transferred to the Government Telegraphs, where he subsequently became Asst. Supt. (Technical) in the Cable Room, and retired in 1915. Mr. Jackson, it may be recalled, was at one time an ardent Volunteer in the L.R.B.

As was expected, speeches were many, and recalled illuminating incidents of the past, alike humorous, grave and gay. Among those who foregathered around a well-provided tea table mention may be made of Mr. William Simmons, a veteran of the old P.T.C.A., during some of its bellicose days some 40 or more years ago, and at which time he coupled those duties with that of the Hon. Secretaryship of the P.O.T.A.S.

Of the others present, there were Messrs. C. Brown, W. H. Clamp, H. Cox, H. E. Dauncey, E. J. Dawe, T. W. Dawe, H. T. Elvey, C. R. Goater, F. J. Furby, T. E. Hodgson, H. T. Kelley, C. R. Lowe, A. J. Stevens, J. H. A. Warran and H. A. Webberley. Amongst those unable to attend it may be added were Messrs. F. Goodheart and C. A. Kindon, who were disappointedly prevented by indisposition at the last moment.

J. J. T.

PROGRESS OF THE TELEPHONE SYSTEM.

The total number of telephone stations in the Post Office System at Feb. 29, 1932, was 2,046,404, representing a net increase of 6,898 on the total at the end of the previous month.

The growth for the month of February is summarised below:—

Telephone Stations—	London.	Provinces.
Total at Feb. 29, 1932	732,702	1,313,702
Net Increase	1,838	5,060
Residence Rate Stations—		
Total	227,689	334,685
Net increase	1,301	2,163
Call Office Stations (including Kiosks)—		
Total	7,659	29,493
Net increase	43	150
Kiosks—		
Total	2,753	9,829
Net increase	37	176
Rural Railway Stations connected with Exchange System—		
Total	17	2,034
Net increase	—	3

The total number of inland trunk calls in November, 1931 (the latest statistics available) was 9,884,451, representing an increase of 305,410 (3.2%) on the total for the corresponding month of the previous year. International calls in November numbered 103,431, the increase over November, 1930, being 12,907 (14.3%).

Further progress was made during the month of February with the development of the local exchange system. New Exchanges opened included the following:—

LONDON—Seven Kings.

PROVINCES.—Brentwood, Newbury; Albury, Herts (Bishop's Stortford), Annfield Plain (Newcastle-on-Tyne), Aberforth (Cardigan), Asthall Leigh (Oxford), Ashwell (Oakham), Bentpath (Langholm), Brigham (Workington), Brough (Penrith), Blidworth (Mansfield), Bessbrook (Newry), Boreham (Colchester), Broughton-in-Furness (Barrow), Ceres (Cupar), Carew (Pembroke Dock), Debenham (Ipswich), Grosmont (Whitby), Harlaston (Tamworth), Hulton Lane (Bolton), Kirkby Keetham (North Allerton), Llanfyllin (Oswestry), Leighterton (Tutbury), Linkenholt (Newbury), Mells (Bristol), North Cowton (Darlington), Northill (Biggleswade), Peterchurch (Hereford), Rilla Mill (Cornwall), Swynnerton (Barlaston), Sutton St. Nicholas (Gloucester), Surfleet (Spalding), Tayinloan (Campbelltown), Whittington Castle (Oswestry), Wrestlingworth (Biggleswade);

and among the more important exchanges extended were:—

PROVINCES—Dunoon, Gerrards Cross, Hertford, Maidenhead, Merrylee (Glasgow), Newcastle (Staffs).

During the month the following addition to the main underground system was completed and brought into use:—

Ayr—Stranraer
(Section of Ayr—Port Kail Cable)

while 70 new overhead trunk circuits were completed, and 73 additional circuits were provided by means of spare wires in underground cables.

TELEPHONE PUBLICITY.*

THE debate on this subject was opened by Mr. W. F. TAYLOR (London Telephone Service):—

Telephone Publicity! How departed Civil Servants must be turning in their graves at the thought of their successors discussing such a subject as advertising for business by a Government Department. But then they must be revolving steadily in these times. So many things are happening which, had they occurred in their days, would have caused them to hold up their hands in holy horror. I need not particularise.

Modern thought—to say nothing of necessity—has produced more enlightened views. Advertising by Government Departments has received the blessing of the present Chancellor of the Exchequer, who said a little while ago that Governments were finding that "sweet are the uses of advertisement."

The Post Office is a great business. It has goods in the form of service to sell and if it is to keep in the van of progress it must advertise.

I am afraid it was a long time in coming to this conclusion, and advertising is, I believe, a comparatively modern innovation. Now we are progressing at such a rate that, had I known when I was asked to introduce this subject what I know now, I would have approached the matter with considerable diffidence, as I have discovered since that much of the ground has been cut from under my feet.

About the beginning of this century the Post Office London Telephone Service had its beginnings, and it issued a booklet which to modern eyes was heavy with letterpress, and if issued to-day would certainly not be read by the general public, which likes its advertisements to be short and to the point.

I can imagine the arguments and doubts which preceded the issue of this pioneer circular, but fortunately we have progressed a long way since that time, with, however, many a hiatus to be followed by bursts of energy.

We must not lose sight of the fact that the telephone advertising field is a wide one. We have not only to push the sale of one kind of service but of many.

The installation of a telephone is only the beginning of things, and the uses to which it may be put—in a word, "service"—are all worthy of attention. I am convinced that subscribers as a whole neither know nor understand them.

Calls are our life's blood, and if by advertising we can increase the calling rate of individual subscribers by a reasonable amount and make them turn to the telephone as a means of overcoming their difficulties and supplying their wants, in other words, make telephoning a habit, we shall do three things: (a) improve the financial position, (b) make the subscribers think twice before they dispense with the service and (c) induce more people to subscribe for adequate facilities.

Publicity for the various services we have to sell may take several forms—for example: Advertising in the Press, press comments, posters on hoardings and in and on post office buildings, postal distribution of pamphlets, pamphlets and postcards distributed with accounts, Post Office exhibitions, exhibition stalls, shops and shop windows, apparatus displays on Department's premises, advertising in stamp books, stamp obliterators, return postcards, &c., obtained from post offices and call offices, and so on.

In this connexion we must not rule out the immense value of prompt completion. Now that a great improvement has been effected in the time of completion, with still greater cuts in prospect, should not this be made a feature of future advertisements? We get many unsolicited testimonials on this and other aspects of the service which never see the light of day, but contain much material which could well be used as a counterblast to newspaper critics. Newspapers might accept them as advertisements when they would not publish them if sent as letters to the editor. A good service must be reckoned as among the best advertisements. The value of the personal call by a representative of the Department ranks as an advertisement, although perhaps of a rather different kind from that to which we are addressing ourselves to-night. I should like to analyse all these methods, but time will not permit.

It is interesting to note that in recent years more and more firms are, in their newspaper and other advertising, urging the public to give their orders by telephone, and many have illustrations showing telephone instruments. One pamphlet issued recently by a commercial training college might, indeed, have been, from the outside, a Post Office Telephone advertisement, and it was only when you turned over the page that you found out that it referred to something else. All this free advertisement is excellent and should be encouraged, even to the extent of supplying suitable blocks if this is possible. It proves, at any rate, that the public is beginning to develop the telephone habit.

There are still unexploited several other means of bringing the service to the notice of the public, for instance, the exhibition of posters on mail vans and stores vans of the Department. These have been suggested, but up to the present time the difficulties have not been surmounted. My view is that there is a great opportunity lost.

* Open debate at meeting of the Telephone and Telegraph Society of London.

I hanker also after permanent advertisements on Post Office windows not only about telephone service but about the other services the Post Office has to offer as well, and I consider that the Department is not making full use of the means which it has at its disposal, and should at once consider this point afresh. A neat and artistically designed advertisement need not detract from the improved appearance of post offices. Even banks, who are rather particular about the appearance of their branches, have notices in their windows, such as "Foreign business transacted" and so on.

We have exchange buildings on or visible from main thoroughfares and we fail to make the most of our opportunities in these cases. We modestly carve "Telephone Exchange" on some part of the stone work. I should like to see that and other matters in letters of flame in prominent positions on these buildings. There is also the C.T.O. building, with a glorious opportunity for an advertisement awaiting exploitation, and Cornwall House, too, hides its light under a bushel, although one edge has recently been raised slightly and a glimmer of light has been released. The Engineer-in-Chief has a museum of telegraph and telephone apparatus of great interest hidden away. Why shouldn't it be brought out into the light of day and made available to the public?

A thing that has always annoyed me is that surface boxes in hundreds are labelled "Post Office Telegraphs." Why not telephones? Then the jointers' little tents might have, say, a stencilled device on them instead of being modestly labelled G.P.O.

In America the advertising value of handsome offices is being more and more appreciated, while ours, I am afraid, fall far behind the American standard. This is a matter which might be worthy of consideration.

At a Contract Managers' meeting in 1930 I suggested that a Telephone Enquiry Bureau should be opened at large post offices. I was interested to learn the other day that one has been opened at Leeds, and I hope it may be successful and be extended to other areas.

At the same meeting I suggested that it would be a splendid advertisement if the Department could arrange to get additional capital by the issue of telephone bonds to the public. These would give the public a feeling of proprietorship in the service, which they have not got at present. I am convinced that the hundreds of thousands of stock holders in the American companies must exert a benevolent influence on the growth of the service.

We have recently seen a wonderful exhibition for school children which will influence the rising generation telephonewards. There are indications that older sons and daughters living at home bring pressure to bear upon their parents to install telephone service and means might possibly be found to reach this class with beneficial results. In America a long time ago efforts were made in this direction by sending circulars first to father, and if that had no effect to mother; if no order resulted, then to the eldest son, then the eldest daughter—and so on, with satisfactory results. A special directory giving details of the family made this possible.

I should like to pay tribute to the T.D.A. for its efforts to popularise the Telephone Service. Its Press advertisements have been excellent in form and matter, and I have only one fault to find, and that is that they were not continuous in one newspaper. It is my view that newspaper advertising, to bring in reasonably good results, must be continuous. You lose by adopting "fits and starts" methods. Constant hammer blows are necessary to shape the minds of the public, whether you are trying to sell telephone service or pills. It is, however, an expensive business, and I, for one, would like to hear the views of this meeting on this important matter. I am not an advertising expert, but I should be surprised to learn that a spasmodic newspaper advertising of such an article as telephone service produces results commensurate to the cost involved.

Major Isidore Salmon, M.P., Chairman of Messrs. J. Lyons & Co., Ltd., said recently: "Unfortunately for British trade there exists a by no means uncommon fallacy that in periods of depression severe retrenchments should include a drastic cut in the areas of publicity.

"Nothing could be more destructive of that great essential in advertising—continuity. Only by means of continuity may one hope to maintain and preserve the habit of buying. That habit can best be established by means of full value for money and advertising.

"It is not enough, however, merely to continue to give value for money. It is necessary to continue to inform the great buying public where that value can be found."

The Post Office itself has now begun newspaper advertising and I welcome the innovation and hope that it may be continuous. I like the advertisements which have appeared, but wonder if in some cases there is not too much letterpress and whether the 10s. a month rental reference does not mislead some people, but by recording results from the different types it will no doubt be possible to judge what attracts the public most and to concentrate on that type.

The booklet sent out to those who returned the coupons was a splendid effort, in my view, but why the hand microphone was turned the wrong way on its cradle is a mystery.

This method of telephone publicity is too new for me to say much about it, but I am watching developments with considerable interest.

I hope, however, that if in these hard times direct results are not all that might be desired the indirect results which are difficult to trace will not be ignored, and that those who decide these things will not condemn the scheme and cut it short before the public has begun to react to the constant reiteration of the advantages of telephone service.

I have a number of slides illustrating various aspects of telephone advertising which, with your permission, I should like to run through, as they bring out a number of points which strike me as important.

(After showing two slides of advertisements by the National Telephone Company, one used in Glasgow during the height of the fight with the

800% on the cost of the instrument!! I recommend it to the powers that be for early consideration.

Fig. 3 is not an advertisement, but I show it with the object of proving that persistent advertising can produce results.

You will see that the graph represents the ratio of lines to stations. Up to the end of the war it dropped consistently, due to large hotel and store P.B.X.'s, and during the war to large Government P.B.X.'s. From the end of the war it began to rise and went on rising, partly because we were tapping residential areas which produced few extensions, partly through the loss of the aforesaid Government P.B.X.'s. I felt that something must be done about it and convinced the Department that a campaign to produce more extensions was essential. In January, 1927, we began to send out, with the accounts, post cards advertising extensions, first to residential subscribers without that facility, and then to all subscribers renting an exchange line only, and that has gone on quarterly—with a few omissions which I deplore—and you see the result. The curve flattened out and the ratio remained practically stationary until trade conditions became bad and a slight upward tendency was noticeable. In January, 1932, however, the ratio has gone back to .594. I hope that nothing will be done or left undone to see that return postcards are sent out every quarter. This was really the beginning of the present advertising campaign and we in the London Telephone Service take some credit for having convinced the Secretary that results can be got from advertising.

Telephone Plant

THIRTY-ONE YEARS AGO the first telephone was installed in Baltimore. In the early days the system was necessarily crude in construction and operation, and of limited scope.

The prompt adoption of each improvement in the telephone art has developed a highly perfected plant and has placed Baltimore in the foreground as a telephone city.

To-day there is a modern plant designed to serve 100,000 telephones—a part of the Bell system of 4,400,000 telephones. The extent of the telephone plant and its importance to the community are indicated in a concise form in the following statement:

Wire Plant	Traffic
Duct miles of conduit 415	Local messages 1908 54,500,000
Miles of underground wire 81738	Out-of-town messages 1,350,000
Miles of open wire 4888	Daily average number for each telephone 6
Total miles of wire 86626	Telephones 36,000 Employees 1,400

Switchboards are of the most approved multiple common battery type. Copper Metallic Circuits are universally used for subscribers' lines.

Underground Wires comprise 94% of the outside plant Buildings are of modern fire-proof construction.

The Future—No expense will be spared in the adoption of methods and equipment justified by a commensurate return in better service and economies in the operation of the system.

The reserve telephone plant will be described in the next bulletin.

The Chesapeake & Potomac Telephone Company

OLD WAY—Overhead Wires
NEW WAY—Underground System

FIG. 1.

corporation, and the other showing an attempt to attract the attention of busy subscribers to the necessity for additional facilities, which produced good results, Mr. Taylor continued:)

The Department produced a similar circular but of a much cheaper kind on poor paper—a false economy. In my view good paper, printing and illustrations pay. They are looked at when poor stuff is discarded without reading. I consider we have issued too much of the latter in the past, but the improvement in recent times has been almost miraculous.

Figs. 1 and 2 illustrate two of a series of American educational advertisements of 25 years ago, showing that the necessity for taking the public into your confidence in order to get them to appreciate just what is necessary to provide the service and make them understand why the tariffs are what they are. I think something of this kind should have been done here long ago, as we constantly meet the plea for cheaper rates, due to ignorance of what is involved in providing the service. For instance, a man recently wrote to the papers stating that the rental of £8 per annum represented

The Public's Pulse

THE PUBLIC NEVER KNOWS, by the service, when a central office has its busiest hours. Studies, based upon conditions obtaining in different parts of the city, guide the organization of the operating force to care for rush periods and insure uniformly prompt service throughout the day. A proper reserve force is always available for the unexpected.

"St. Paul"—In the business district, an enormous telephone plant lies practically idle for eight hours—72% of the day's traffic being handled between 10 A. M. and 4 P. M. Between 9.30 A. M. and 10.30 A. M. the business man answers his correspondence and conducts the details of his business by telephone. The highest peak of the day is reached at 10.30 A. M. The number of messages drops at luncheon hour, and then immediately starts upward, reaching the afternoon peak at 3.30 P. M. The closing of the business day is readily determined by the chart. Newspaper office and hotel traffic prevent the evening curve from dropping suddenly.

"Madison"—The traffic curve of a central office in a residence district tells a different story. The greater part of the day's shopping and marketing is done between 9 and 10.30 o'clock in the morning. Following the drop at luncheon time, is a rise representing the social messages of the women folk. It is remarkable that the highest peak of the day is reached at 7.30 P. M., showing the importance of the telephone in the preparation of the evening's entertainment. The curve given is for an average day; a storm shows instant effect on the amount of traffic and increases it in proportion to the severity of the weather.

A telephone plant must be built large enough to carry the maximum traffic load. This fact increases the plant investment and operating expense considerably over what it would be if there were a fairly uniform distribution of the traffic during the entire day.

The Chesapeake & Potomac Telephone Co.

FIG. 2.

There has been much argument regarding the psychological effect of sending out advertising matter with accounts, some arguing that it is bad in principle and that better results would be obtained by sending the advertising matter with receipts. There is no reason why advertising matter should not be sent with receipts also, but it must be remembered that many

subscribers pay their bills at post offices and would never get advertising matter at all if this were the sole means of distribution. In any case, as I shall show, we *do* get results from the method we have adopted and even advertising experts have been confounded by the excellent results achieved. So much for theory and practice.

Fig. 4 shows two of the post cards used in the early stages of the campaign. The "light in every room" card, based on an American advertisement was issued to residential subscribers without extensions and the first issue produced between 700 and 800 orders for extensions. This was very encouraging,

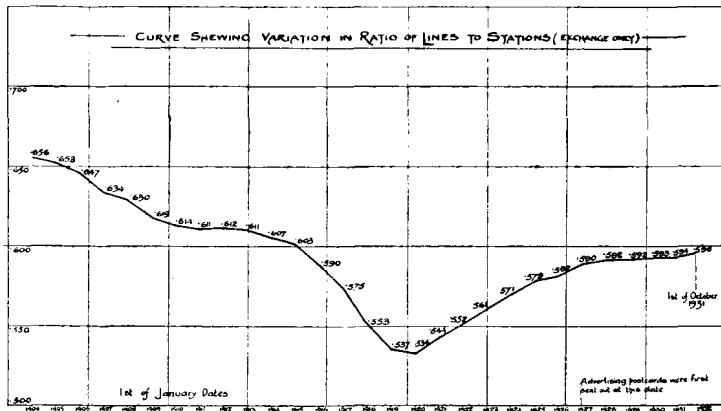


FIG. 3.

and we went on with unfortunate breaks, generally because something else had to go out with the accounts. To-day we are still sending out postcards with accounts even if something else has to go out as well and we still get good results. Those sent out with the October accounts, for instance, drawing attention (in a feeble sort of way, if I may say so, due no doubt to the short time available for its production) to the reduction of extension rentals produced orders for 553 extensions and also for 58 exchange lines.

The original cards were cheaply got up—no attempt at illustrations to catch the eye, but they were the best we could induce the Department responsible

to produce in those days—and the later cards show a great improvement in this respect, but I am not keen on some of the designs.

The next slide (not reproduced here) shows two recent extension post cards sent out with accounts. Since we started this system we can trace orders for 6,083 stations from these post cards, and even in these hard times post cards, if sent with four quarterly accounts, should be good for 1,500 to 2,000 orders per annum in London alone. I repeat that nothing should be allowed to interfere with the quarterly issue of these cheap and effective advertisements. A point I would like to make there is that all these post cards invite the subscriber to return the card asking for an agreement or for a representative to call. This is most important. Most people are lazy when it comes to answering an advertisement and you want to make it easy for them. The T.D.A. adopted the coupon system generally in their advertisements, and the Post Office has adopted the same idea in its newspaper publicity, and I am sure they are right.

The next slide (not reproduced) depicts two American advertisements, one of which deals with a programme of lectures given by experts with the

Have You a Light in Every Room?

Of course you have. You would find it very inconvenient to be obliged to go to a certain room in order to get a light.

But you are doing this when you have but one Telephone.

Less than ONE PENNY a day will give you an additional telephone. Think of it. IF INTERESTED kindly fill up and return this postcard.

D.M. 29.
(New 1934/27)

(22/65) W1 25084 938 195,000(231012) 3/27 H & S' Gp 161

HAVE YOU CONSIDERED that a simple Internal Extension Telephone

Would increase the **USEFULNESS** of the Service which you have just ordered?

The **COST** is less than **1^p A DAY.**

SAVE TIME
SAVE LABOUR
INCREASE COMFORT

IF INTERESTED kindly fill up and return this postcard.

L.T.S. 49)

(7/6393) W1 25064 293 83,360(8) 3/25 H & S' Gp 161

O.H.M.S.

Tele. No.

Address

Date as postmark

A. Please send an Agreement Form for an Extension Telephone.

B. Please send representative to discuss Telephone Service with me *

on at o'clock.

Signature

A Delete the lines not required

B Two days' notice of an appointment is desirable.

The Controller,
London Telephone Service.
Cornwall House,
Waterloo Road,
S.E.1.

FIG. 4.

FIG. 5.

object of popularising the service. The lectures cover such subjects as: "History of Communication," "Transoceanic Telephony," "The Pathway of a Telephone Call," "Finding names for a Growing Family," and so on.

This is a form of advertising we may at some time adopt. I doubt if we could fill the Albert Hall yet awhile, but why not try on a small scale? Has enough use been made of the B.B.C.? There are many subjects regarding the service which could be made into broadcast lectures much more interesting than many of the lectures at present broadcast if you get the right man or woman to undertake the job. The Postmaster-General recently gave a very interesting talk on "Thrift and the Post Office Savings Bank." I hope it was only a beginning and that we shall have the pleasure of hearing him on telephone matters on a future occasion. Something has been done in the way of addressing rotary club meetings and so on, but this is a likely method of publicity which might be extended to meetings of societies of various kinds. Indeed, if organised properly there might be sufficient work

of this kind for a full-time publicity officer if the right man could be found. I believe Glasgow has done much in this direction. Are Glasgow people more telephone-minded as a result?

I mentioned poster advertisements, and the following slide, Fig. 5, shows an example of a British one out of several which have been issued.

I think you will agree that the joint effort of the Department and the T.D.A., in producing and displaying large coloured posters, is worthy of all praise, but what has London done that it has been left out in the cold? One of the weak points of poster advertising is that you cannot trace direct results but can only judge whether it has been worth while by the general increase of business where it has been displayed, which, however, may be due to other causes. In any case, such posters are bound in time to make the public more telephone-minded.

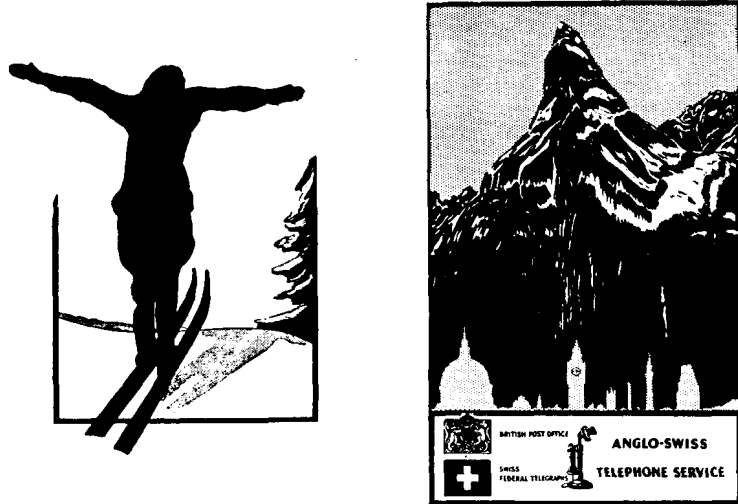


FIG. 6.—BACK OF LEAFLET ADVERTISING ANGLO-SWISS TELEPHONE SERVICE.

I must say I deplore the descent into cubist and jazz muddle in posters. The double crown poster advertising the Young People's Telephone Exhibition, and headed "Hello, Hello," is a case in point. I may be old-fashioned, but give me something straightforward, something which in this hurried age "he who runs may read" and not have to stand up to puzzle out. The poster referred to may have been designed by the greatest poster artist on earth for all I know, but, frankly, I don't like it.



FIG. 7.—THE TELEPHONE SHOP AT LEWISHAM.

The great progress made in recent years in world-wide telephony has resulted in the issue, both here and in America, of quite a number of really wonderful leaflets drawing attention to the facilities available. I think you will agree that Fig. 6 depicts an enormous advance in publicity by a Government Department, and one which I am sure you will also agree ought to be extended.

Lastly, there is the type of publicity of which Fig. 7 is an example. What is your view of it? These exhibits mean a great deal of work and considerable expense and the direct results are not commensurate to the

labour involved, but it is undoubtedly an attractive form of publicity and the invisible results no doubt make it worth while. Can you suggest any additional attraction which would make the direct results more encouraging? Can you say how you react to a stall, say, of electrical or gas equipment at such an exhibition? Does it make you go home determined to install a gas or electric fire or buy a vacuum cleaner or an iron, or does it leave you cold?

Finally, I am quite convinced that if the telephone service of this country is to prosper and grow as that in America has grown we must produce a continuous stream of advertisements dealing with all aspects of the service, and by constant hammer blows make the people of this country realise that they must have and use the telephone service. Do you agree with me?

(Other contributions to the debate will be published next month.)

LONDON ENGINEERING DISTRICT NOTES.

Prospect Automatic Exchange.

THE above exchange, which serves the Barnes and part of the old Putney and Richmond areas, was brought into service at 1.30 p.m. on Wednesday, Mar. 9. The number of subscribers' lines transferred to the new exchange was approximately 3,000, 1,500 from Prospect Manual Exchange, which will now be recovered, 500 from Putney Exchange and 800 from Richmond Exchange. 450 junctions were also brought into use at the same time. The opening was attended by the Charter Mayor Elect of the Barnes and Mortlake Urban District Council, attended by a number of Councillors and other officials. After the cut-over the Charter Mayor passed the first call from a gold hand micro-telephone to the Council offices. The party of Councillors was then divided into four groups, who were shown round the cable chamber and the automatic apparatus rooms by Engineering Officers. They were then conducted round the manual switchroom by officers of the London Telephone Service. Great interest was shown by the visitors in the intricacies of the new automatic exchange. The visitors partook of tea in the operators' dining room and at the conclusion the Charter Mayor, supported by the Chairman of the Fire Brigade, expressed his appreciation of the arrangements which had been made for their reception and entertainment during the course of the afternoon. Mr. Gomersall, in replying for the Post Office, expressed the hope that the good relations already existing between the Council and the Post Office would still continue.

The exchange equipment manufactured by the General Electric Company, Limited, has an initial capacity of 4,700 lines, capable of extension to 10,000.

London Engineering District Sports Association.

Football—Civil Service Cup.—By virtue of a win of 4-1 over the Inland Revenue, the London Engineering District, for the third time, figure in the final tie to be played at Chiswick. The game was very disappointing; conditions rendered good football impossible; at half time there was no score, although it was obvious that the London Engineering District were by far the better side.

In the second half the London Engineering District backed strongly, and goals then came quickly, Smith scoring by slipping a centre from Trimmer. Marris scored a second from a similar movement. The remaining goals, scored by Trimmer and Pulling were very scrambles at the goalmouth. Inland Revenue's only goal came from a doubtful penalty.

London Engineering District v. Arsenal.—In order to help the Sutton and Cheam Hospital, the London Engineering District Sports Association arranged a charity match with the Arsenal Football Club. The match was played on the ground of the Sutton United Football Club, on Mar. 9. Miss Rene Ray, the famous film star, kicked off in the presence of a large group, including members of the Sutton and Cheam Council, magistrates and other local celebrities. A very keen and interesting game resulted in a win for the Arsenal by 4-1. The Arsenal had practically the whole of the play during the first half, and only the great play of Donegan in goal and Lever at back kept the Arsenal score down to two goals. In the second half play was very even. The London Engineering District had more of the play and Harris scored a fine goal 10 minutes after re-start, but 5 minutes from time the Arsenal scored two more goals.

The London Engineering District put up their best show of the season. Honours went to the defence, Donegan being the best player on the field. Cox, a new player in representative football, performed creditably at right half.

Teams.—Arsenal: Solly, Compton, Black, Millington, Sidey, Cartwright, Trotter, Walsh, Rossage, Stockill, Lewis. Civil Service: Donegan, Lever, Final, Tolman, Marris, Maguire, Harris, Smith, Pulling, Brocklesby, Trimmer.

As a result of the match the sum of £20 was handed over to the hospital.

THE STORY OF THE THERMIONIC VALVE.

B. S. T. WALLACE, C.T.O.

(Continued from p. 131.)

The modest little valve you plug in your receiver holds more secrets than all the other discoveries of science put together, and many startling things are yet to come from it. By its means the surgical knife is even now being dispensed with, and delicate, bloodless operations impossible with the knife, are being performed. Valves are now being made constructed in metal throughout, with a length of six feet or more, and weighing hundredweights. No fiction could conceive its ultimate end, and even the suggestion that the next war but one cannot be fought in the air because the aeroplanes in flight would just be turned into blobs of molten metal by the giant valves of the enemy, is really quite a modest one.

Let us see what takes place in this wonderful device, the thermionic valve. The electrons emitted by the heated filament are attracted by the positive potential on the plate. This movement

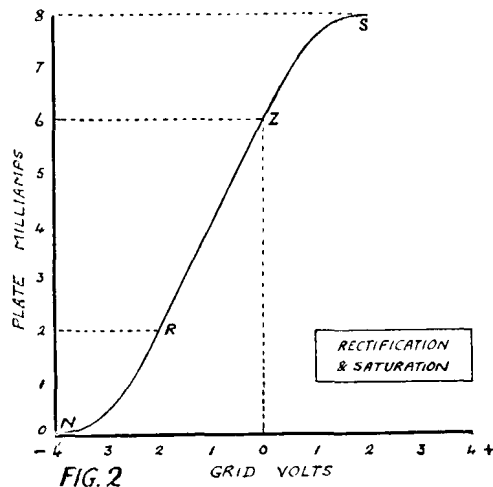


FIG. 2

of electrons from the filament to the plate constitutes the actual flow of current from the high tension battery, and it must be noted that the old conception of the current flowing from positive to negative is here proved to be erroneous, although it is too deeply ingrained now to be eradicated.

The electrons are assisted in their passage to the plate by putting a positive potential on the grid. A negative bias will obstruct this flow and repel the electrons back to the filament, and if sufficient in degree, cause a total stoppage of the electron flow to the plate.

When using a valve as a relay or amplifier the voltage fluctuations on the grid cause variations in the plate circuit that are not necessarily proportional to the applied potentials, but only so under certain conditions. To attain a definite relationship between the grid voltage and the plate current it is necessary to know the *characteristic curve* of the valve. This information is ascertained by plotting grid volts against plate current.

Fig. 2 is an explanatory valve curve. It is very simple to follow and quite interesting and instructive. From the graph observe that the zero grid volts line cuts the curve at Z, indicating a plate current of 6 milliamps. By impressing a positive bias of 2 volts on the grid the bias line will cut the curve at point S. It will be seen that any further increase of positive bias beyond 2 volts will give no further increase in plate current because the limit or *saturation point* has been reached.

Turn the grid bias into 4 volts negative. The grid bias line now appears at N and the plate current is reduced to zero. Imagine now an incoming alternating potential of 2 volts on the grid. The negative half-cycle will increase the negative bias to 6 volts and throw the grid bias line off the curve, or further in the no-current direction, and the plate circuit will remain unaffected. The positive half-cycle will reduce the negative bias to 2 volts, the bias line now cutting the curve at R, indicating a plate current of 2 milliamps. The alternating potentials on the grid have been converted in a unidirectional current in the plate circuit. In other words, the valve is acting as a *rectifier*.

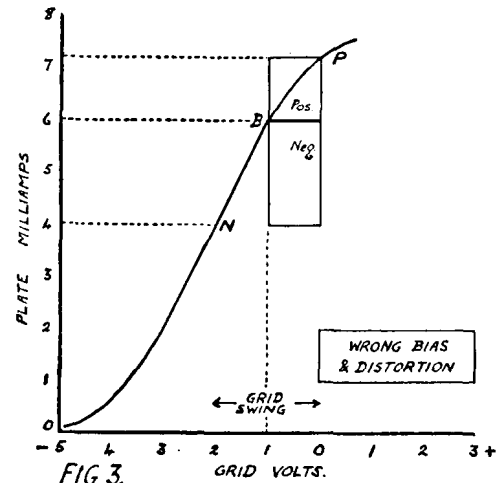


FIG. 3

Assume it is required to use the valve as a telephony or voice-frequency amplifier, that the grid bias is adjusted to 1 volt, and that the incoming signal has a potential of 1 volt. From Fig. 3 the steady plate current at B is 6 milliamps. The positive half-cycle will reduce the bias to zero, cutting the curve at P and raising the plate current to just over 7 milliamps, an increase of about 1 milliamp. The negative half-cycle at N lowers the plate current to 4 milliamps, a decrease of 2 milliamps. There is a *preponderating decrease*. The amplification is therefore uneven, with consequent *distortion* of the incoming signal. This lack of balance can readily be seen by completing the parallelogram and comparing the negative and positive sections. A millimeter in the plate circuit would, in amateur parlance, kick downwards.

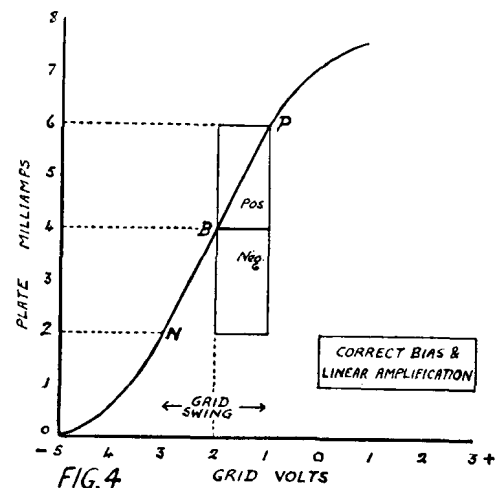


FIG. 4

Now increase the grid bias to 2 volts, as in Fig. 4. The bias line now cuts the curve at B, indicating a steady plate current of 4 milliamps. The negative half-cycle reduces this at N to 2 milliamps, and the positive half-cycle at P increases it to 6 milliamps. Both increase and decrease being equal in amount the incoming signals are repeated correctly in the plate circuit. The parallelogram is now equally divided and the *amplification is linear*.

Observe that the total grid swing of 2 volts is now confined to the straight portion of the curve. Any straying of the grid swing from off this straight section would result in distortion, a point that will again be referred to at the end of this article.

With the conditions of Fig. 4, a milliammeter in the plate circuit would indicate the difference between the positive and negative variations. These being equal and opposite, the result is zero and no movement of the needle will be evident, it remaining perfectly still at the steady mean plate current value of 4 milliamps.

Concerning the use of a milliammeter in the plate circuit of a straightforward amplifying valve in a broadcast receiver: From personal experience and letters to the technical journals, a number of amateurs appear to have difficulty in getting this steady deflection; some complaining that it is anything but steady and others that it is more or less so except for slight variations and occasional spasms. They ask if a literally dead steady deflection is obtainable.

The answer is, that not the slightest movement of any kind should be visible. Fluctuations betray one or more of three things: Unbalanced conditions due to wrong combinations of H.T. voltage and grid bias; an overloaded or unsuitable valve; a variation in one of the three batteries.

A common cause of periodical overloading is the working of a set near the oscillation point on a distant varying signal, causing it intermittently to overload and also break into slight oscillation, which may pass unperceived owing to the general noise made by abusing reaction in the endeavour to squeeze more out of a signal than can legitimately be expected.

An interesting point concerning the relationship between the H.T. voltage and the characteristic curve is worth close attention.

For any particular value of H.T. on the plate, the relationship of the other factors remains constant. An alteration in the value of this high tension disturbs both the relationship and degree of these factors, but the vital thing to remember is that within the limits of any particular valve, the higher the plate voltage the longer is the straight portion of the curve. It will be evident from this that by using the highest possible H.T. voltage the risk of distortion will be diminished providing the appropriate grid bias is used. It is sound policy always to use the highest plate voltage and grid bias advised by the makers of any particular valve.

Attention is called to the efficiency of the thermionic valve as a relay for telegraph signals as compared with the usual mechanical relays. This may help to allay the fears aroused when only half the story is told by those who would condemn the system because it uses "too many relays."

Taking the equivalent of the various factors usually computed in an estimation of the efficiency of a mechanical relay the valve compares as follows: Inductance, *nil*; transit time, zero; quality of contact, perfection; neutrality or bias, constant to any required adjustment. (By special connexions it is possible to obtain, if desired, a double current effect through apparatus in the local circuit.)

The story of the valve leads one to speculate as to which of the many undeveloped electrical phenomena will next blossom forth into potential industries of great magnitude. It explains the ceaseless energy, and probably also the long life, of men like Faraday, Edison, Lodge, Fleming, who pursue the most romantic quest that life can offer—the discovery of those things already provided by a Guiding Mind for the beneficent use of mankind.

EMERGENCY VALUE OF THE TELEPHONE.

A FEW months ago a well-known Windsor jeweller was persuaded to take service, although he confessed he couldn't see that the 'phone would be of much use to him. He met the Contract Officer several times and still adhered to the opinion that the telephone was an "expensive hobby."

Then the "Gold Rush" came! and with it the urgent need of continually obtaining quotations of ruling prices from the bullion dealers.

The jeweller now considers his telephone is worth its weight in gold!

THE G.P.O. PLAYERS IN "THE CARDINAL."

THE G.P.O. Players undertook an ambitious task when they presented Louis Parker's "The Cardinal" on Mar. 17, 18 and 19 at the Guildhall School of Music Theatre. We may say at once that the production was in every way excellent, the costumes very good, and the scenery satisfying and artistic, all reflecting the greatest credit on Mr. Gerald Storr, the producer. The players rose to the occasion in the many dramatic moments which the play afforded. To be dramatic is, of course, a first requisite of a good play, and dramatic "The Cardinal" certainly is. It is scarcely subtle, and the development of the plot seems carefully worked up rather than inevitable. We have a cynically unscrupulous villain (a part in which Mr. Jack Scott, who looked the Italian soldier of fortune to the life, revelled), a gallant lover, a devoted heroine, a robustious good-humoured father, a high-souled churchman, and an inflexible military governor, the light and shade in whose characters has to be provided chiefly by the actors. Strozzi murders the heroine's father in the first act, and the hero's dagger, which he has conveniently dropped, is found as evidence against him. Strozzi, who is about to set out at the head of the Papal army against Venice, confesses to and is shamed by the Cardinal before he leaves. He returns, covered with glory, to find the Medici cardinal out of favour and unable, under the sacred seal of the confessional, to exculpate his brother from the charge of murder. The cardinal, feigning madness, evolves a deep laid stratagem to make Strozzi blurt out his guilt in the hearing of the concealed Governor, and Giuliano, the hero, who expects to be led to the scaffold, is led to the altar to be united to his bride as the curtain falls.

Once we have conceded the probability of Strozzi's risking the choice of the Cardinal, the brother of the wrongly accused man, to hear his confession of murder and give him absolution, we can be thrilled by the tense scene which ensues and which Mr. Cahill and Mr. Scott carried through admirably. Indeed Mr. Cahill sustained his long and exacting role with power and subtlety, occasionally giving—very properly as we thought—more indication by his looks and tones of the wily churchman than the author had written into the part. Mr. Wilfred Sellars was so good as Chigi that one was sorry his performance was cut short by his murder. Mr. Pilkington was excellent and diversified as ever as the Governor of Rome and Mr. Gartland appropriately devoted in the role of Giuliano. The two principal women's roles were those of Claricia, the Cardinal's mother, an ambitious yet sympathetic woman (whose character was admirably portrayed with Miss Kathleen Emery's well-known skill) and Filiberta, a difficult part played with much tenderness by Miss Aileen Myres. Mr. Hudson, as Abbot of Sherborne, Mr. Stuart Godson as Beppo the bell ringer, and Mr. John White the major domo, did all that was possible with the rather poor comic relief provided by those parts. Space does not allow us to mention all the long list of characters, but mention should be made of the Ladies of the Household (Miss Henniker, in a much smaller part than usual, Miss Constance Carpentier and Miss Doris Smith), and the two Deacons (Messrs. Doust and Mitchell). The play, which was received with the greatest enthusiasm at each performance, afforded fresh evidence of the capability of the P.O. Players to excel in the heavier, as in the lighter, forms of dramatic art.

ABERDEEN NOTES.

A Popular Engineer.—Mr. J. B. Glover retired from the position of Sectional Engineer at Aberdeen on Feb. 19.

The esteem in which he is held and his popularity with all branches of the service in Aberdeen were well illustrated on the 25th, when Mr. and Mrs. Glover were met at a whist party, followed by supper and a dance, in the Bon-accord Hotel, and presented with two easy chairs and a pendant for Mrs. Glover. The presentation was made by Mr. Kerr, in the presence of Major Cameron, Acting Superintending Engineer, Mr. Crawford, Head Postmaster, and Mr. Ferguson, District Manager, who each paid warm tributes to Mr. and Mrs. Glover's good qualities. Mr. Lyon, who presided over a company numbering nearly 160, and Mr. Finlay also spoke.

PUBLIC PRINTING TELEGRAPH SERVICES OF THE U.S.A.

An American visitor to the British Industries Fair at Olympia last month, after spending no inconsiderable portion of the time of the Post Office representative, in listening to the latter's explanations and answering the enquirer's questions, broke off rather suddenly, saying as he left the exhibit, "Say boy, that's not new. We did that in the States twenty years ago."

The best reply to these words, would no doubt have been given had our cousin from over the Atlantic not immediately lost himself in the crowd. As, apparently, he was in a hurry at the time, our visitor may wish at his leisure to read the following *Trade Service Advice* received from Reuter's News Agency, New York, only a few weeks prior to the opening of the B.I.F. This *Advice* is the first intimation of the inauguration of this particular American service of its kind. It is obviously so, for it reads thus:—"The American Telephone and Telegraph Company and the Western Union and Postal Telegraph Companies are now offering to the public a nation-wide teletypewriter service akin to the telephone service. Automatic telegraph instruments, with the standard typewriter keyboards will be installed in the homes and offices of subscribers. All the latter will have to do is to signal a central operator who will then connect them at once with other subscribers in any part of the country. Direct two-way written 'conversations' can then be carried on. Charges for the service will be on a graduated time-basis. The American Telephone & Telegraph Company will charge about 20 cents for a five-minute local communication, whilst a five-minute call between San Francisco and New York will cost about \$4.60. Guarantees of a minimum amount of business per month will be demanded from subscribers." In short this service is a subscriber-to-subscriber teleprinter service of the type to be opened shortly in this country.

For further information it may be recalled that as recently as December of last year the Western Union and Postal Telegraph companies, after some months of canvassing and organisation, opened what is to be known as the Timed Wire Service. A Timed Wire Service Directory of those business houses throughout the United States which had equipped their establishments with the necessary standard Telegraph "Typeprinter" had previously been prepared for and delivered to the all but 10,000 subscribers. The charge for a three-minute period is twice the price of a ten-word telegram. For each minute over three, one-third of the initial rate is charged. Sixty words per minute is not considered, says the *T. and T. Age*, an unreasonably high speed for an expert touch-typist, so that for those whose business demands a number of lengthy communications the convenience and economy of the system are self-evident.

Experts in this country do not consider that this system is likely to prove suitable for countries outside of America. It is a Public Printing Telegraph system as is that of the A.T. & T. Co., but unlike the latter is not a *direct* one between subscriber and subscriber. Briefly the procedure appears to be this:—A subscriber calls the W. Union office and himself transmits his telegram producing a perforated tape in that office (operation No. 1); the W. Union then runs this perforated tape through the company's transmitter to their distant office or exchange (operation No. 2); where the perforated tape is run into the addressee's receiver (operation No. 3); where it is received on the machine of the distant subscriber (operation No. 4).

The American technical press in summarising the most significant events in telegraphy during 1931 in their January issue, said that, "the most significant development of the year has been the establishment of Telegraph "Timed Wire" service by means of which any business office or works installing an ordinary telegraph printer can transmit messages on a time basis to other subscribers. The British Teleprinting scheme arranges for the imposition of the

Teleprinter upon the Telephone, producing a completeness and homogeneity which is considered to be desirable. Thus there are three methods of providing a Public Printing Telegraph Service analogous to the Public Telephone Service.

There is no humiliation in admitting that the American systems have been studied by experts from this country, but should our enquiring friend of the B.I.F. be able to cast his eyes upon these few lines, he will, we are sure, immediately admit that we are not nearly so far behind in Telegraphy as two decades.

J. J. T.

ANNUAL DINNER OF THE TELEGRAPH BRANCHES, SECRETARY'S OFFICE.

A MOST successful and enjoyable dinner—"function" would be an ill-fitting journalistic cliché to describe such a jovial gathering—was held by these branches at the London Tavern, Fenchurch Street, on Mar. 1. Mr. H. F. Sambrook, Assistant Secretary, in charge of Inland Telegraphs, was in the chair, surrounded by a representative body of Inland, Overseas and Wireless Telegraph men, a sprinkling of telephone men, the Controllers of the Central Telegraph Office and London Telephone Service, and one or two Solicitors. Mr. H. S. Pearce, as on the last occasion, proposed the toast of the services in a capital speech. Indeed a feature of the evening was the excellence of the speeches which were not only to the point but were an entertainment and bright *divertissement* in themselves. Mr. F. W. Phillips responded for the Overseas Telegraphs. Mr. W. D. Sharp (who revealed himself as an engaging and witty speaker) for the Inland and Mr. A. H. Read for the Wireless Services. After songs had been rendered Mr. Waterfall proposed "The Visitors," and Mr. Stuart Jones in responding was in his happiest vein of reminiscence and anecdote. Mr. Barnett, whose views are always broad, embraced a wide field of military and civil recollection as a preface to his toast of the Chairman. Mr. Sambrook, after expressing the pleasure he had in presiding over such a gathering, related a story of a Trades Unionist who found the hours of harp-tuning in heaven too long for his conscience to accept, and had perforce to seek the other place, where owing to the number of candidates, stoker's hours were limited to two a day. The speaker contrived somehow to draw a moral therefrom in favour of his small but hard-working department. After his health had been drunk with musical honours, the company concluded the proceedings with community singing. During the evening the following excellent artists entertained the diners. Mr. Leonard Everett, Mr. John Cahill, and Mr. Chas. Eburne (vocalists), Mr. Gayton (humorist), Mr. G. W. Monsear (sleight of hand), and Mr. E. Bradford (entertainer). The accompanist was Mr. H. M. Wilson. The company are indebted to Messrs. F. Warren, F. G. Birkett, T. Martin, C. Lucn, and B. E. James (Hon. Secretary), the Committee who carried out all the arrangements so well.

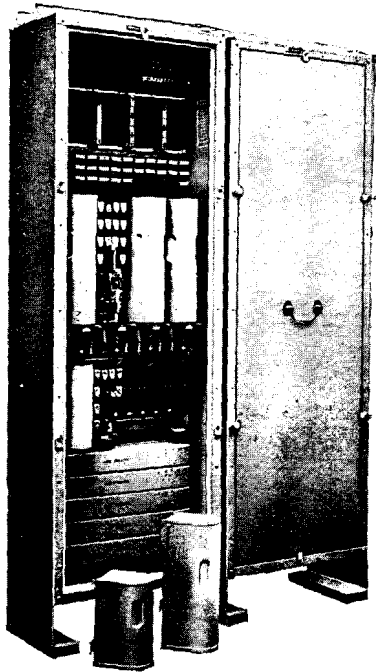
NORTH WESTERN DISTRICT NOTES.

Wigan.—A very enjoyable evening was spent by over two hundred Post Office folks and friends at Hope Hall on Mar. 2, when the Wigan Post Office Dramatic Society gave us a sample of their talents. They produced two plays, "The Bishop's Candlesticks" and "The Bathroom Door," and two broadcast sketches "Stung" and "Cross Calling." In the latter, the humorous side of Post Office life was cleverly introduced. In addition, several monologues which were much appreciated were given by one of the members.

The following are the names of those who took part: Misses N. Hood, P. Hood, N. Lydon, J. Prestt, D. Smith, E. Widdup, J. Widdup, M. Wilkinson of the telephone staff and Messrs. H. Maiden, J. S. Marsden, B. Parkinson, E. E. Parkinson, J. A. Taylor, J. Thornley, of postal staff.

We are all looking forward to their next venture.

G.E.C.



THROUGHOUT Great Britain G.E.C. Rural Automatic Exchanges are placing the smallest village and the most remote community on the map of telephone progress.

The British Post Office Standard Unit Auto No. 5 illustrated here is an example from the complete range of semi-automatic and fully automatic rural exchanges of the unattended type manufactured by

THE GENERAL ELECTRIC CO., LTD. TELEPHONE WORKS ——— COVENTRY

TELEPHONE NO. 4111.

TELEGRAMS: SPRINGJACK, COVENTRY

LONDON OFFICE: MAGNET HOUSE, KINGSWAY, W.C.2

BRANCHES AND AGENCIES THROUGHOUT THE WORLD

MANCHESTER NOTES.

Telex Working between Manchester H.P.O. and the British Industries Fair at Birmingham.

In order to demonstrate this system of working to the public, a complete set was installed in the Demonstration Room at the Manchester Head Post Office for the duration of the British Industries Fair at Birmingham. A private demonstration was given to the Press on the opening day, and the following is an extract from the *Manchester Evening News* of Feb. 24, 1932, on the subject:—

"Miracle Messages."

Manchester Evening News, sends greetings to Lancashire.

This message, while being typed in Manchester to-day, was simultaneously "delivered" at the British Industries Fair at Birmingham to an assembly which included the Lord Mayor of Birmingham.

In less than a minute the typed reply came back to a *Manchester Evening News* representative, "O.K. Thank you."

This modern miracle was performed by the Manchester post office officials, using Creed teleprinters, which the Post Office believe will revolutionise the telephone system in this country in a few years.

The British Industries Fair sent through a stream of greetings from Birmingham to Manchester to-day by this means.

A girl sat before an instrument very much resembling an ordinary typewriter. She sent the message from the *Manchester Evening News* at 60 words a minute and by the time she had finally punctuated it, the reply was already being typed back.

Invitations were sent out to the prominent business firms in the City giving particulars of the service and inviting them to a demonstration. Full advantage was taken of the invitation and several firms were interested in the scheme.

Sport.

The Annual Football match between the Liverpool and Manchester Messengers was played on the Y.M.C.A. ground, Manchester, on Monday, Mar. 7.

The game, which attracted a good attendance, was fought under very unfavourable conditions, rain falling during the whole period of play. The footwork of both teams was rendered very uncertain by the slippery condition of the ground, and the game ended in a decided win for Liverpool by 5 goals to 2.

Mr. Jas. G. Maddan and Lt.-Col. F. H. Kempe, Postmaster-Surveyors of Manchester and Liverpool respectively; Mr. C. A. Moorhouse, Assistant Postmaster of Manchester; Mr. W. I. Oldcorn and Mr. J. Haygarth, Chief Superintendents, Telegraphs, of Manchester and Liverpool, were amongst the spectators of the match. Many visitors from Liverpool accompanied the team and were joined at the match by Manchester friends, who afterwards entertained them to tea in the Dining Hall at the Head Office. A very enjoyable day concluded with a visit to the Manchester Hippodrome.

Telephone House.

Transfer.—We congratulate Mr. C. Sadler, Higher Clerical Officer, District Manager's Office, on his appointment to a Higher Clerical Officer's post carrying an allowance at Gloucester.

Pantomime.—The Telephone Social Club's third annual pantomime, "Aladdin," had a very successful run of five nights, commencing on Feb. 23. The capacity of the auditorium was taxed severely each night. The histrionic talent of the principals and choruses showed to advantage in the settings provided by the well-designed scenery and lighting. The performances were of such a high all-round standard there were few outstanding items. At the end of the final performance, Mr. Whitelaw, the District Manager, distributed amongst the smiling company the numerous gifts and bouquets from admirers. The Pantomime has become one of the main events of the Social Club's year.

Dance.—A dance was held at Telephone House on Mar. 5. There were fewer present than usual, about 180 attending.

Head Post Office.

In the Head Post Office on Mar. 8 the "Postels" Amateur Dramatic Society presented three one-act plays:—

"Out Goes She";

"The House with the Twisty Windows"; and

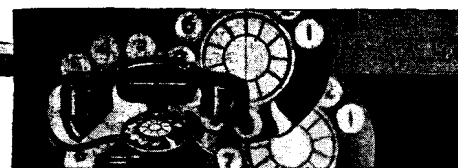
"Safe Custody."

Mr. Field, Sectional Engineer, Manchester West Section, took part in the first play. Mr. Whitelaw, the District Manager, and Mr. Crombie, the Traffic Superintendent, were members of an appreciative audience.

Forthcoming Events.

A comic opera, "Country Girl," will be presented by the Trunk Exchange Staff at St. Edmund's Hall, Alexandra Road, Moss Side, at 7 p.m., on April 15, 16, and 18. All should assure themselves of an evening's entertainment and reserve the date.

The season will be brought to a close at Telephone House by the holding of a carnival on April 23.



“THE FIRST ORDER FOR DIAL PARTS WE HAVE PLACED...”

AFTER three years of Strowger Automatic Dial operation for the city of Mankato, Minnesota, with better than 5,600 Type 24 Dials in service, Mr. P. M. Ferguson, manager of the Mankato Citizens Telephone Company, places his first order for dial parts. And this is merely for “a few finger plates to replace some where the black finish had worn off.” A truly remarkable record!

Yet this record is being duplicated by every telephone organization in every part of the world which is using the Type 24 Dial. Acclaimed at its inception as “The 1000-Year Dial,” the unparalleled endurance which it showed in laboratory tests is now being proven under actual working conditions. Its quiet, unfailing operation, its long life, and its virtual elimination of repair and maintenance costs, have definitely established the superiority of this dial and have stamped it as being unqualifiedly worthy of bearing the Strowger name.

Subject the Type 24 Dial to every test you can think of—compare it with other similar products—examine every part with the most thorough and painstaking scrutiny. We are confident that as a result you will agree with us when we say that the Type 24 is the world’s finest dial.



OFFICERS
H. A. PATTERSON, President
W. A. JURY, Vice President

W. D. WILLARD, Secy and Treas
P. M. FERGUSON, Manager

OFFICE 315 SOUTH SECOND STREET
MANKATO, MINNESOTA

September 29, 1930.

Automatic Electric Inc.,
Merchants Bank Bldg.,
Saint Paul, Minnesota.

Attention Mr. A. C. Stratton.

Dear Mr. Stratton:

A rather interesting incident occurred today; interesting to me at least, and I thought possibly it might be to you.

When we were contemplating installing automatic service in Mankato, I was quite fearful that the dial was going to be our largest item of expense in connection with automatic operation.

During the three years that our automatic plant has been in operation, we have had better than 5,600 dials in service.

This morning our shop man asked me if I would order a few finger plates to replace some where the black finish had worn off. I asked him then how many dials he had on hand that were in need of repair and he told me that aside from a few that would possibly need finger plates, he had only two dials in the stock room, and that these, having passed through fires, were beyond repair.

So we have no dials on hand in need of repairs and in ordering these finger plates, we find that this is the first order for dial parts we have placed since we cut the plant over to automatic service. This would serve to indicate to me that the dial has not been the element of expense that I feared it would be when we cut over three years ago.

Considering the use and abuse these dials get in actual operation, our record here seems to me to be wonderful testimony to the perfection of workmanship in your new dial.

Very truly yours,
MANKATO CITIZENS TELEPHONE CO.
P. M. Ferguson Manager.

STROWGER AUTOMATIC DIAL SYSTEMS

EXCLUSIVE SALES AGENTS
In United States and Possessions
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY
1033 W. Van Buren St., Chicago, U. S. A.

Automatic Electric Company
Manufacturers of Strowger Automatic Dial Telephone and Signaling Systems
CHICAGO, U. S. A.

EXCLUSIVE EXPORT DISTRIBUTORS
AUTOMATIC ELECTRIC SALES COMPANY, LIMITED
1027 W. Van Buren St., Chicago, U. S. A.

TELEGRAPHIC MEMORABILIA.

OF course, this vain scribbler visited the British Industries Fair at Olympia, and spent not a small portion of his time both before entry thereto and after exit therefrom in dodging mechanical dogs and mice as they raced erratically through the pavement crowds. Did I visit the Post Office Telegraph Exhibit and demonstrations? Well, yes, but to make a clean breast of it, the primary cause of my presence was the special invite and free ticket supplied by the manager of an industry which has not the remotest connexion with Telegraphy, Telephony, Television, or any other "Tele" for a prefix. On entry I was unable to find my friend's firm and their exhibit and in my wanderings I accidentally lighted upon "Picture Telegraphy" and "The Teleprinter." After meeting one or two distinguished members of the C.T.O., an inventor or two, a couple of retired engineers, and a few of the energetic Post Office Salesmen, I spent some fair period in mingling with the crowd, and afterwards dogging the footsteps of certain members of the public, so that I might overhear what *they* thought of the Telegraph exhibits and the new telegraphy. Two aristocratic and well-tailored gentlemen edged their way out of the crowd after listening with keen attention, then the elder of the two opened out with: "Wonderful, but I can't understand how it is that while the young lady is dashing away with that message to Birmingham or wherever it goes to, it prints itself this end as well." To which came the all-sufficient reply from the younger, "Oh that's easy. Didn't you understand that as soon as the signals get to the other end of the line they are flashed back by photography and printed this end exactly as they are received the other"! A strange mix-up of Teleprinter and Picture Telegraphy without doubt. One old chap of rustic appearance wanted to know if he could not use the phone dial for spelling out words, as he thought he had a scheme for using the dial for that purpose. He became so persistent that he was advised to forward his ideas to the Engineer-in-Chief, who may be dealing with them now! There were others—business men who though chary of coming down on the right side for purchase, could see at once the grand utility of such a system between the offices and workshops of the same firm. Yet these, judging from their conversation over a cup of tea, were not convinced, but that in practice the "— thing would break down, and it's all very well for these Post Office people to put their experts on a job like that, and we to expect our own girls to get the same results." It was a pity that they could not have witnessed Ian Fraser: the blind M.P., whose engineering knowledge naturally enabled him to visualise how certain arrangements of selected levers could be made to represent certain letters, &c., &c., after he had handled and run his delicate fingers over them, but who, though deprived of his sight but already a touch-typist, was able to sit down at the teleprinter keyboard and transmit his own message, with only a few hints as to one or two changes in the location of certain signs. One could not but be struck with the stability of the system, not so much the teleprinter itself of which the sturdiness has already been fully tested out, but the unwavering steadiness of the transmission channel. What the merchant wants nowadays appears to be a demonstration in his own office or works at no cost to himself and no obligation to purchase. Maybe before long it will be possible to provide a perambulatory demonstration motor car for this purpose. Who knows?

After these attentions to the Telegraph exhibit—the finest public advertisement of the Government Telegraphs the writer can recall, I managed to discover my friend—on the floor above!

A remarkable Telegraph family.—The death of Mrs. O. Bathurst reminds us that Mr. Oliver Bathurst, now in his 84th year, retired in 1911 and represents a connexion with telegraphy of nearly three score, that is to say that the Bathurst family have had one or more representatives in the Telegraph Service uninterruptedly for quite that number of years. In the eighties the family was a large one and at a later period

comprised Oliver's brother, Alfred Bathurst, Nelson Bathurst who transferred to the E.-in-C.'s department, and Sydney Bathurst. Mr. and Mrs. O. Bathurst also had a son in the C.T.O., who was killed in the war, and at the present moment his daughter Miss Bathurst, is one of the Supervisors in the same office.

Women in the Post Office.—Sir Stanley Leathes, in an interesting article in the *Times*, made a statement to the effect that "women were first taken into the Post Office in 1881." Mr. H. M. Sayers, of 9, Knollys Road, Streatham, London, formerly a telegraphist in the C.T.O., where he started his duties in 1874, corrects this statement materially, as he points out that "Women were taken into the Post Office in 1870, when the Post Office took over the telegraph companies and their staffs which included a good many women." Mr. Sayers adds that the percentage of women at that time was about 50%, and that "most of the Clerks-in-Charge of Divisions on day duty were women." Doctor G. P. Bidder, of Cambridge, emphasises this point in another letter to *The Times*, as he states that the first clerical employment of women was in 1846, by the Electric & International Telegraph Company, formed by Robert Stephenson, G. P. Bidder, and others. The grandfather of the present doctor it was who insisted upon the employment of women as telegraph clerks, against very strong objections, and it was this staff which, when transferred to the Government service, became the nucleus of the present huge female staff of His Majesty's Post Office. As a point of further interest, Dr. G. P. Bidder states that he is actually in possession of the seals of the E. & I. T. Company.

Retirements.—Mention should before this have been made of the retirement of Mr. William Cruickshank, Asst. Staff Engineer in the Research Section of the G.P.O. He was managing editor of the *P.O. Electrical Engineers' Journal* for eighteen years. He joined the Engineering Department of the Post Office in 1901 was transferred to the E.-in-C.'s Office in 1905, where he was engaged on research work, and also became a member of the teaching staff of the Northampton Institute. During the war he assisted Col. Purves and received the personal thanks of the Secretary of State for War. He was responsible for the installation of the Electrical Communications Section at the Faraday Exhibition last year. The best wishes of his many friends go with him in his well-earned rest in Glasgow.

Mr. W. Egerton, after 47 years' service in Bolton Post Office, Engineering Department, has also retired.

Is this a copy of the decades-old Post Office Double Increment? The Plymouth City Council has referred to its Establishment Committee, a proposal that officials possessing certain professional qualifications (membership of the I.E.E., for example) shall receive a grant of £50 to be merged in their salary in future years.

Varley Centenary.—The actual date of Samuel Alfred Varley's birth was Mar. 22, 1832. The Institution of Electrical Engineers has arranged to pay its tribute to the memory of Varley on May 5. Quite appropriately a discourse will be delivered by Lieut.-Col. A. G. Lee, O.B.E., M.C.

Countries.—ALBANIA.—According to the *Electrical Review* an American company proposes to erect a 150-200-kw. station in Albania. Announcements are to be made in the Serbian, Italian, German and Hungarian languages. The Government is to receive 50% of the profit.

AUSTRALIA.—According to Reuter's Canberra Agency, in moving the second reading of the Australian Broadcasting Bill on Mar. 9, Mr. Fenton, the Commonwealth P.M.G., declared that he proposed, where practicable, to adopt the B.B.C. system of control. He believed that there was a great future for Empire broadcasting, and transmissions from Great Britain would be broadcast throughout Australia. A later advice by *The Times* correspondent after the actual introduction of the Bill, states that provision is made "for the appointment of a salaried Commissions of five to control broadcasting." The Commission will take over

on July 1 (next) the responsibility for all programmes, with the right to publish magazines. The broadcasting of advertisements is prohibited, but sponsored programmes may be announced. The Commission may subscribe to news agencies. It is also required to encourage local talent, form instrumental and choral groups, and develop a national orchestra scheme. The Commission will receive £30,000 from the Treasury for establishment expenses and will collect twelve shillings from each listener's licence fee. It may also issue Debentures up to £50,000.

CANADA.—Reuter's Ottawa Trade Service informs us that the number of wireless receiving sets in use in Canada during the last three years has more than doubled. There is now a set for every four homes in the Dominion. A statement by the radio branch of the Canadian Government Department of Marine, figures the number of licensed radio sets in use in the Dominion up to December last as 548,342. In accordance with the announcement of the Prime Minister in the Canadian House of Commons on Feb. 16, that a special committee would be appointed to consider the general question of broadcasting in Canada, such a Committee has now been appointed according to news received last month. A recent decision of the Judicial Committee of the Privy Council had already decided that the Federal Government had control of the radio broadcasting regulations. To quote the Prime Minister one of the chief objections of the present arrangement was that "there was no doubt that the present system whereby numerous companies, mostly with advertising intent, used Canadian ether channels, was unsatisfactory." The recent Royal Commission recommended a national system corresponding to that which exists at present in Great Britain. The latest news as we go to press is that the Government has announced its intention to increase the cost of the annual licence for a wireless set from one to two dollars! Fees for commercial broadcasting are also to be increased.

EGYPT.—*A Broadcasting proposition.*—The Cairo correspondent of the *Electrical Review* reports that Marconi's Wireless Telegraph Co., Ltd., has submitted to the Egyptian Government a scheme for the construction of a broadcasting station in Cairo which is now under consideration by the Ministry of Communications. The scheme, it appears, would mean the formation of an Anglo-Egyptian Company, 55% of the shareholders to be of Egyptian nationality. The Company would construct a station in Cairo for relaying foreign programmes and broadcasting Egyptian ones. The Government would have the right to use the station at will. The annual cost of a receiving licence is suggested as sixteen shillings of which the Government would take 33½%.

FRANCE.—It is proposed to construct ten high-power broadcasting stations, the first of which has already been erected near Limours and will probably be in operation during the present month. The stations, part of a regional scheme will have a power of 60-80 kw.

GREAT BRITAIN.—*Television and the B.B.C.*—According to *The Times*, the B.B.C. is equipping one of its studios at Broadcasting House, the new London headquarters, with apparatus hired from Baird Television Ltd., in preparation for a series of transmissions on four nights weekly. Sound will be broadcast on the 399-metre, and Vision on the 261-metre wavelengths from the Brookman's Park station. According to the above authority the B.B.C. has assured the Baird Co. that the arrangement will continue at least until March 1934. *Radio concession.*—A very useful concession has been made to the trade by the British Post Office regarding "Radio Sets on Approval." The trade may now supply a wireless receiving set on approval for not more than fourteen days without covering it by a wireless licence. Records must be kept with full particulars of the transactions, and the same open to inspection if required. As soon as a customer has agreed to purchase a set he must take out a licence unless he is already in possession of the necessary document. *Radio Exchanges in Great Britain.*—The opening of radio exchanges in this country up to the present appears to be subject to the decision of the local authorities of the city, town, &c. concerned. Local wireless retailers in some districts have

protested against such arrangements, the latest noted being that of Bromley, Kent. Cheltenham has refused permission to two private persons to establish a wireless relay system in that town. Newport (Mon.) and Walsall have both refused to sanction services of this nature, as also the Eastbourne Corporation Highways Committee, on the ground that "no application has been received from residents," although applications have apparently been made by individuals or organisations outside the borough. The following cities or towns have the matter under serious consideration!—Glasgow, Southwark (London), Plymouth, Bootle, Rotherham (negotiating), Accrington. The following towns are among the most recent to permit this innovation:—Blyth, Filling-on-Tyne, Stafford. The Lord Mayor of York has recently himself inaugurated the central broadcast relay station at Yearsley Bridge, the report adding that "two sub-stations" are in operation and others will be provided when and where required." The Worthing Corporation reports an increase of nearly 100% in subscribers this last six months.

INDIA.—Reuter's Bombay Agency states that an agreement whereby the working of the cable services in India will be taken over by the Indian Radio-Telegraph Co. from Imperial and International Communications Ltd., has been concluded in Bombay. The new working, which will be in force for 12½ years, comes into operation on July 1, and the new company will be known as the Indian Radio Cable Communication Co. *High-frequency Circuits.*—At the moment telegraphic and telephonic communication between Bombay and Calcutta is via Delhi, but it is hoped that a more direct circuit will soon be completed by Standard Telephones & Cables Ltd. The new circuit is of the high-frequency carrier type with four repeater stations, and it will serve for both telephony and telegraphy. A parallel stand-by circuit is being provided, which will normally be used for intermediate service. *State Broadcasting Retained.*—The Government of India has decided to retain the State Broadcasting Service, according to news from New Delhi. The announcement was made by Sir Joseph Bore, Industries and Labour Member of the Executive Council, who stated that it was intended that the service should be on a self-paying basis.

ITALY.—It is satisfactory to be assured that in connexion with the recent opening of the Florence broadcasting station that the stringent specifications laid down for the constancy of carrier waves of broadcasting stations have been strictly conformed to by the use of an oscillating quartz crystal. Radio Florence is at present transmitting on a temporary aerial. The final aerial is to be of the quarter-wave "T" type, suspended from two 100-metre self-supporting steel towers.

NEW ZEALAND.—Reuter's Wellington correspondent reports that the Radio Broadcasting Co. has been awarded the sum of £58,646 by the Arbitration Court called in by the Government to adjudge the Company's assets in the four broadcasting stations recently taken over by the Government. The company's licence expired in December. Broadcasting in New Zealand is now to be controlled by an independent board modelled on the B.B.C.

PACIFIC COAST.—Reuter's Trade Service informs us from Panama that six more radio beacons are being constructed. There will then be 22 stations working on the Pacific Coast and covering the entire American shore from Scotch Cap, near the outer end of the Aleutian Islands, to Los Angeles, Calif. Two of the new stations will be placed at the Panama Canal and the Island of Hawaii. All the beacons will operate for part of each hour day and night, and continuously during fog or low visibility. PORTUGAL.—It is hoped that the Cabinet will approve a contract with a British firm for the erection at Lisbon of a national radio broadcasting station with a power of 20 kw. The wave length to be used will be of the order of 400 metres. Reuter's Lisbon agency appears to think there is little doubt that approval will be given.

RUSSIA.—The Russian Government, says the *Electrical Review*, has commenced the erection of a factory at Kaluga for the manufacture of telegraph apparatus which will be the first of its kind in Russia.

SOUTHERN RHODESIA.—Mr. John McDonald, formerly P.M.G. of Northern Rhodesia, has arrived at Salisbury to begin his duties there as manager of I. and I. Communications Ltd. The Beam wireless station is expected to be ready for operation about the end of the present month. **SWEDEN.**—According to the official statistics of the Swedish Government Radio Bureau, 89.5% of the population held wireless licences at the end of 1931. **SWITZERLAND.**—For the completion of the "regional" broadcasting scheme for Switzerland, the Swiss Administration of Telegraphs and Telephones has ordered a new Marconi transmitter to be erected near Tessin in Italian Switzerland. The new station is to be erected on Mont Ceneri and is likely to be opened before the end of the year.

Education.—It is more important to cultivate the mind than to store the memory.—LUBBOCK.

J. J. T.

INTERNATIONAL TELEGRAPHY: ITS ADVENT, ACTIVITIES, AND APPARATUS.

BY HARRY G. SELLARS.

(A Lecture delivered at the Central Telegraph Office, Feb. 11, 1932.)

FROM time immemorial the ingenuity of man has been exercised in the direction of establishing communication between distant points. Generals have endeavoured to keep in touch with their armies, shipowners with their vessels, and private individuals with their relatives and friends. Living during a period in the world's history when it is difficult to find a part of the globe which cannot be reached by telegraph within a few hours, we cannot fully appreciate the anxiety with which our ancestors bade farewell to those leaving the homeland. Absence in early days meant complete isolation, and a distance of a few miles banished that sense of comfort and security which the company of other individuals engenders.

Many methods of communication were tried with varying success. A pillar of cloud by day and a pillar of fire by night conveyed a reassuring message to the children of Israel during their long journey to the promised land. Six hundred years before Christ slaves stationed at certain distances in Persia were able in one day to transmit news over a distance representing 30 days' journey by the simple method of stentorian shouting. Beacons on hilltops announced to all England the defeat of the Spanish Armada. Whistling has for centuries been the means of communication between hunters in the Andes mountains. Yodelling has been used in Switzerland. In the middle ages the "hillebille"—a kind of wood and iron clapper—was utilised in central Europe and could be heard over a distance of three miles. Trumpets, bugles and guns have been put into service and drums and tom-toms have played their part well. Sirens, flags and semaphores are still employed in circumstances which do not permit, or warrant, the installation of modern apparatus.

The discovery of the Leyden jar in 1746, and the possibility of transmitting a charge of electricity through a conductor, entirely changed the outlook of experimenters, and when Oersted discovered, in 1819, that a needle could be deflected by a current passing through an adjacent coil electrical telegraphy was born. Installations consisting of 26 wires and 26 needles, five wires and five needles, two needles, and finally the single needle, followed each other comparatively quickly, the last three being used in the service of the public. Bright, with his double plate, or "bell" sounder—an improvement on the single needle—Gauss, Weber, Steinheil, Morse and Bain with apparatus recording signals on paper tape, and Wheatstone with his A.B.C. dial telegraph, each strove to improve this service and, like true engineers, would never admit that finality had been reached.

The means of communication which have been briefly reviewed were so successful in various countries that inventors began to visualise international services. Consciously or unconsciously they were fulfilling the prophecy of Shakespeare in Act II, Scene I, of "Midsummer Night's Dream," where Puck addresses Oberon in the following words: "I'll put a girdle round about the earth in forty minutes." Soemmering in Russia, Pasley and Wheatstone in England, O'Shaughnessy in India, Morse and Cornell in America, Werner Siemens in Germany, and experimenters in France and Belgium proved the possibility of passing signals through submerged cables, and Wheatstone, in 1837, proposed laying a cable from Dover to Calais. A Committee of the House of Commons was appointed in 1838 to examine the proposal, but, in spite of a repetition of the suggestion to another Parliamentary Committee in 1840, nothing appears to have been done until 1845, when James Watkins Brett and his brother Jacob registered a company to establish communication between England and France and between Europe and America. Application was made to the British and French Governments for permission to lay a cable between Dover and Calais in

1846, but it was not accorded until 1847 when the Bretts obtained a concession from Louis Philippe, King of France. This was confirmed by Louis Napoleon in 1849 after the French Republic had been established. The Paris-Lille telegraph was extended to Calais and another company was formed in 1849 to meet it, but it was not until Aug. 28, 1850, that the laying of a single-core cable, covered with guttapercha, was completed. Its life was short, as some French fishermen, who accidentally raised it during the night with their trawl, brought a portion of the curious sea monster ashore and sold it in Boulogne market.

Undaunted, the engineers recommenced their labours, and on Oct. 17, 1851, a four-conductor cable between Dover and Calais was completed. On Nov. 13, 1851, the first effective submarine communication was opened for public traffic. After a year's working with Calais, direct communication was opened between London and Paris by means of Wheatstone's double needle, which was found to be the most suitable apparatus.

The success of this Anglo-French cable, which is still in use, was encouraging, and during the next 20 years cables were laid between the United Kingdom and Belgium, Holland, Germany, Denmark, Norway, Spain and Portugal. In European countries similar activity was displayed, and cables were laid from Italy to Corsica, Sardinia to Malta and Algeria, Bulgaria to the Crimea, France to Algiers and Tunis, Spain to the Balearic Islands and Algeria, Denmark to Norway, Germany to Sweden, and Sweden to Russia.

The desirability of cable communication between Great Britain and America had not been forgotten, and in 1851 Tibbets, of the United States and Gisborne of Great Britain formed the Electric Telegraph Company of Newfoundland. Progress was slow, and in 1853 the Telegraphic Company of New York, Newfoundland and London took over the concessions and aspirations. In the following year soundings were taken in the Atlantic, and the chief of the United States Observatory spoke favourably of the projected cable. He said, however, that he did not "pretend to consider the question as to the possibility of finding a time calm enough, the sea smooth enough, a wire long enough, or a ship big enough to lay a coil of wire sixteen hundred miles in length." The British Association also threw cold water on the proposal, but in the meantime the cable from Holyhead to Ireland had been laid and the Telegraphic Company of New York, Newfoundland and London had obtained the sole right of carrying cables to Newfoundland for 50 years. In 1855 a cable was laid between Cape Breton and Newfoundland, so only the Atlantic remained to be spanned. Cyrus W. Field, John Watkins Brett and Charles Tilston Bright agreed to form a Company to undertake the gigantic task of establishing telegraphic communication between Ireland and Newfoundland, and in October, 1856, the Atlantic Telegraph Company was registered. A cable was prepared, the shore end was fixed at Valentia, Ireland, and paying out commenced on Aug. 7, 1857. After 334 nautical miles had been laid, however, the cable broke in 2,000 fathoms of water and the two vessels engaged returned to Plymouth. Undismayed, Charles T. Bright introduced a self-acting brake, and in June, 1858, laying recommenced. Again the cable broke and the two vessels returned to Queenstown. Six hundred and forty miles of cable had been lost, but in July, 1858, the engineers again tackled the problem, the vessels on this occasion commencing work from mid-ocean and proceeding, respectively, to Ireland and Newfoundland.

On Aug. 5 success crowned their efforts and communication was established, the instrument used being the mirror galvanometer invented by Gauss and Weber in 1833 and improved by William Thomson (afterwards Lord Kelvin) in 1857. Queen Victoria and President Buchanan, of the United States, exchanged greetings over the cable on Aug. 16 and traffic commenced, but on Sept. 1, after a total 3,842 words had been exchanged, the cable broke down. Opinions differed as to the reason for the failure, but a so-called transformer weighing about a ton with a possible output of 2,000 volts had been used and some critics attributed the disaster to this factor. Discussions concerning battery power, construction, apparatus and route took place among the technical experts and in 1860 T. B. Shaffner proposed laying a cable via the Faroe Islands, Iceland, Greenland and Labrador. This suggestion was not adopted, and in July, 1865, the S.S. *Great Eastern*, the largest vessel afloat, commenced paying out another cable from Valentia. On Aug. 2, after 1,186 miles had been laid, the cable broke and could not be recovered. This ruined the company, but another company was formed, and on July 13, 1866, the S.S. *Great Eastern* commenced paying out the third cable, which was safely spliced with the shore end in Newfoundland. Returning to mid-ocean, the *Great Eastern*, assisted by the vessels *Medway*, *Terrible* and *Albany*, grappled the cable of 1865, joined a spare length, and proceeded to Newfoundland, thus providing two communications between the United Kingdom and America. It may be mentioned that, as an experiment, the two cables were looped at one end and signals were sent round the circuit with a battery consisting of a silver thimble containing a few drops of sulphuric acid and a piece of zinc weighing 1½ grains, the signals being received on Thomson's mirror. Since this glorious accomplishment of 1866 other cables have been laid across the Atlantic, either direct or via the Azores, providing communication between America and England, France, Germany, Spain, Portugal and Italy.

India was another great country with which communication was desired, and in 1859 the British Government voted a sum to provide the first length of a cable system via Gibraltar, Malta, Alexandria, Suez and Aden to Karachi. During 1860 the most difficult section of this line, viz., Aden to Karachi, a distance of 1,685 miles, was laid but became faulty before it could be brought into commercial use. Further attempts were made, and in 1869 communication was successfully established with Bombay.

Plans were also put in hand for an overland route via Turkey and Persia and a cable between Persia and Karachi was completed in 1864. The landline through Turkey, however, was subject to frequent interruption, and this state of affairs led to the formation of the Indo-European Telegraph Company, whose system via Berlin and Odessa to Persia was completed in 1870. In the same year communication with the Far East was opened by means of a line to Vladivostock via Siberia and with Australia by way of the East Indies.

From the British point of view there still remained two important areas which must be brought nearer the homeland, viz., South Africa and the West Indies. Moreover, the spirit of commercial adventure had taken a firm hold of the telegraph pioneers of this and other countries and they saw strong reasons in favour of a world-wide telegraphic organisation. Almost feverishly the work was continued. Companies were formed, Governments were persuaded to pay subsidies, and by the year 1897 there were networks of cables down the East and West coasts of Africa and South America; Bermuda and the West Indian Islands were linked with the Atlantic cables and North and South America; New Zealand was connected to Australia; and China and Japan came into the system.

The vital strategic importance of communication with our Colonies led Sir Sandford Fleming to advocate in 1885 the establishment of an all-British communication between Great Britain and Australia via Canada and the Pacific Ocean. The Governments concerned gave the question their earnest consideration and, after much discussion, opposition and obstruction, the Canadian Government in 1894 invited tenders for a cable from Vancouver (British Columbia) to Australia and New Zealand via Fanning Island, Fiji and Norfolk Island. The route was surveyed and on Dec. 8, 1902, the system was opened for public traffic. The longest cable in the world, 3,458 nautical miles, is on that route and runs between Vancouver and Fanning Island, touching bottom in one place at a depth of about $3\frac{1}{2}$ miles.

The fortune of the late war threw into our hands the cable running from Emden via the Azores to New York. The extremities of the cable were diverted in 1915, London spoke to Halifax, Nova Scotia, and the dream of an All-Red route via Canada to Australia became a reality.

A second communication across the Pacific Ocean was provided when the cable system from San Francisco to Japan and the Philippine Islands, via Honolulu, Midway Island and Guam Island, was laid down in 1903. This was followed by cables from Africa to South America and from Australia to South Africa.

From the abbreviated details which have been given it will be seen that all the continents have been connected by cables and that all countries of the world can now be reached by telegraph. Interest is added to the handling of telegraph traffic when it is possible to visualise the route by which the messages will reach their destinations. A telegram from England to Australia or New Zealand can go eastwards via the Mediterranean and Aden, southwards via Capetown, or westwards via Halifax and Vancouver. To Japan one can send eastwards via Aden and Singapore, or westwards via New York, San Francisco and Honolulu. To South America telegrams may be transmitted southwards via Cape Verde Islands, or westwards via New York and the West Indies. Such a web of alternative connexions is provided that it is rare for a telegram to be delayed through the interruption of a main route.

Reference has been made to subsidies received by cable companies as a set-off against the expense of opening cable routes in certain directions, and it will be opportune to mention here that between 1879 and 1916 the companies providing cable communication to Australia, Tasmania, Africa, Bermuda and Jamaica received as subsidies from the Governments concerned more than £4,174,000.

This wonderful system of cables, the result of so much ingenuity, determination, labour and expense, is likely, however, to be superseded by a world-wide organisation of communication without wires. The rivalry commenced in May, 1899, when 85 miles of sea were covered successfully by radio-telegraphy. Since that date radiating and directional wireless have made enormous progress. All the great countries of the world have ambitiously entered the arena. As an example we have London working direct with Tokio, Bangkok, Melbourne, Bombay, Capetown, Rio de Janeiro, Montevideo, Cairo, Istanbul and several capitals in Europe. These capitals in turn have also opened installations with extra-European countries including America. London, which was once the centre of exchange for traffic between the eastern and western hemispheres, is not touched by thousands of telegrams which are transmitted direct from one side of the world to the other. Routing of telegrams becomes more complicated every day and it is common to encounter such freaks of circulation as a telegram from Shanghai to England finding its way to this country via Amsterdam.

We must now examine the kinds of apparatus which are used in international telegraphy. Breguet's indicator apparatus, somewhat similar to Wheatstone's A.B.C. dial, was found to be unsuitable for communication between London and Paris in 1852, so Wheatstone's double needle was used. Ordinary Morse key and printer working was tried subsequently, but the difficulty foreseen by Ronalds in 1832, and which is well known to present-day telegraph men as "capacity," was encountered. To obviate this trouble Bright constructed a curb key which neutralised residual electricity, and Lesaffre devised a method of earthing the cable momentarily between signals. The curb key was tried on the Atlantic cable but was soon displaced by Thomson's mirror, in which a beam of light moving to left and right indicated dots and dashes to the operator. In 1867 Thomson combined the mirror

with the siphon recorder constructed by Froment in 1841 and cable signals were then recorded on paper tape in the wavy line with which telegraphists are familiar. The transmitting key consisted essentially of two bars with an action similar to that of the two tappers of the single needle and double plate sounder. An automatic transmitter was introduced subsequently to obtain regularity and rapidity of signalling.

In some cable stations operators acted as relays, receiving the traffic on one cable and passing it over the next, but in most cases the automatic relays devised by Edward Davy, C. F. Varley, C. T. Bright, J. W. Brown and E. S. Heurtley have been employed. Quite recently an extremely sensitive and stable relay known as the "Regenerator" has been introduced on most of the main British cable routes and has rendered possible the introduction of direct working between London and the most distant points, thus practically eliminating operating staff at intermediate stations. The cable signals can be translated automatically at the receiving station into printed characters on paper tape which can be gummed to a form and sent out for delivery. The Hughes printing apparatus, and the Baudot, Murray, Western Electric and Siemens multiplex systems, have been found to be eminently satisfactory for cable working, and the Teleprinter has been used successfully. On one route across the Atlantic Emden and London are able to work with New York on printing multiplexes of 10 channels each.

For radio-telegraphy the Wheatstone automatic for transmission and the Undulator, a siphon apparatus, for reception, are preferred, but the Hughes and Siemens have been tried with success and on the wireless installation between Bordeaux and Madagascar the Baudot has been working for a considerable period.

This is a brief record of the achievements of the past. We do not know what the future may hold, but we cannot be robbed of the natural pride of craft felt by everyone connected with the world's telegraph system.

MANCHESTER AUTOMATIC SYSTEM.

CONVERSION OF STOCKPORT AUTOMATIC EXCHANGE TO DIRECTOR WORKING.

At 2 p.m. on Saturday, Jan. 30, 1932, the Stockport Automatic Exchange was converted to Director Automatic working and linked up with the Manchester system.

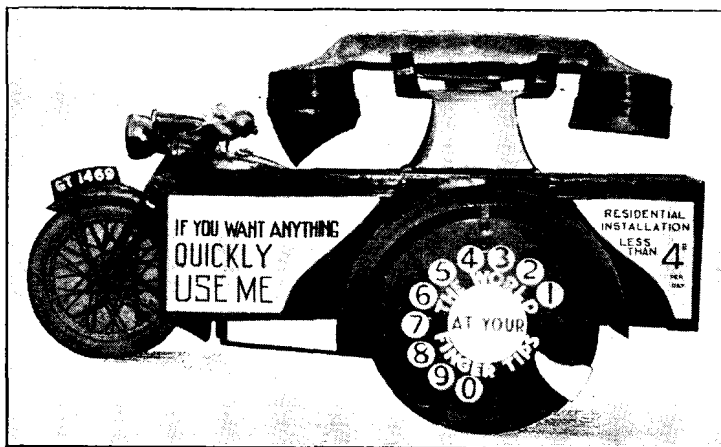
With the opening of the new Stockport Exchange, one of the earlier automatic exchanges in this country passed out of existence after having been in service for nearly 13 years. Although the non-director exchange was not opened until late in 1919, the work was commenced many years earlier, but due to the outbreak of war in 1914, the opening was deferred. The recovered equipment has, however, made only a brief halt in its already long period of faithful service, for it is to be used for the Grimsby Automatic Exchange which is of the same type, viz., Siemens No. 5 system.

The non-director exchange was a self-contained automatic system having no auto sub-exchanges or satellites associated with it, but the subscribers were able to obtain City, Central and Great Moor Exchanges direct, by dialling certain codes. An interesting feature of the Auto Manual board was the early type of cordless keysending order wire "B" positions, each junction having associated with it three lamps (junction busy lamp, junction supervisory lamp and subscriber's supervisory lamp) and three press keys (one for starting the mechanism, one for releasing the junction, and the remaining one for speaking). These positions contrasted strangely with their up to date "cousins" of the straightforward junction type in the Manchester Toll Exchange, which now carry most of the traffic hitherto dealt with on the Stockport positions.

Of the 1,698 subscribers' lines previously connected to Stockport, 1,534 were transferred to the new exchange and the remainder to the new Woodley Automatic Exchange, which was opened at the same time. The equipment is housed in a newly erected building and was installed by the Standard Telephone & Cables Ltd. There is no manual board and the exchange is therefore served by Manchester Toll.

LEEDS DISTRICT NOTES.

The Post Office advertising campaign to increase the telephone habit has been given an additional impetus by a new type of motor cycle box combination which has been designed and placed on the road by the Engineering Dept. in Leeds. Its construction represents the latest type



of hand micro telephone with dial and, apart from its use as an integral transport unit, it has a very substantial advertising value. In the panels, which can be seen in the reproduction at either side of the "dial," are inserted various telephone slogans which are readily changeable. The new combination is the first of its kind, and it is understood the design is to be copied for use in other centres throughout the country.

The West Yorkshire District Discussion and Social Circle held its final function of a highly successful winter session in the form of a carnival dance and whist drive, at the Metropole Hotel, Leeds, on Mar. 5. Among the 270 guests present were Mr. J. F. Murray (District Manager) and Mrs. Murray; Mr. J. Bownass (Assistant Postmaster) and Mrs. Bownass.

A profusion of fancy hats, streamers, balloons, monacles and other amusing novelties provided an appropriate carnival setting, as did the twinkling candles, which, for this occasion, substituted the usual electric lighting at the supper tables. The "Statue" dances, as well as the "Spot" dances were thoroughly enjoyable and the winners of the former are to be congratulated; their prizes were well earned! The whist prizes, which were presented by Mrs. Murray, were won by the following:—

	Ladies.	Gentlemen.
1st	Mrs. E. Hornby.	Mr. R. Woodwark.
2nd	Mrs. Rogers.	Mr. J. W. Downie.
3rd.	Mrs. Clitheroe.	Mr. J. Driscoll.
Travelling Prize	Mrs. Webster.	Mr. Hornby.

The special effort which is being made throughout the district on behalf of the Rowland Hill Benevolent Fund is having very encouraging results. Over 100 new regular subscribers have so far been obtained. A series of "at home" whist drives held at Settle contributed £8 to the fund, while a more ambitious function, which took the form of a concert and dance, was held by the Settle Post Office staff on Feb. 3, in the Conservative Assembly Rooms, and realised a further £12.

At Leeds the telephone exchange staff did their "bit" by organising a whist drive in the Y.W.C.A., Leeds, on Feb. 22, which augmented the fund to the extent of £6.

At an informal gathering held in Telephone Building, Leeds, on Feb. 22, Mr. W. H. Thornburn was presented with a canteen of cutlery and a salad bowl on his departure to Reading to take up the position of Staff Officer in the Superintending Engineer's Office there. The chair was taken by Mr. J. C. Denton (Staff Officer), who was supported by Messrs. J. W. Atkinson (Superintending Engineer), W. Stewart (Asst. Superintending Engineer), W. B. B. Crompton (Executive Engineer, Technical Section), A. O. Gibbon (Engineer-in-Chief's Office), and a large and representative gathering—including ladies—of both the clerical and technical staffs.

On Feb. 12 Mr. J. A. Rushforth, Chief Inspector (West Yorks Internal Section, Bradford), retired on superannuation under the age limit, after having served the late N.T. Company and the Post Office for over 40 years.

To mark the esteem and regard in which he was held by his colleagues, Mr. Rushforth was presented with a cheque, for the purpose of purchasing a wireless set, at an informal gathering of the staff held in the Sectional Engineer's Office, Bradford. The chair was taken by Mr. J. W. Atkinson (Superintending Engineer), who was supported by Messrs. W. Stewart (Asst.

Superintending Engineer), W. D. Scutt (Sectional Engineer, West Yorks Internal Section) and Capt. F. A. Linsell, M.C. (Sectional Engineer, Bradford). Messrs. J. F. Murray (District Manager) and J. K. Rhodes (Exchange Supt.) were also present.

Obituary.—The District Office staff, and the Contract Department in particular, learned with very great regret of the untimely death of Mr. A. Cromack (Male Clerical Officer) at the early age of 41. Mr. Cromack, who was a very popular officer, had been ill for many weeks, but appeared to have such a robust constitution that the end came, on Mar. 6, with unexpected suddenness. Flowers were sent from the staff, and Mr. Lowe (Contract Manager) and other representatives of the staff attended the funeral at Horstorth. Mr. Cromack leaves a widow and child, to whom the deepest sympathy is extended.

It was with very much regret that his many colleagues and friends in the N.E. Engineering District heard of the death, on Feb. 7, at Bournemouth, of Mr. F. E. Gibbins, late Assistant Superintending Engineer, Leeds, who retired in April, 1928, on account of ill-health, and their deep sympathy is extended to his widow in her bereavement.

LIVERPOOL NOTES.

Retirement of Mr. G. F. Staite.—On Mar. 31 Mr. Staite, Traffic Superintendent, retired on superannuation after having been in charge of the Traffic Department at Liverpool for some seven years. Mr. Staite joined the old Lancashire and Cheshire Company in 1887, and has spent the whole of his business life with the telephone service, having been taken over with the National Telephone staff by the Post Office in 1912. His long association with Manchester prior to his taking up his duties at Liverpool have centred most of his interests in the former city, and notwithstanding its reputed special advantages for the mackintosh and umbrella merchants it is his intention to settle down there.

As Traffic Chief, Mr. Staite has been one of the best. To the staff he has always been fair-minded, and his decisions have always been sound. We are sorry to have to part with him and his cheery personality will long be missed in the Traffic Office.



MR. G. F. STAITE.

Before leaving, his many friends presented him with a cheque as a mark of their esteem. The usual Traffic Office farewell social was held in the Stork Hotel, on the evening of Mar. 23. The social, which was attended by all the male Traffic staff, was perhaps one of the most successful of its kind which has been held in connexion with the Liverpool staff in recent years. The chair was occupied by Mr. W. Davidson, Traffic Supt., Cl. II, and the guest of the evening was accompanied by Mr. W. E. Gauntlett, District Manager. Colleagues from the adjacent districts were present. All the speakers referred in eulogistic terms to Mr. Staite's work as a Traffic expert.

An excellent programme by members of the Traffic staff was submitted, and with song and story a most enjoyable evening was spent. And so, Mr. Staite, though we bid you an official farewell, we hope we will have many opportunities of seeing you in your leisure years. May you and your good lady long be spared to enjoy the fruits of your labour.

W. D.

Mr. P. Gartside, Clerical Officer, has been transferred from the District Manager's Office, Liverpool, to the Custom and Excise. He has been employed in the Traffic Department at Liverpool for the last four years, where he demonstrated his many admirable qualities both from an official and personal standpoint. At a representative gathering of the staff he was the recipient of an electric standard lamp and shade, and some gramophone records, but

more than these he appreciated the well-deserved approbation of the many speakers who testified to his worth and wished him every good wish for his future.

A successful fancy dress dance, in aid of the P.O. Choral Society, was held at the Head Post Office on Mar. 9. This function, which is one of a series referred to in earlier notes organised for the same purpose, was attended by many members of all grades of the staff, and as usual provided for its patrons an enjoyable evening and for the society a useful contribution to its funds.

BRIGHTON DISTRICT NOTES.

Contract Officers' Dinner.—The Contract Officers of the Brighton District assembled at Booth's Restaurant, Brighton, on Wednesday, Mar. 9, on the occasion of their reunion dinner, following a conference of the Contract Department staff.

The guests of the evening were Mr. G. Edward, District Manager, Mr. E. Brown, Contract Manager, Mr. G. Stevenson, Chief Clerk, Mr. R. Williamson, Traffic Superintendent, Messrs. H. Hine, J. Batts, and V. Wells, of the Clerical Staff, and Mr. W. Rhodes ("Cecil"), an old colleague, late of the Development Staff, Tunbridge Wells. Mr. A. G. Matthews (C.O.I. Brighton) presided.

Following the "Loyal Toast," Mr. W. Cook (C.O.I., Tunbridge Wells), in proposing the toast "Our Guests," paid a warm tribute to Mr. Edward, the District Manager, and spoke of the great trouble he took to make everybody happy, and Mr. Brown, the Contract Manager, for the warm and deep interest he took in the members of his staff. He thanked Mr. Williamson, the newly-appointed Traffic Superintendent, for his presence amongst them, and spoke of the pleasure the presence of the Clerical Staff gave to the Contract Officers. He also made reference to his old colleague, Mr. W. Rhodes, who had travelled from Tunbridge Wells to attend the function.

A warm and enthusiastic reception was given to Mr. Edward, who, in responding, expressed the pleasure the opportunity afforded him to be present. During the past year he had had the opportunity to get to know them better than at the previous gathering, when he had been at Brighton a few weeks only. He thanked them for their co-operation and loyalty.

Mr. Brown, the Contract Manager, who was received with warm tributes of appreciation, expressed his pleasure in having the opportunity of again meeting the members of his staff in a social way.

Mr. Stevenson, Chief Clerk, Mr. Williamson, Traffic Superintendent, Mr. Batts and Mr. W. Rhodes responded, after which Mr. Hine, Clerical Officer, proposed the toast "The Brighton District Contract Officers."

Mr. Matthews, Mr. Back and Mr. Allen (Sevenoaks) responded.

Mr. McVitty then proposed the toast "The Artistes," to which Mr. Murphy responded.

A most enjoyable evening concluded with the singing of "Auld Lang Syne."

Presentation to Mr. Gordon Stevenson.—An interesting ceremony took place at the District Office of the Post Office Telephone Service, "Totteridge," Dyke Road, Brighton, on Friday, Mar. 11, when Mr. Gordon Stevenson, Staff Officer of the Brighton District, was presented with a solid silver teapot on the occasion of his retirement under the age limit.



MR. GORDON STEVENSON.

Mr. Stevenson has been associated with the Telephone Service over 43 years, the last 11 years of which have been spent in Brighton. He originally entered the service of the late National Telephone Co. at Glasgow in 1889, since which date he had held controlling posts at Oldham, Blackburn, Manchester and Reading.

The presentation was made by Mr. G. Edward, District Manager of the Brighton Telephone District, supported by Mr. E. Brown, Contract Manager, and Mr. R. D. Williamson, Traffic Superintendent, all of whom combined in bearing tribute to Mr. Stevenson's early career; and to his kindly disposition. Mr. Ashley and Mr. Lindfield spoke on behalf of the staff, who had mustered in strength to give Mr. Stevenson a hearty send off.

Mr. Stevenson, in replying, clearly indicated that he felt the break after so many years, and that although he welcomed the rest from his official labours, he hoped he would be able to keep in close touch with his old colleagues, so that he could maintain the very many pleasant recollections that he was carrying with him into retirement.

Mr. Stevenson will be succeeded by Mr. W. R. Kelly, at present Higher Clerical Officer in charge of the Gloucester Telephone District.

SHEFFIELD DISTRICT NOTES.

Sheffield Industrial Week.—This Exhibition, staged at Messrs. Cole Brothers, was primarily intended as a display of Sheffield manufactures. The opportunity was taken, however, by kind permission of Messrs. Cole Brothers to provide a telephone display as a part of the Exhibition.

As will be seen from the photograph, every branch of telephones and telegraphs was represented, automatic demonstration set, P.B.X. (C.B.) switchboard with exchange line and extensions, teleprinter communication from one end of the stand to the other, and many other items recently on show at the P.O. Exhibition in London, including a radiogramophone with frequency control, demonstrating the effect on transmission of the elimination of different frequencies.



[Copyright Newsphotos, Sheffield.]

P.O. EXHIBIT AT SHEFFIELD.

The model kiosks shown in the photograph made an attractive decoration for the stand. The windows from a number of these cardboard models were cut out (leaving the frames intact) and cellophane pasted inside; the kiosks were then fixed to a wooden base and wired for small electric "Fairy" lamps. The result was highly effective.

The stand was attended by Contract Officers, S.C. & T.'s, the Service Inspector and an Engineering Officer, and many and varied were the questions and situations with which they had to deal.

The Exhibition as a whole was a great success, and the "P.O. Telephone Display" was a centre of interest throughout the week.

NORTH MIDLAND DISTRICT NOTES.

Promotion.—We heartily congratulate our colleague, Mr. W. L. Eveleigh, on his recent promotion to the rank of Traffic Superintendent, Class II.

The "Demand" System.—Members of the Nottingham Traffic, Nottingham Exchange and Head Office staffs enjoyed a lecture on the "demand" trunk system, given by Mr. G. F. Findley, A.M.I.E.E., on the evening of Feb. 22, 1932.

At no little trouble to himself, Mr. Findley prepared slides illustrating various points in his talk, which was instructive and of particular interest in view of the approaching introduction of "demand" working at Nottingham.

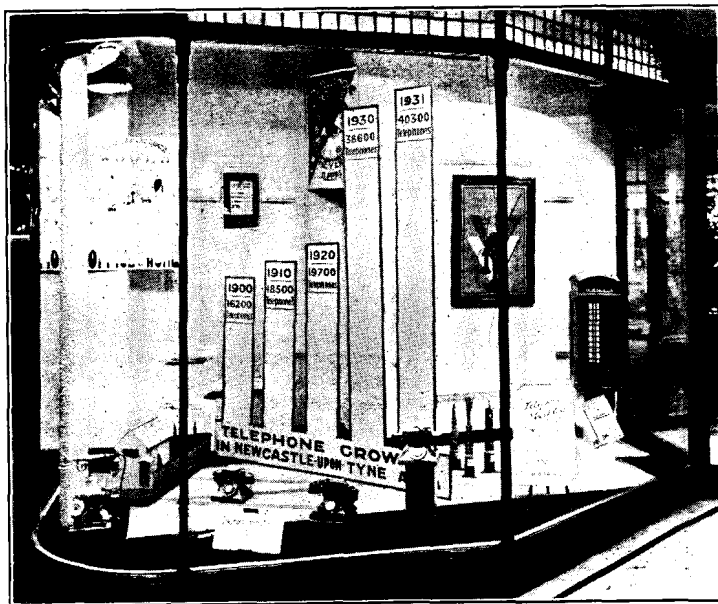
NEWCASTLE-ON-TYNE NOTES.

Display of Telephone and Telegraph Apparatus at Fenwicks Ltd.—In connexion with the publicity campaign now proceeding to foster the growth of the Telegraph and Telephone service, an exhibition was held at Fenwicks Ltd.—one of the leading stores in the town—during the fortnight ended Feb. 27. The occasion was a Beauty Exhibition organised by the firm, and the Post Office stand, a photograph of which appears in this *Journal*, was situated among the stalls of the leading Beauty Specialists and Cosmetic Dealers of London and Newcastle. On an adjoining stand, the latest fashions were exhibited by mannequins.



P.O. STAND at NEWCASTLE "BEAUTY EXHIBITION" at FENWICKS, LTD.

In these surroundings it might be thought that an exhibition of Telephone and Telegraph equipment would be out of place, but in point of fact this was not the case. A number of coloured telephones, together with a well chosen design of decoration, was an effective means of blending the purely engineering exhibits and the more ornamental displays on the adjacent stands.



DIAGRAMS EXHIBITED AT THE DISPLAY.

Prominently displayed on the stand was a working model of an automatic and digit exchange, to which was connected four "exchange" lines. This equipment was of great interest to a large number of visitors, and the demonstrators were kept busy explaining the details of the automatic system and the operation of the apparatus.

Two teleprinters, type 3A, were also installed and connected in such a manner that telegrams could be transmitted either from one machine to the other for demonstration purposes or to the H.P.O. for direct transmission to any part of the world. The public took advantage of this facility, and several telegrams were accepted and despatched without delay. A number of enquiries were also received regarding the hire of teleprinters and the facilities offered by them, and it is expected that agreements for these machines will be signed in the near future by several Newcastle firms.

Another attraction was the offer of free telephone calls in the Newcastle area, of which advantage was taken to the extent of about 350 calls. Two telephones were also connected via a circuit which simulated a line of 500 miles in length, by means of a specially equalised repeater and a loss network. Conversations were invited over this circuit in order to enable visitors to appraise the quality and volume.

There is no doubt that the interest of the Newcastle public was greatly stimulated and that a better appreciation of the value and activities of the service has resulted from this Exhibition.

S. L. H.

Post Office Engineering Department, Northern District, Staff Dinner.—The second annual staff dinner of the Northern District was held in the County Hotel, Newcastle-on-Tyne, on Saturday, Feb. 27, 1932. A company of 150 sat down to dinner under the presidency of Mr. F. G. C. Baldwin, Superintending Engineer.

The toast of "The Post Office Engineering Department" was proposed by Mr. C. H. Smith of London, General Secretary of the Post Office Engineering Union, who referred to the history and achievements of the Department. He considered it unfortunate, however, that the efficiency methods of the Department were having, as a result, the discharge of a number of men. He stressed the importance of what he termed the human element of the Department, and in coupling the name of Lt.-Col. A. G. Lee, Assistant Engineer-in-Chief with the toast, stated that relations between the staff and the heads of the Department had been most cordial. In replying, Col. Lee thanked Mr. Smith for the kind phrases in which he had proposed the toast. He said he had looked up the meaning of the word Engineer in a certain dictionary and found it stated as a man who could do in one hour what any fool could do in two. That meaning afforded the explanation of the shortage of work to which Mr. Smith had referred. Improvements in methods were bound to have a temporary effect on the number of workmen required, but on a longer view, they might result in a larger volume of work in the future.

Mr. J. T. Bramwell, Assistant Superintending Engineer, Northern District, in a happy and intimate speech, proposed the toast of the Visitors. He made a "Bon Mot" in respect of certain of the visitors and included a reference to the following gentlemen in addition to Col. Lee and Mr. Smith:—Mr. F. Ferguson, Postmaster Surveyor, Newcastle-on-Tyne; Mr. J. W. Atkinson, Superintending Engineer, Leeds, Mr. C. Whillis, Superintending Engineer, Glasgow, Mr. J. R. Andrews, Chairman of the Stewards of the Freemen of Newcastle-on-Tyne, Mr. J. D. Stewart, District Manager, Newcastle-on-Tyne; Mr. H. Casper Ingerslev, Manager of the Gt. Northern Telegraph Co., Newcastle-on-Tyne; Mr. W. H. Stephenson and Mr. E. C. Suttle of the Engineer-in-Chief's Office, London; Mr. E. Brydon, Assistant Postmaster, Newcastle-on-Tyne; Mr. D. T. Dickie, Postmaster, Sunderland; Mr. G. F. Bellwood, Sunderland; Mr. G. E. Gilpin, Mr. G. Bailey, Leeds, and the following members of the Newcastle Surveyor's Staff: Mr. B. Todd, Chief Superintendent Postal Branch, Mr. J. H. Bell, Acting Chief Superintendent Telegraph Branch, Mr. T. Matthewson, Supt. Survey Branch, Mr. R. P. Lowe, Contract Manager, Mr. A. E. Ryland, Traffic Superintendent; Mr. F. Robson, Staff Officer; and Mr. A. Cheetham of the District Manager's Staff. He coupled the name of Capt. R. D. S. Norman of Edinburgh with the toast and facetiously referred to the fact that Capt. Norman hoped shortly to leave Edinburgh and return to Newcastle. In voicing the thanks of the visitors for the toast, Capt. Norman said that since Scotland was now under the control of two Newcastle men (Messrs. Whillis and Kitchen) there was no need for a third Tynesider in the Engineering Department in Scotland. He expressed appreciation of the excellent fare and entertainment provided.

The following contributed to the harmony of the evening:—Messrs. J. B. Anderson, A. G. Farrer, R. Gaskin, D. Macfadzean, J. Muir, A. Peel, F. J. Shadforth (Accompanist), J. S. Smith, K. Weightman and G. S. Young.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch.

DURING the month of February there was a net gain of 2,513 stations.

With the extension of the London Telephone Area 69 exchanges have been transferred from Provincial districts, the number of stations involved being about 33,900.

The British Industries Fair, held at Olympia and White City from Feb. 22 to Mar. 5, attracted a record number of exhibitors, and the number of telephones provided exceeded all previous years. There were 1,315 exhibitors,

for whom 479 telephones were provided, a ratio of 36.4 telephones to each 100 exhibitors, which is the highest figure yet reached at this exhibition.

Messrs. Ford's Motors held a show in the Albert Hall during February, and 49 telephones were provided for 55 exhibitors.

The result of the efforts of the staffs in the various London departments in connexion with the Staff Salesmanship Scheme since September, 1931, when the scheme started, up to Mar. 14, 1932, has been as follows:—

	Total Number Ordered to date.	Orders during Month ended Mar. 14, 1932.
Exchange lines	458	87
Extension lines	440	115
Private lines	8	4
Plugs and sockets	74	15
Hand microphones	1,918	491
Extension bells	148	43
Miscellaneous	222	57

Retirement of Mr. G. E. Nicholls, Contract Branch.—When Mr. Nicholls left the office in July last year for a holiday in the West of England none of his associates could have had any idea that he was terminating his active service with the Department. Instead of returning from his holiday with renewed energy he unfortunately fell ill and his official resignation took place in February this year. Mr. Nicholls retired at the early age of 56, having entered the service of the National Telephone Company in 1892. In June, 1903, he was appointed Chief Clerk, Contract Headquarters, and proceeded to Contract Agent (North) in 1908 and Acting Contract Manager in October, 1910. He became a 2nd-class Clerk in the Post Office in January, 1912, and formed the Development Section in London in 1913, when he was appointed 1st-class Clerk; in April, 1921, he became a Staff Officer. He was employed in the Development Section from the date of its formation, except for a period during the war when he was in the Accounts Branch, until his retirement.

His knowledge of London was exceptional, and in many ways his mind was remarkably tuned to the requirements of one engaged on development work. Possessed of an optimistic outlook, he had a keen appreciation of the significance of any new economic trend. He possessed the rare ability of infusing his subordinates with his enthusiasm and his influence for good was an outstanding characteristic of the man.

His departure does not mean that he will soon be forgotten, the very nature of his work does not permit of that.

The customary farewell gathering could not be held in the circumstances, but a substantial sum subscribed by his colleagues has been placed to his credit at the bank, to be converted, if his known wishes materialise, into a wireless set.

L.T.S. Horticultural Society.

A Horticultural Society has been formed, and membership is open to all branches of the London Telephone Service. The annual subscription is 1s. Advantageous trading terms are expected to be secured for members and preparations are in hand for a Summer Show. Applications for membership should be made to Mr. Adams, T EDE.3.

Obituary.

William J. White.—There can have been few occasions when the whole of the London Telephone Service has been so profoundly stirred as was the case on Mar. 10, when news was received of the sudden death of Mr. W. J. White. Those of us who had seen him at his post on the previous day in apparent good health, and displaying his customary cheerfulness and geniality, felt that the sad report passed all limits of possible credibility.

Mr. White entered the Post Office service in a junior position in December, 1895, and in 1907, when serving as a 3rd-class Clerk in the Engineer-in-Chief's Office, was appointed in the newly-created Post Office London Telephone Service as Exchange Manager of the Hampstead Exchange, being promoted three years later to a first-class Exchange Managership at Central. During the earlier days of the war he was in charge of the London Trunk Exchange, and did much valuable work in connexion with the Air Raid Warning Scheme—receiving the personal thanks of the Field Marshal Commanding-in-Chief Home Forces.

When the Traffic Branch was reorganised in 1917 he was appointed Assistant Superintendent of Traffic, Class 1, in charge of the N.W. District, where he remained until December, 1919, when he was transferred to Headquarters, and continued in charge of a Headquarters Section until his promotion to Superintendent in October, 1931.

The wide knowledge gained by Mr. White in his various capacities led to his being selected to serve on several L.T.S. Committees, and throughout his official career he displayed a keen intelligence and an agility of mind that served him in excellent stead in argument. Nor were his activities confined to his official duties, for he still found time to take prominent part in the social and municipal life of New Barnet. For several years he was a member of the East Barnet Urban District Council, and represented the Council at many important Conferences. He was also deeply interested

in problems of electric power distribution and electrical developments generally and was the author of several books on these and kindred subjects.

With all Mr. White's busy life, he was intensely human, and displayed keen and practical interest in social and athletic clubs in his neighbourhood. He was never too busy to give a sympathetic ear to anyone in difficulty, and was always ready to give practical help and advice whenever they were sought. One of Mr. White's last official acts was to interview a Press representative on the subject of the telephone operating staff, with the result that, in place of an adverse comment, the following paragraph appeared in a London evening paper:—

"Slowly but inevitably we are getting to understand the Telephone Girl. The legend that her purpose in life is to frustrate all human relationships has passed, and now some of us are even ready to believe that when we cannot get a number, the fault is not hers.

"To-day I got a new light on the 'Number Please' Girl. I was told by one behind the scenes that she is the most charitable of all the Civil Servants, who are noted for their readiness to subscribe to good causes."

That he succeeded in enforcing this more charitable view on a critical journalist is typical of the man. He had a lovable disposition; and kindness, and a desire to see that others obtained full credit for their merits, were fundamental principles with him.



MR. WILLIAM J. WHITE.

For moments of relaxation, motoring and golf claimed his devotion; and sad though the unexpectedness of the shock may be for us, it is perhaps fitting and happy for him that he should have passed over, happy in the sunshine and free air of the open country that he loved, without the disappointment of waning strength, or the pain of continued illness.

To Mrs. White and her family, whose loss we can conjecture from that which we have sustained, we tender our most heartfelt sympathy, and assure them that we, no less than they, hold the world a better place for the life of William J. White, and that our regard and esteem for him will endure while memory remains.

"Hay Fever," by the Stamford Dramatic Society.

"Hay Fever"—the three-act light comedy by Noel Coward, was presented by the Stamford Dramatic Society at the Cripplegate Institute on Feb. 15 to a large audience.

The story, as most playgoers know, revolves round the hopeless habits of the Bliss family. The members of the family each invite a guest with the idea of a quiet week-end dalliance, and as each has omitted to inform the others of his or her intention, the results so far as the guests are concerned are distinctly unfortunate.

The chief honours of the evening go to Mr. Harold Cooper and Miss Helen Robertson, who took the parts of Simon Bliss and Clara. Miss Mavis Hulett interpreted the part of Sorel Bliss in a vivacious fashion, but, to our mind at least, Miss Elsa Wilson, as the mother of the Bliss family, gave us an excellent performance as that hysterical and egotistical lady.

The supporting cast comprised Mr. Reginald Barrett (David Bliss), Miss Eva Clarke (Myra Arundel), Mr. Frederick Crossley (Richard Greatham), Miss Phyllis Lee (Jackie Coryton), and Mr. Lionel Starling (Sandy Tyrrell).

The play was preceded by that favourite curtain raiser "Five Birds in a Cage." Miss Norah Bennett gave us a good interpretation of the Duchess and Mr. Laurence Davies was excellent as the Liftman. He had obviously modelled his performance on that uncouth and unregenerate scoundrel who always closes the lift gates as I am making a dash to get inside. Mr. Reginald Maynard (Bert) and Miss Dreda Bruce (Nelly) made the most of the opportunities afforded by their respective parts.

The plays were produced by Mr. A. O. Buck and the Amici Octette discoursed sweet music during the intervals.

London Telephonists' Society.

The fifth meeting of the Society for the 1931/32 session took place on Mar. 4, at the City of London Y.M.C.A., when the final ties of the Elocution Competition was decided, and the Prize-winning papers in the Essay Competition were read.

Competition night has always been a popular one, and this occasion proved no exception, a good attendance being realised and considerable enthusiasm displayed.

The elocution teams which this year had survived the perils of the eliminating auditions were those from Buckhurst and Paddington, and, as was anticipated by the judges of these preliminary heats, the final trial was a very near thing.

The subject for this year's competition, "Cargoes," by John Masefield, offers abundant scope for displaying individual interpretation and formed an excellent test piece.

Following the precedent of last year's competition, the final marking was carried out by a specially selected team of judges, who had not previously heard the competitors. On this occasion, Miss Reekie, Miss McMillan and Mr. F. B. Nichols kindly undertook this service, and the cordial thanks of the Society are due to these officers for their able performance of a very responsible duty.

Ultimate victory went to Buckhurst, who thus retain the trophy for a second year, but the performance of the runners-up was so meritorious that special consolation prizes were offered by Mr. Napier, Mr. Dive and by the Committee, whilst the performance of Miss Hankin, one of the members of the winning team, was recognised by the offer of a similar additional prize by the judges. To all these, who so generously displayed such practical evidence of their interest in the strenuous efforts put forth by our competitors, the Society tenders its most sincere thanks.

The tension of the struggle for the possession for the coming year of the coveted trophy having been relieved by the completion of this stage of the proceedings, the audience settled down to hear the reading of the prize-winning papers by Miss D. A. Hibbart, of Addiscombe, Miss W. A. Clarke, of Sanderstead, and Miss M. Ellwood, of Croydon.

The subject set for competition was "Unpopular things in the Telephone Service," and although the author of each paper drew harrowing pictures of the woes of a telephonist occasioned by various delinquencies of the "Powers that be," it was evident from a contemplation of the smiling faces of our controlling officers present that the complaints were not being taken too seriously, and that there was not undue reason to fear that twinges of conscience would materially disturb their night's rest. Yet, if these ladies, jointly and severally, did not succeed in making their flesh creep, it was not for lack of trying, for, surely a recital of the horrors of anthracite stoves, interminable stairs, and—yes—Tandem! were enough to melt hearts of stone.

Perhaps Mr. Dive may have felt a little uneasy, for he afterwards made a valiant endeavour to propitiate them by reading aptly allusive verses composed on the spot in the style of Masefield's "Cargoes," the poem to which we had been listening in the earlier part of the meeting.

The presentation of prizes to the successful competitors by the Controller, whose speech after the presentation was in very happy vein, brought a most enjoyable evening to a close.

Readers are specially reminded of the coming Telephone Play. This will be produced at King George's Hall, Caroline Street, as usual, the dates this year being May 10 and 11.

Bills giving full particulars will be circulated shortly, and may, indeed, be in position before these lines appear in print.

The important thing is, however, *remember May 10 and 11.*

Battersea Exchange.

The Battersea Exchange Staff held their third dance of the season on Mar. 2 at the local Town Hall. The popularity of these functions was evidenced by the fact that over 120 attended, including friends from other exchanges in various parts of the London area. Among the Traffic Officers present were Messrs. Rollings and Hickmott (Battersea), Saunders—who acted as M.C.—Cooper (Merton Abbey), Davies (Headquarters) and Strevens (Sloane). Miss Stallan was again responsible for the catering arrangements, and, with her enthusiastic assistants, ensured more than an adequate supply of refreshments in the course of a highly successful evening.

Wimbledon Exchange.

A successful social dance was held by the Wimbledon Exchange staff at the Wimbledon Park Hall, on Mar. 10. Over 80 were present, including visitors from Kingston, Malden, Battersea and Hop, besides members of the Contract and Engineering Branches.

Acceptable entertainment items were provided by the following artistes, who were loudly applauded for their efforts: Miss Alderton, Miss Merrett, Miss Sagers and Mr. Partridge. Miss Titman was the accompanist.

The Wimbledon Exchange Dining Club Committee were responsible for a generous supply of refreshments. The Service Superintendent (Mr. L. D. Saunders) acted as M.C., and other Traffic Officers present were Messrs. Cooper (Merton Abbey), Rollings and Hickmott (Battersea).

Personalia.

Resignations on Account of Marriage.

Supervisor.

Miss F. Kelly, of Kensington.

Telephonists.

Miss M. Thompson, of Redhill.	Miss M. F. Mulcahy, of Holborn.
" E. M. Fellows, of Popesgrove.	" D. I. Stribley, of Hop.
" D. Dadd, of Royal.	" G. E. L. Chandler, of Victoria.
" E. L. Spalders, of East.	" D. S. E. Large, of Victoria.
" E. L. Sait, of Grangewood.	" D. E. Brooks, of London Wall.
" D. G. Williams, of Welbeck.	" E. D. A. Tautz, of Speedwell.
" D. M. Spall, of Grosvenor.	

BIRMINGHAM NOTES.

Birmingham Telephone Society.—The fifth meeting of the session was held on Feb. 18, under the chairmanship of Colonel Brain, Postmaster-Surveyor, when a paper was given by Mr. W. A. Stripp, Assistant Traffic Superintendent, on "Recent Developments in Junction Working in Automatic Areas."

Mr. Stripp is to be congratulated on a most interesting and instructive paper, illustrated by lantern slides, which was keenly appreciated by a large audience.

On this occasion the paper was followed by a enjoyable concert arranged by Mr. C. W. Piggott, Traffic Superintendent, and a little dancing terminated the evening.

The British Industries Fair, Castle Bromwich.—Fair Exchange.—A telephone exchange for five weeks in the year. Such is the life of "Fair," whose subscribers consist exclusively of exhibitors at the heavy industries section of the British Industries Fair held annually at Castle Bromwich, Birmingham. Duly heralded in the Post Office Circular and in proud possession of its own index figures, "Fair" is available for service two weeks in advance of the opening date of the Exhibition to facilitate stall-holders in their preparatory arrangements and thence onwards through the life of the fair. In the early days of this section of the B.I.F. telephone facilities were provided from one of the City exchanges, but in 1927 Fair Exchange was opened to serve 55 subscribers. Within two years this figure was doubled, whilst "Fair" of 1932 reached a record with 151 subscribers.

Housed originally in a somewhat out-of-the-way corner of the huge exhibitions Hall, the exchange and the Post Office now occupy adjacent stands in one of its main avenues. The exchange, specially erected each year, is operated in full view of many thousands of visitors, who never fail to find it a source of much interest. Advertising literature occupies a prominent place on the counter of the stall, whilst the walls are placarded with many of the now well-known telephone posters and others of original design executed locally.

This year "Fair" consisted of 4 C.B.S. positions with junctions to other exchanges in the Birmingham group, of which it became an important, if temporary, member. The exchange was staffed by a telephonist force, who welcomed the opportunity of leaving for a short time the comparative obscurity of their home exchange for one where they are both heard and seen and share in some measure the bustle and excitement inseparable from large exhibitions.

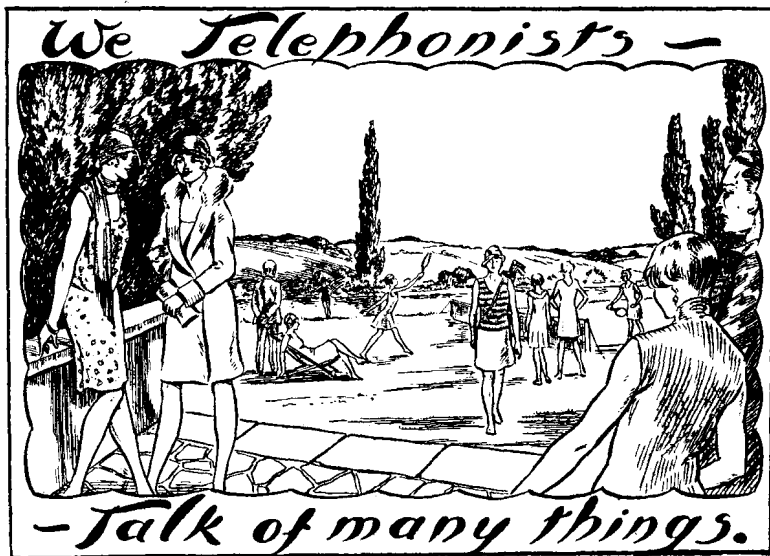
In spite of trade depression and the fact that it was the 13th held since its inauguration in 1920, this year's B.I.F. was easily the most successful of the series. The same is true of the business done by the various Post Office services provided and the telephone section in particular. In this connexion a few comparative figures may be of interest.

Call Office Receipts.

	No of Exchange Lines Connected to Fair.	Total Busy Hour Calls.	From Unattended Boxes.		From Long Distance Boxes.	
			£	s. d.	£	s. d.
1927 ...	55	149	55	12 8	58	18 2
1932 ...	151	344	118	4 3	104	7 8

The 1932 figures are in each case a record.

A suite of 9 call offices, four of which are reserved for long distance trunk calls, is provided adjacent to the Post Office stalls, and only lack of space prevents this number being almost doubled, so great is their popularity. Eleven other call offices are situated in various parts of the Exhibition Hall, and these also are fairly extensively used. It may also interest readers to know that, in order to provide for prepayment facilities on the unattended boxes, the lines are connected direct to the Birmingham Central C.B. Exchange, although, of course, the appropriate Fair charges are applied.



The "Bird" from the Birds.

THE other morning when I rolled downstairs quite early—well, early in the so-so manner, you know—Bindle the Hound was waiting for me. Usually he is curled up in his basket, and when I trickle into his bedroom he opens one eye, flickers the extreme end of his tail and then creeps out, and we yawn and stretch together. I expressed surprise that he should be up, and remarked "Hullo (yawn), am I (stretch) late 'smornin'?" "Not later than usual," he growled. "Well, what's (yawn) the matter (stretch) with you?" I asked. "Couldn't sleep for them birds," he snapped, "woke me with their chattering at about 5 a.m.: haven't had a wink since: think there's a bit of a row on: better go and see about it Guvnor: tick 'em off." And he went back to bed. "Ho," said I (yawn stretch), "a' right," and I opened the door into the garden.

There was indeed a number of birds, and as I emerged there was a bit of a flutter, and I heard a blue tit say, "Here he is at last." "Beg pardon," I said, at which there was a good deal of nudging and twittering. "Look here," I said, looking round, "what's this—a deputation?" "Ah, guvnor, that's a beakful, as you may say. So it is, an' all," and I looked up to perceive the beady eye of a robin fixed upon me. "Well, well, what's your trouble? Out with it?" I asked. One of the tits opened the proceedings. "You've been heard to say on more than one occasion that we (my mate and I) are a pretty pair," he said. "Just so," I replied. "Very well then," he went on, "that being so we (my mate and I) think it's high time you changed our cocoanut. This thing has been up for two weeks and it's so stale that we (my mate and I) have got indigestion." Then a thrush came forward and said, "Here have I, here have I, been searching, been searching, for weeks, for weeks, but never a snail, never a snail, so what-a what about it?" "Yes," said a blackbird, "and what have you done with all the worms. I've been calling them up for long enough but they can't get through after you've been rolling the lawn. Perfectly sickening, I call it." After a confused chatter the voice of a starling prevailed, and it appeared that he was complaining that the water in the bird bath had been frozen on several occasions and that the sparrows would insist upon drinking when he wanted a bath. The sparrows, on hearing their name mentioned, spoke with one voice about the quality of the bread and asked for more cake crumbs and potato—preferably mashed—and would I soak the bread, anyway. Then a finch hopped forward and, looking rather bashful, said she didn't want to complain, but that as she and her husband were thinking of furnishing very soon would I comb Bindle the Hound more often so that they could secure a comfortable lining for their nest. This request provoked a general chorus of "Hear, hear." The next on the list was the wood pigeon, who came lumbering up the garden, very much out of breath. He grumbled about the recent shortage of rice and corn and said that if something wasn't done about it he'd leave the neighbourhood, coo he would. Just then I caught sight of a wandering gull, and being by now a bit peeved I said at once, "Look here, if you're prowling around after a tin of Skippers you'd best pack off to Southend right now." But he only flapped lazily, affecting not to hear me.

"You're quite sure," I said to the company at large, "that you've no further complaints to make?" Apparently they had not. "Well," I went on, "perhaps I'll look into things, but I'd just like to ask whose garden you think this is." As with one voice they shouted "Why, our's, of course." And so it seems.

PERCY FLAGE.

Mountview Exchange.

At a party for poor children given by the staff of the Mountview Exchange on Saturday, Jan. 22, at Park Road School, an old friend, Father Christmas,

"dropped in," and was made very welcome by the children. We hope there are still some children who believe in the beautiful tradition of "Father Christmas."

About ninety children sat down to tea, unfortunately some were far too excited to eat.

After tea the tables were cleared and the chairs arranged for a cinematograph show given by a friend of one of the staff. The children shrieked with sheer delight at the adventures and antics of Harold Lloyd, "Felix," "Our Gang" and Snub Pollard.

Some of the engineering staff entertained the children with "shadow-graphs" and humorous songs at the piano. The funniest turn of all was a "pantomime" horse, who danced very "ponderously."

Three small friends of some of the staff charmed the little girls with ballet dances.

What joy! The great event of the evening had arrived at last. In a far corner of the hall stood a large Christmas tree very tastefully decorated, and lighted with many coloured fairy lights.

Father Christmas presented each child with a toy, and a bag of sweets, they all appeared very happy and contented with their presents.

When the children were ready to go home each child was given a paper carrier in which was put an orange and an apple.

This is our fifth annual tea, which we hope will only be one of many more.

Symptoms of Spring.

Arthritis reigns at Archway!
At Bermondsey they're blue
With colds and chill—at Primrose Hill,
They're on the sick-list too!

At Maida Vale there's measles,
And chilblains at Museum;
At Avenue they've mumps and 'flu—
You simple ought to see 'em!

They've hunted Hop for handkerchiefs
To wipe their little noses—
And even sent Sloane's liniment
To soothe their hands and toeses!

Poor Frobisher has frost-bite,
And Clerkenwell congestion—
At Temple Bar they say catarrh
Makes work out of the question!

They're 'out of salts' at Epsom,
And Central's down with croup,
While Park complains of aches and pains
And Acorn's 'in the soup'!

Lumbago's rife at Langham
And cramp at London Wall,
But as I dwell upon them—well,
I think I've got them all!

C. A. S.

Quid Pro Quo.

Oh, P.F.! Why deal me this terrible blow? Why taunt me with rhymes *re nine* strings to your bow? It isn't *my* fault you are in such demand, or your incoming traffic has got out of hand!

Your outburst last month brought a tear to my eye, so the equating factor I've had to apply!

Your peregrinations must give you a pain! What joy to return to your garden again! Anon you'll find *me* there—condemned to eat worms, since you've renounced Archway in such measured terms!

I bear you no malice, as doubtless ye ken, but wish you "bonne chance" and more power to your pen!

A treatise on slugs a "best seller" you'd find, for your Gardening Hints are a boon to mankind!

I gloat o'er each item and grin 'midst my gloom, for my double sciaticas now are in bloom!

C. A. S.

Service Cameos No. 3.—The Subscriber.

I mean he's really so awfully important, don't you think? You see, one could hardly have a telephone service without a subscriber, could one—well, I mean, one couldn't really. I felt that I simply had to go and see one. I mean really just to see what a subscriber was like, and so on. I mean whether he was really normal. So I thought it would be nice to visit one and have a wee chat.

So I tossed up a penny and said to myself "Heads A to K : tails L to Z." Well, it came down A to K, so I took a pin and pricked the section and it came open at page 260 or so. Then I shut my eyes and pricked again and it came out "Catterwaul, Catterwaul & Catterwaul" (of The Mews). I mean it's always so dreadfully infallible to settle Momentous Questions in this way, don't you think, or don't you? I mean, really? So that's why I went to see them, don't you see.

He was a perfectly dear old gentleman, and I felt so awfully glad he had a telephone. "You know," I said, "I might never have met you had it not been for the telephone—so fearfully useful, I mean, isn't it, to be on the telephone?" "So you're from the Telephone Service, are you?" he asked, with a perfectly divine smile. "May I say how charmed I am to meet you?" "Oh rather," I said, "by all means. I mean it's really too perfectly sweet of you. And by the way, am I addressing Mr. Catterwaul, Mr. Catterwaul or Mr. Catterwaul?" "None of them," he replied, "they're all dead. You see, we are a very old-established firm." "Then," I said, "who——" "Ah," he said, "you are wondering who I am. Well, I'm Mr. Catterwaul, junior." "Oh," I replied, "thanks ever so much for explaining. Of course, so frantically stupid of me not to have known at the very outset, I mean yes, really." He waved his hand genially and then said, "Now my dear Miss Twilfit, tell me, pray, why you wanted to see me." "Well, you see," I said, "I mean, it's like this. I felt that I simply had to come to see you. I mean it's almost like fate, don't you think so?"

At the word "fate" he leaned forward for a moment and then said "Fate! why, of course, that's just it: it is the very essence of it: it is the beginning and the end of it: without it, it could not be: the two are inextricably interwoven; but the end is in sight for I have almost completed the magic formula: already the full and final solution is within my grasp, and you, my dear young lady, are with me on the very eve of the culmination of all my efforts." Have you noticed how frightfully difficult it is to preserve the understanding and sympathetic look when you haven't the foggiest notion what a person is burbling about?—I mean it's really so fearfully awkward to bray in the wrong spot. It's safest, I find, to purr. I mean, I was ambling along mistily after the old buffer just hoping for the best. So I purred. "Exactly," he said, "just so: the formula is the result of abstruse calculations, mainly astrological, but somewhat mathematical, and it will be used to determine the telephone number for which one should ask in order to ensure connexion to the number required. By its means also it will be possible to forecast accurately the amount of overcharge in the quarterly fee accounts." I murmured "But how perfectly marvellous—I mean yes, positively, really, don't you think?" "Yes, yes, of course," he answered, "but"—and here his face clouded—"the drawback is that once the formula is ready I shall not like to use it in case it doesn't work with the automatic system." "Then," I said brightly, "why not try without it, I mean, and trust the service?" "What," he shouted, "and waste the labour and thought of years. Bah. Get out. Good morning. Good morning."

Now I mean really, yes really, don't you think—well, I mean it seems most awfully stupid, doesn't it, or doesn't it? Well, I think so.

BIRDIE TWILFIT.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North, London, E.C.1.

C.T.O. NOTES.

Promotions.—Miss B. M. Luffman, Supervisor to Chief Supervisor, Miss E. F. Bedford, Assistant Supervisor to Supervisor, Mr. C. Land, Superintendent (L.G.) to Superintendent (H.G.), Mr. R. T. Sutton, Assistant Superintendent to Superintendent (L.G.), Mr. C. R. Milton, Overseer to Assistant Superintendent.

Retirements.—Messrs. A. F. A. Robinson and F. R. White, Assistant Superintendents, F. S. Parker, Overseer, and A. H. Duck, Assistant Inspector.

Miss G. Hall.—Mar. 15, 1932. On this day we said good-bye officially to Miss G. Hall, Chief Supervisor. Just this bald announcement cannot convey to her multitude of friends in the Central Telegraph Office, Provincial Post Offices and other Government Departments what the parting means individually. We have had many Chief Supervisors, each in her way has proved her worth, upholding the traditions of this office of which we are justly proud, but with all due respect to the previous holders of this post, there is only one Gertie Hall. No one seeing her frail figure for the first time would realise the energy, enthusiasm and exuberance of spirit which were encased therein. Those of us who had business with her day in and day out knew it, and marvelled. Her tenure of office has covered a period in the life of the C.T.O., and particularly of the women members, fraught with difficulties and problems which would have taxed the powers of a master of industry. Her fight and regard for women were always in the forefront of her thoughts. No one would imagine her views always squared with those in higher authority, but they would no doubt be the first to subscribe to

the sincerity of her arguments. Room 37, her official home, was known to every woman, old and young, on the staff as a place where troubles might be taken and guidance sought. Miss Hall gave the whole of herself to the task of smoothing out the roughs of life but she was nevertheless a disciplinarian. Her method of appealing to the best of one's nature, knowing it was only lying dormant was not always apparent but the results in 90% of cases proved effective. She would be the last to wish to be described as a paragon; she was too critical of her shortcomings to permit herself making such a claim, but the writer of these notes feels honoured at having had the privilege of being termed her friend. It is left to each and all who read this paragraph and knew her to fill in the many blank spaces in such a brief farewell note. Others can pay tribute to her service in France with the W.A.A.C. Signals, for instance.

Miss G. Hall entered the service as a 2nd-Class Telegraphist on Jan. 4, 1890, became a telegraphist on April 1, 1897, Assistant Supervisor, Class II, on April 16, 1911, Supervisor Feb. 16, 1926, Chief Supervisor July 26, 1928. Her service with the colours was from Aug. 1, 1917, to Oct. 22, 1918, mostly in France.

Miss Hall had upwards of 80 presents.

C.O.D.O.C.—On Mar. 10 and 11 the C.O.D.O.C. gave two performances of "Lord Richard in the Pantry."

The production did not reach the high level of excellence that is expected of this club, but nevertheless the audience were in constant laughter at the endeavours of Lord Richard and his fellow servants. In the name part Mr. R. Cooke gave a very colourful portrayal of a "Nobleman-cum-business man." He was supported by a particularly well-balanced caste, outstanding amongst whom was Miss Mathieson, as the Cook.

Tribute must be paid to Miss Blodwyn Pugh, who undertook the part of Lady Violet Elliot at less than 10 hours' notice, and she is to be congratulated upon the efficient manner in which she overcame the many difficulties.

Obituary.—We regret to record the passing of the late Mr. H. A. Bolton, and Mr. E. W. Gooding in his 80th year.

Chess.—The Centels were beaten in the semi-final of the "Post" Annual Cup by the War Office by 6½-3½.

The Centels are at the head of the league and so far remain unbeaten, having played 7, won 6, drawn 1.

WESTERN DISTRICT NOTES.

IN Yeovil a piece of ground has been acquired by the Department for the erection of a new exchange building.

The site was formerly an orchard and florists on which is an old thatched cottage shown in the accompanying photograph. As the cottage was not in the way of the new building which was being erected it seemed a pity to demolish it. It has now been renovated and re-thatched and will shortly become the local Contract Office. Although of very rural appearance, it is situate in the heart of Yeovil which is a busy and prosperous town.



LOCAL CONTRACT OFFICE, YEovil.

On the right of the cottage can be seen a portion of the new exchange building.

The figures in the photograph are, reading from left to right: Miss Ainsworth, Supervisor, Yeovil Exchange, Mr. F. J. Frost, Traffic Superintendent, Mr. Alft, Head Postmaster, Yeovil, and Mr. Simpson, Assistant Traffic Superintendent.

The two buildings now represent two extremes—the old cottage—great age, the handiwork of more primitive times and the exchange, the last word in modern skill.

F. J. F.

THE Telegraph and Telephone Journal.

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MAY, 1932.

No. 206.

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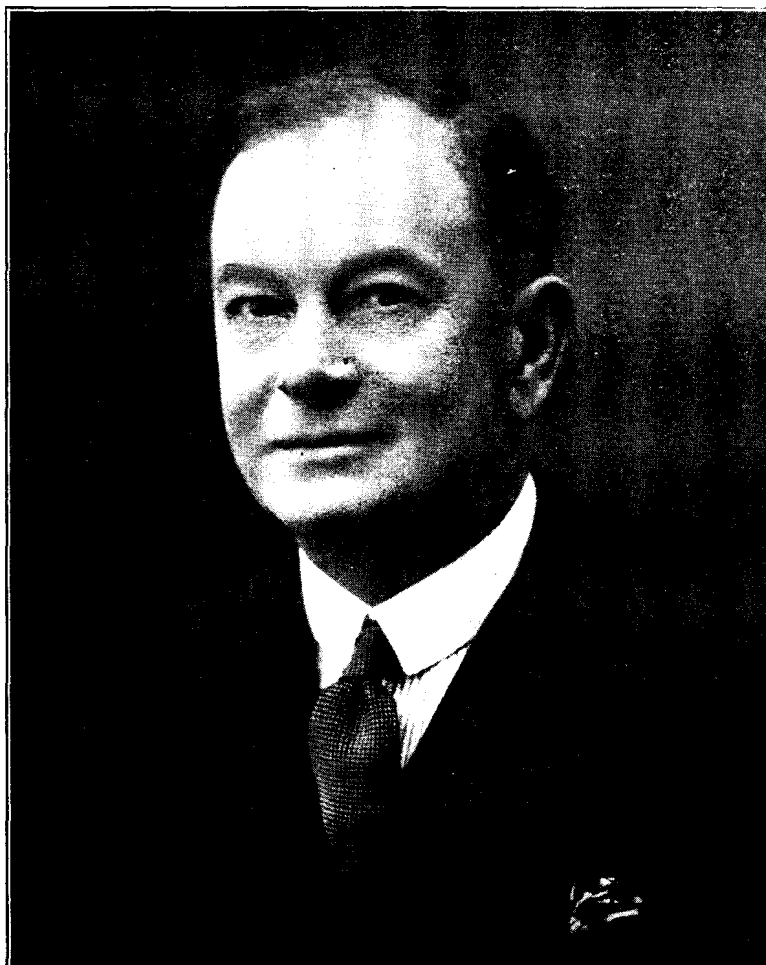
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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCVII.

MR. W. I. OLDCORN.



MR. WILLIAM IRVINE OLDCORN, Chief Superintendent Telegraphs, Manchester, to whose recent retirement reference is made in another column, is the subject of our May portrait.

Mr. Oldcorn entered the Post Office service in his native town of Lancaster in 1886 and was transferred to Manchester in 1891. Keenly interested in athletics, Mr. Oldcorn was one of the stalwarts of the old Manchester Telegraph Cricket & Football Clubs, and he has not disdained to play the more sedate game of bowls.

Having the good fortune to be selected at a comparatively early age for writing duties,

Mr. Oldcorn made the most of his opportunities, and his natural ability brought him to the top.

Mr. Oldcorn has lived a full life. A keen Freemason, he is soon to become Worshipful Master of his Lodge: his interest in sport has never abated, and he is the popular chairman of the South West Manchester Cricket & Social Club.

Mr. Oldcorn has served the Department loyally and well and the best wishes of all those who know his worth go out to him in his retirement.

It is interesting to note that four of Mr. Oldcorn's predecessors in the position of Chief Superintendent Telegraphs are still going strong, a fine tribute to the health-giving qualities of the much maligned Manchester climate.

The
Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

<i>Editing and Organising Committee - - -</i>	}	Lieut.-Col. A. A. JAYNE. J. STUART JONES. W. D. SHARP. W. H. U. NAPIER. J. W. WISSENDEN.
<i>Managing Editor - -</i>	}	W. H. GUNSTON.

NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

VOL. XVIII.

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No. 206.

EXHIBITIONS THEN AND NOW.

AMONGST the social changes wrought by the wheel of Time, one which must be noticeable to older men is the attitude of the public to Exhibitions, and perhaps, also, the attitude of the organisers of exhibitions to the public. Nowadays the public takes the exhibits seriously; in late Victorian or Edwardian days exhibitions were visited chiefly for amusement. In saying this, we do not refer so much to great International Exhibitions as the ordinary, recurrent ones. It was a stock joke of the comic papers to represent the organiser as saying: "We are ready to open now. We have arranged for the switchback railways, the water-chutes, the military bands and the 'colossal spectacle.' We must see about getting in some exhibits." We have changed all that. The public now swarms to exhibitions of motor-cars, wireless apparatus, "Ideal Homes," and the like, where no frivolous diversions are provided. It plods through crowded aisles examining the exhibits, making purchases and booking orders, waits in queues for refreshment, and comes away tired (seats being at a premium), but instructed.

The Post Office has not been slow to seize on this medium to interest and instruct the public at large in its works. It is a sound axiom that if you interest a man in the complexities of a widespread and indispensable public service, if you make him realise the difficulties to be overcome and the ingenuity and skill employed to ensure the smooth running and reliability of such a service, he will not only appreciate it more but bear more patiently the occasional shortcomings inevitable in all human organisations. Visits to such institutions as telephone exchanges and chief telegraph offices have in the past formed invaluable means of educating the average citizens in the complex nature of the services afforded

by them. Exhibits of the kind recently shown in public fairs and exhibitions, however, can do much more. Our readers will have observed in recent issues accounts of an increasing number of such exhibits by the Post Office. The Young Peoples' exhibition, for example, aided by wholehearted appreciations in the press, did signal service in this direction. Analogous exhibitions in several provincial towns have carried on the good work, and now perhaps the most ambitious and the most successful is the comprehensive display at the Ideal Homes Exhibition this year. Here the enquiring mind can satisfy itself with the study of sections of automatic exchanges, specimens of cables, the arrangement of a manhole, the working of a teleprinter, the radio-cabin of a ship. Calls can be made over long mileages of wire, and the mysteries of voice-amplification can be apprehended, whilst diagrams and pictures clearly tell the story of the annual growth of numbers in this country and the steady expansion of the telephone network over the earth. The curious can see oscillographic representations of their speech and a register of their heart beats. Certainly a steady stream, day after day, visited the exhibit, which may claim to be one of the best arranged in Olympia, and went away with their knowledge of telephony and telegraphy enlarged, not seldom signing an order for a telephone installation. It is not, of course, by the number of orders actually obtained that the value of such a demonstration is to be appraised. The good that it does lives after it, and much of the future expansion of the service will derive, not too indirectly, from its influence. The better understanding of the character of telephone service already noticeable in the general public cannot but be improved and strengthened by these exhibitions.

HIC ET UBIQUE.

WE feel that we owe some explanation to our contributors concerning the many articles—some of them of topical interest, others which can better afford to wait—which we have been compelled to hold over owing to the pressure on our space. We have added four extra pages to several of the winter months' issues without, however, succeeding in disposing of our arrears. We shall print the most interesting of them in their order, and meanwhile seize the opportunity of thanking those readers who take the trouble to prepare articles for us and of assuring them that all receive our carefulest consideration.

Telephone service between all places in Germany and Moscow and Leningrad was introduced on April 10. A direct circuit is provided between Berlin and Moscow. A service between Great Britain and Moscow is expected to be opened early this month.

The readers of an American telephone contemporary were recently favoured with the portrait of a "President and General Manager" of a small Missouri telephone company arrayed in full kilts and tartan and grasping a drawn sword. There is a fine suggestion of: "What! Wrong numbers? Off with their heads!" about this picture which appeals to us. We feel that the heads of effete government administrations must look with despairing envy in that attitude, that garb, and that sword.

The *Telephone Engineer*, Chicago, reports that agreement has been reached by the Governments of Iraq and Persia for establishing telephonic communication between the two countries. A committee

of experts has been formed to complete the technical details. From the same paper we learn that a commission is considering the desirability of establishing an adequate telephone system throughout Syria and either (a) by the grant of a concession to a foreign enterprise, (b) by merging the present system with the postal and telegraph administration, and (c) by creating a local telephone administration. The third project is said to receive most favour.

Telephones in Ethiopia are confined to the capital Addis Ababa. There are three exchanges, two for government and one for public service. The latter is established at the Post Office under the control of the Ministry of Posts. There are not more than 300 subscribers on all three exchanges. The plant is chiefly of Swedish manufacture.

According to the *Electrical Review*, the South African Government has now decided not to take over the Durban municipal telephone system. There has been strong local opposition to the proposal and recently the Corporation submitted a claim of £1,700,000 as the purchase price.

There is no likelihood, says the *Evening News*, of the Spanish Government taking over the telephone services, which are now worked by a private company, at present, though the subject may be discussed again in October, when the Budget for 1933 is under consideration. In a speech in the Cortes, the Finance Minister implied that nationalisation of the service was impossible at present, as it would cost the Treasury £15,840,000.

According to Reuter's Agency, there have been 32,319 cancellations of telephones in Australia since June, 1930, according to a statement made by the Postmaster-General (Mr. Fenton) in the House of Representatives. Mr. Fenton said that in June, 1930, there were 520,000 telephones in use, but by December, 1931, the number had fallen to 487,000.

Replying to a question in the House of Representatives, the Federal Postmaster-General said that so far as he was concerned there was no hope of a reduction in telephone charges. Last year the telephone branch showed a loss of £400,000, and the figures for this year showed no improvement so far.

Punch quotes an evening paper: " . . . two new telephone exchanges are approaching completion. . . . The one at South Harrow is to be called Byron, and the one at Kenton, Wordsworth," and adds: "The authorities obviously finding a happier augury in Byron's

"To stun the public ear,"

and Wordsworth's

"Applying to his ear

The convolutions of a smooth-lipp'd shell;

To which, in silence hushed, his very soul

Listened intently. From within were heard

Murmurings."

than in Shakespeare's

"But answer made it none."

In our article last month on the Telegraph and Telephone display at Messrs. Fenwick's, Newcastle-on-Tyne, no mention was made of the original cartoons by Mr. J. Nicholson, Clerical Officer, which were exhibited there. These were a set of eight depicting "Messengers down the Ages," and attracted a good deal of notice.

A Northern subscriber, commenting on a reply from the Post Office to his complaint, says:

"The story I have from your department is that wires swing together. I notice that this swinging is helped by 'muffs' placed on the wires. I am

also informed that these 'muffs' are placed in order to warn 'valuable pigeons' against the wires.

"May I here express the opinion, that since science stepped in to enable the Postmaster-General to compete as public messenger with the pigeon, that bird's value is limited by its ability to support the crust in a pie-dish.

"*Per contra*, my neighbour—Mr. A.—and I keep 'valuable sparrows,' valuable because they cleanse the fruit trees of vermin, but they receive no protection from the Postmaster-General at my expense. The wire over my garden is not provided with muffs, and mark what happens. Armstrong's cock-sparrow invaded the home of my valuable sparrows. My cock-sparrow chased him out, but over-eager he collided with the P.M.G.'s wire, and gave his life, so to speak, in defence of the sanctity of his home—a tragedy, you will please note, for which the partiality of P.M.G. is to blame. A public servant should be impartial, but there is a distinct leaning to his former competitor—the pigeon."

RESULTS OF STAFF SALES SCHEME.

A RETURN of the orders obtained under this scheme for the quarter ending Dec. 31 last, shows some diversified results when the total is analysed. London, as would be expected, with its much greater area and population, comes first in the list with 1,395 orders, of which 227 were for exchange lines, 181 for extensions, and 818 for hand micro-telephones.

In the provinces, the 3 districts obtaining the largest number of orders of all kinds were—

Leeds	257
South Wales	136
Belfast	132

The districts obtaining the most orders for exchange lines were—

Leeds	30
Liverpool	21
Chester	18

As far as exchange and extension lines only are concerned, Leeds is first with 50, and the Birmingham and North Western Districts next with 29.

It will be noticed that there is a different order of merit in each of the above groups, except that Leeds comes second only to London in all cases. The high position of South Wales and Belfast in the first group is mainly due to the large number of orders for hand-micros obtained in those districts—Leeds obtaining 184 orders, South Wales 113, and Belfast 93.

RETIREMENT OF MR. H. BARNETT.

MR. H. BARNETT, Assistant Cashier, retired on Mar. 31 when he completed 45 years' service. Mr. Barnett joined the N. T. Co. in 1887 and was transferred to the A.G.D. as an Examiner in 1912.

All who knew him will remember him for his unflagging energy and cheerful optimism. He was never happier than when hard at work. He was distinguished by his hatred of "red tape." Circumlocutory methods annoyed him to the point of profanity and when official forms or methods came up for review, he would instinctively reach for his "axe."

His physical energy was phenomenal. He walked 30 miles in a day—just before his 61st birthday—with no worse result than a blister or two. His youthful appearance at his retirement—2 months short of his 62nd birthday—suggested that he is likely to prove a considerable expense to the Treasury!

His friends in the A.G.D. presented him with a wireless set in token of their good will. They are sure that he will realise the impropriety of arguing with the loudspeaker.

BIRMINGHAM'S INTRODUCTION TO THE "DEMAND" SYSTEM OF LONG DISTANCE TELEPHONY.

FOR some time consideration has been given to the speeding-up of the Long Distance Telephone Service in order to reduce the delays experienced between the time of booking and making effective long distance calls. It is obvious that a great aid towards substantially increasing the volume of Long Distance Traffic and consequently the amount of earned revenue, is to give a rapid and efficient service. The "Demand" Service has been designed with this object and ideal in view. It is with pleasure that we in Birmingham regard the honour of being the first provincial town to work a both-way System of "Demand" Service. Early in March this service will be available and enable subscribers in the Birmingham local fee area to obtain calls on demand to London, Manchester, and Bristol.

It was not without a feeling of awe that the prospect of a totally new departure—a departure teeming with difficulties, many of them peculiar to the Birmingham area, was viewed. Thanks to the help of the Secretary's Office and the Engineers, these difficulties have been surmounted.

Birmingham Trunk Switch Room
Lay-Out
Scale: 1/4" to 1 foot.

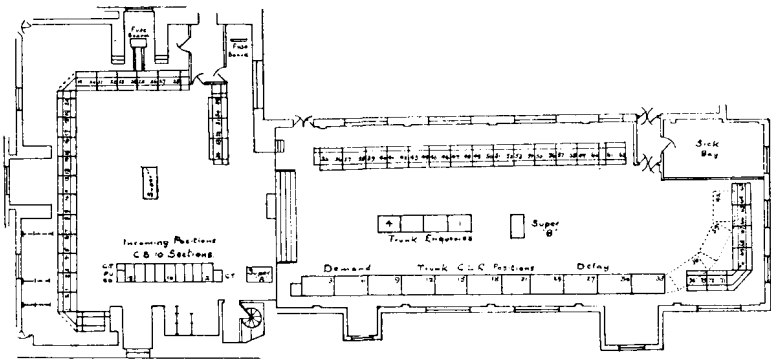


Figure 1.

It has been found necessary, in conjunction with the Demand Scheme, to effect a considerable alteration in the Birmingham Trunk Exchange layout, and Fig. 1 shows the layout conditions which will obtain when Demand working to London, Manchester, and Bristol commences. An extension will be possible as soon as the circuits on certain positions have been redistributed.

One of the major local difficulties that has confronted Birmingham has been the existence of 12 magneto exchanges within the local fee area, giving no clearing conditions to the point of control.

The method of timing on the "Demand" position is by means of the new chargeable time indicator, the operation of which is arrested under C.B. or C.B.S. conditions when a clearing signal is given to the Controlling position by the restoration of the subscriber's receiver. A serious drag would be placed upon the new "Demand" System if twelve exchanges in the area were unable to take advantage of this timing system. This difficulty was further aggravated by the unstable conditions of through clearing from extensions on subscribers' Private Branch Exchanges in the Birmingham area. These troubles are happily being rapidly surmounted.

For the benefit of readers who may not be familiar with the present method of operating a long-distance call, it should be pointed out that the following procedure obtains:—

- (a) The caller is connected to Trunk Records for the purpose of booking the particulars of the call. These are entered on a ticket, the caller being advised "You will be rung later."

METHOD OF BOOKING & COMPLETING LONG DISTANCE CALL TO THE CALLING SUBSCRIBER ON "DELAY BASIS"

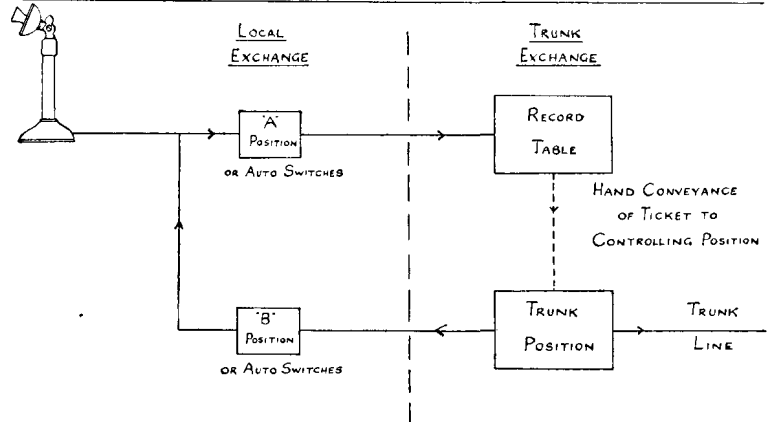


Figure 2.

- (b) The ticket is then passed through the circulation duty in order that it may be endorsed where necessary and taken to the Trunk Controlling position, on which the Long Distance circuit required for the call, is terminated.
- (c) The call matures in booking time order with other calls that may be waiting, the caller being obtained via the Trunk Junction multiple.

These operations are illustrated in Fig. 2 for both manually and automatically operated calls.

METHOD OF BOOKING & COMPLETING LONG DISTANCE CALL TO THE CALLING SUBSCRIBER ON "DEMAND BASIS" (MANUAL)

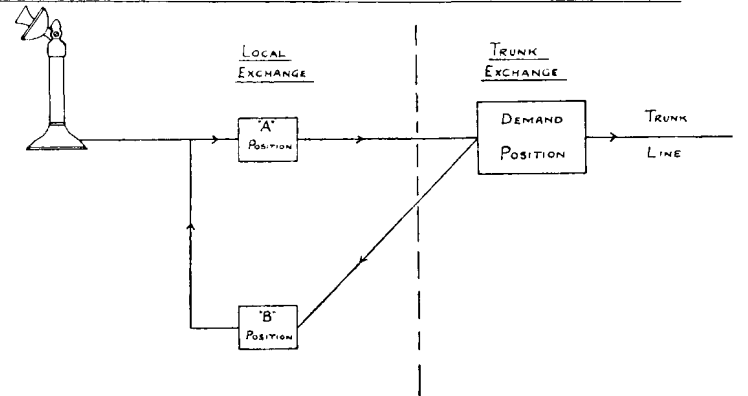


Figure 3.

It will be appreciated that operations (b) and (c) create a definite drag in effecting the call: this is especially so in the case of the delay experienced in circulating the ticket from the Record position to the Controlling position.

"Circulation" and "Waiting Turn" delay is eliminated with "Demand" working, the procedure becoming:—

- (a) The caller is connected for the purpose of booking his call direct to "Demand" Position, and should a "Demand" connexion be possible, he will be advised "Please hold the line, I will try to connect you."

(b) The Long Distance circuits required for the calls are multiplied within reach of the booking telephonist who becomes also the Controlling Telephonist and completes the call, and the chief sources of drag in a long distance telephone exchange are eliminated.

METHOD OF BOOKING & COMPLETING LONG DISTANCE CALL TO THE CALLING SUBSCRIBER ON DEMAND BASIS (AUTOMATIC)

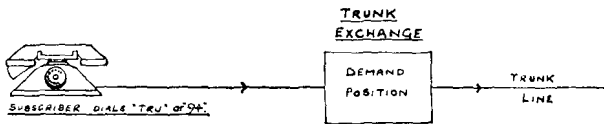


Figure 4

These operations are shown for manually operated calls in Fig. 3, and for automatically operated calls in Fig. 4. Routing information will be provided by means of a Kardex File on each position. A new type of ticket has been printed with the particulars of the called subscriber shown above those of the calling subscriber. This arrangement will accelerate the working, as an idle circuit may be appropriated while the ticket details are being completed.

In the case of manual subscribers, it is necessary, in order to provide switchhook clearing facilities to the point of control, to



FIG. 5.

reverse the connexions while the caller is waiting for the distant subscriber. This operation will also serve as a check on the Exchange Number given by the caller.

To prevent the Trunk Junction "B" telephonist reporting the calling number engaged, the "Demand" telephonist will make the request for the caller, prefixed with the code word "Overplug," indicating that the connexion should be made without regard being given to the engaged test.

In the case of automatic subscribers, the call will proceed straightforward without reversal (Fig. 4).

The introduction of the "Demand" working between London and Birmingham took place on Nov. 28 last and 85% of the calls from London ten-mile circle to the Birmingham Local Fee Area, have been effected on "Demand."

Fig. 5 shows the existing booking and controlling trunk positions at Birmingham, together with the method of indicating to the Record Operators the delays arising out of the present method of delay working.

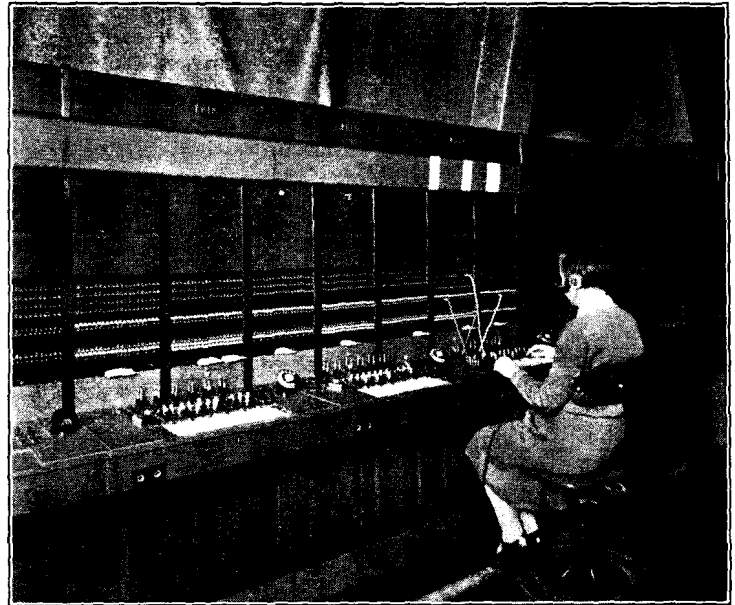


FIG. 6.

Fig. 6 shows the new type of position installed for "Demand" working with a call from a subscriber on a manual exchange (reversed) and a second call from a subscriber on an automatic exchange in progress.

The initial "Demand" positions at Birmingham consist of CB. 10 frames equipped with six panel trunk junction and service multiples and a 14-panel ancillary calling equipment with five appearances. There will be 33 positions available at the opening.

PLAN OF KEYSHELF OF DEMAND POSITION.

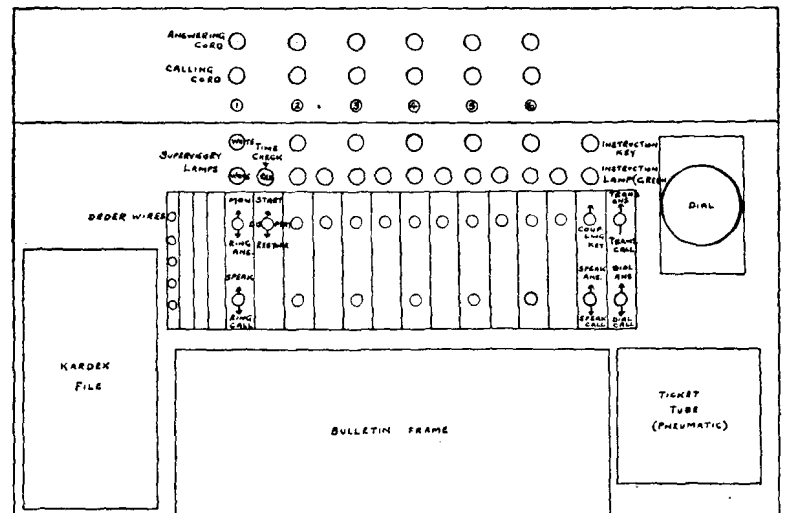


Figure 7

The equipment is being installed by the Automatic Telephone Manufacturing Company.

Fig. 7 shows diagrammatically the arrangement of the keyshelf of a "Demand" position. It will be seen that each position has six cord circuits with the usual supervisory lamps. Monitoring facilities by means of high impedance are provided for each answering cord. Consequently the need for cut-off transmitter instruments for operating, ceases. The time check lamp is placed in the cord circuit and operates with the chargeable time indicator. A display is obtained with the time check key in the upright position.

The keys at the right-hand side of the keyshelf are as follows :—

- (1) Coupling Key.
- (2) Transfer Key for diverting calling signals from normal answering position to another position. (This key will not be used for some time.)
- (3) Splitting key to make it possible to speak on either the answering or calling cord circuit without the other side overhearing.
- (4) Dialling Key.

PANEL LAYOUT OF DEMAND POSITION.

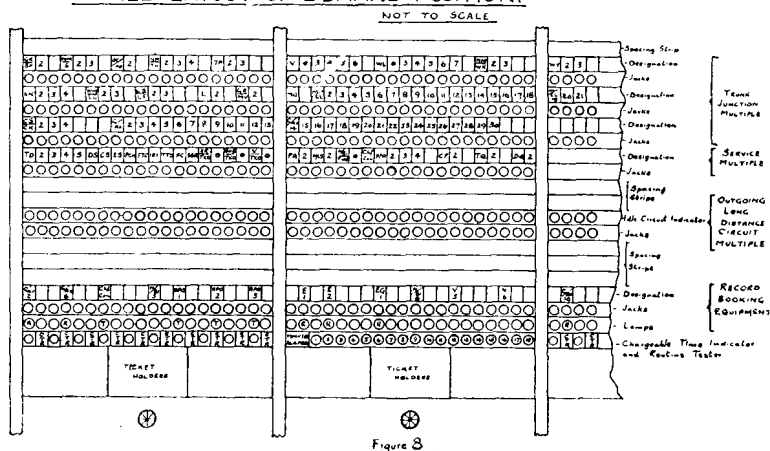


Figure 8

In the Bulletin Frame are prominently displayed all the more important notices. The situation of the dial on the right-hand side of the position leaves a very convenient space for writing.

Fig. 8 shows diagrammatically the arrangement of the calling equipment, the chargeable time indicator, the multiple of the long distance trunk circuits with the idle circuit indicator. The jack immediately before the first circuit of any group is provided with a red lamp by which the staff may be informed that "Delay" conditions temporarily obtain. "Delay" conditions may be created by abnormal pressure of traffic or a serious breakdown of circuits, when it becomes necessary to advise all callers "You will be rung later." The "Delay" lamps are lighted by means of "Delay" keys on the Cable Turning Section.

"Delay" conditions have not been reverted to on the London—Birmingham route since "Demand" working was commenced, and the heavy Christmas traffic was handled satisfactorily. It is anticipated that similarly occasion will not arise in Birmingham for "Delay" conditions to obtain on calls from Birmingham Local Fee Area to London, Manchester, and Bristol after the "Demand" conditions have commenced.

An interesting feature of the preparation for "Demand" working has been the investigation of the proportion of demand and delay traffic reaching the Trunk Exchange over the various groups of record circuits. Some groups produce a much higher proportion of Demand Calls than others, and this has to be taken into account when distribution of the record circuit is being decided.

Another point of interest is the placing of the "Delay" positions for London *en suite* with the "Demand" position; the

Telephonists staffing both types of positions will complete calls over common groups of circuits.

As the new positions at Birmingham are nearing completion and the instruction of the staff progresses, there are plentiful signs of growing interest in the improved method of operating and the supervising and operating staffs at the Birmingham Trunk Exchange are resolved that every effort will be made to give long distance callers all the advantages of the rapid service that the new equipment will make possible.

B. T. S.

REVIEWS.

"Submarine Telegraphy." By Ing. Italo de Giuli. Translated from the Italian by J. J. McKichan. Published by Sir Isaac Pitman & Sons, pp. x + 225. Price 18s. net.

Students of telegraph engineering are painfully aware that, with the exception of the book by Mr. Charles Bright on the subject published in 1896, there is no treatise available in which the subject of the laying of submarine cables, their subsequent testing and the methods used for signalling through them is adequately dealt with. The present book has been written to fill this gap in technical literature.

In the first chapter a brief survey is given of the elementary electrical phenomena concerned in submarine cable working, the electrical and mechanical properties and the manufacture of gutta-percha and copper, the formation of signals, the principles of duplex working and the methods of manufacturing and laying submarine cables. This chapter concludes with some statistical data concerning the submarine cables of the world.

The second chapter deals with transmitting apparatus, hand key, automatic transmitters with their motors, and perforators, both punching and keyboard.

In Chapter III receiving apparatus is dealt with. The various forms of syphon recorders, magnifiers, relays and regenerators are described in detail. This is followed by sections dealing with the installation and maintenance of accumulators and primary batteries. The chapter concludes with some notes on the adjustment of the apparatus described in the first part of the chapter.

The next chapter is devoted to the landing of submarine cables, cable huts, underground cables between cable huts and relay stations, lightning protectors, test and fuse panels, artificial cables and the general lay-out of the gear in a relay station.

The fifth chapter deals with the testing of submarine cables, and the electrical measurements connected with submarine cable working. In the next chapter multiplex methods of working submarine cables are dealt with, with special reference to the Western Union and Muirhead systems.

Chapter VII deals with the theory, construction, and methods of testing of loaded cables.

There are two appendices, one dealing with the KR law and signalling speed, and one describing the arrangement and advantages of the "sea earth."

The book is well printed on good paper, and the diagrams and illustrations are clearly reproduced. The book is one which should certainly form part of the library of every telegraph engineer.

"Experimental Electrical Engineering." By E. T. A. Rapson. (Published by Pitman & Sons Ltd. pp. xi. + 166. Price 3s. 6d. net.)

This book is a laboratory handbook for students working through the Ordinary and Higher National Certificate and Diploma courses in Electrical Engineering.

Detailed instructions are given for performing a series of ninety-seven experiments, which deal with the measurement of resistance, heating effects and illumination, the calibration of ammeters, voltmeters and wattmeters, magnetic measurements, the testing of direct current generators and motors, alternating current phenomena, and the testing of alternating current machinery and apparatus.

The concluding chapter deals with measurements performed on rectifiers and thermionic valves.

The book is well arranged, and the diagrams illustrating the description of each experiment are clearly drawn.

It should prove a useful guide for the class of students for whom it is intended.

“James Clerk Maxwell.” *A Commemoration Volume: 1831-1931.* (Published by the Cambridge University Press. pp. viii. + 146. Price 6s. net.)

Clerk Maxwell was born in 1831, and in commemoration of the centenary of his birth the present volume has been published. It consists of essays on Maxwell's life and work by Sir J. J. Thomson, Max Planck, Albert Einstein, Sir Joseph Larmor, Sir James Jeans, William Garnett, Sir Ambrose Fleming, Sir Oliver Lodge, Sir R. T. Glazebrook, and Sir Horace Lamb.

The fact that Maxwell's Electro-Magnetic Theory of Light led directly to electric wave telegraphy and telephony makes the story of his life one of great interest to all and especially to those who are in any way connected with electrical communications.

Maxwell occupies an honoured place in the galaxy of intellectual giants which graced the Victorian Era, and we can strongly recommend this book to all our readers, whether they happen to be particularly interested in the technical side of the applications of his work or not.

“Communication Engineering.” *W. L. Everitt. Pp. viii + 567. 336 Illustrations. London: McGraw-Hill Publishing Co. Ltd.*

This is a valuable text book: it will be welcomed by the student of all branches of electrical communication as it covers a wide field of the subject in a manner not usually associated with books of this nature.

It should prove valuable to those interested in the solution of advanced problems in telephone and radio circuit design. The theory of the thermionic valve is dealt with in detail in regard to its present day application to communication engineering.

The book does not fail in its attempt to supply the needs of the practical engineer who desires to become familiar with the theoretical side of his subject, even if he lacks the desirable amount of mathematical knowledge. The worked problems in the text and the examples at the end of each chapter are a special feature which gives the reader the opportunity of studying the application of the principles involved. The diagrams are plentiful and these alone are instructive in no small degree.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of stations working in the Post Office System at Mar. 31, 1932, was 2,054,249, the net increase for the year being 72,078, or 3.6%.

The growth for the year in London, England and Wales (excluding London), Scotland and Northern Ireland was as follows:—

	Total Number of Stations at Mar. 31.		Increase.	
	1931.	1932.	No.	%
London	712,493	769,924†	22,864‡	3.2‡
England and Wales (excluding London)	1,071,350	1,078,582†	41,799‡	3.9‡
Scotland	173,416	179,374	5,958	3.4
Northern Ireland	24,912	26,369	1,457	5.8
Total	1,982,171	2,054,249	72,078	3.6

NOTE.—34,567 Provincial stations were recently transferred from the Provinces to London in connexion with the recent extension of the London Telephone Area. The figures marked † show the new position. For the purpose of calculating the figures marked ‡, however, the recent transfers have been ignored.

The growth for the month of March is summarised below:—

	London.	Provinces.
Telephone Stations—		
Total at Mar. 31, 1932	769,924	1,284,325
Net increase	2,655	5,190
Residence Rate Stations—		
Total	246,126	319,558
Net increase	1,410	1,900
Call Office Stations (including Kiosks)—		
Total	8,237	29,144
Net increase	57	172
Kiosks—		
Total	3,060	9,757
Net increase	37	197
Rural Railway Stations connected with Exchange System—		
Total	49	2,007
Net increase	—	5

The total number of inland trunk calls in January, 1932 (the latest statistics available), was 9,877,653, representing a decrease of 205,263, or 2% on the total for the corresponding month last year. International calls in January numbered 97,086 and show an increase of 2,609 or 2.8% over January, 1931.

Further progress was made during the month of March with the development of the local exchange system. New Exchanges opened included the following:—

LONDON—Prospect (Barnes) (automatic): Chislehurst.

PROVINCES—High Wycombe, Lymington: and the following rural automatic exchanges:—Aghoghill (Belfast), Appledore (Ashford, Kent), Alderminster (Stratford-on-Avon), Burton Latimer (Kettering), Bodorgan (Chester), Balbeggie (Perth), Crailing (Edinburgh), Clavering (Saffron Walden), Chewton Mendip (Bristol), Coppleshale (Barnstaple), Clapton (Thrapstone), Clare (Colchester), Clovelly (Bideford), Duston (Northampton), Dutton Diffeth (Wrexham), Durrington Walls (Salisbury), Elvanfoot (Lismahagow), Hanningfield (Wickford), Kington Langley (Bristol), Lochmaben (Lockerbie), Marnhull (Blandford), Otterburn (Newcastle-on-Tyne), Offley (Hitchin), Porthtowan (Redruth), St. Mawgan (Newquay), Stow (Edinburgh), Satterthwaite (Ulverston), Woodhouse Eaves (Leicester), Wilberfoss (York), Weeford (Chester), Werrington (Peterborough), Whiting Bay (Isle of Arran), West Harptree (Bristol);

and among the more important Provincial exchanges extended were:—

Bishops Stortford, Seaford, Teignmouth, Windermere, Workington; Crewe, Shrewsbury (automatic).

During the month the following addition to the main underground system was completed and brought into use:—

Belfast—Donaghadee,

while 72 new overhead trunk circuits were completed, and 85 additional circuits were provided by means of spare wires in underground cables.

THE GREATEST YET.

It has been the greatest of Post Office displays in many ways, this Post Office Communications Exhibit at the *Daily Mail* Ideal Home Exhibition, which was held at Olympia, Kensington, W., from April 5 to 30.

In the first place, it occupied the greatest amount of space ever laid out by the Post Office as an exhibition, comprising as it did nearly 15,000 sq. ft. on the Second Floor of the Empire Hall. Then it was our greatest artistic effort and our greatest engineering display. "Marvellous," was the comment frequently heard, "and you mean to tell me that this is entirely a Post Office show?" "Most assuredly, Sir. The Post Office is always doing marvellous things, only it normally hides them away and says nothing!"

Then it has engaged the greatest number of demonstrators ever employed by the Department at an exhibition. And the staff put forth its greatest sales effort and brought in the greatest number of orders ever secured at an exhibition.

But readers who, by force of circumstances were unable to visit the Exhibition will perhaps want to know some details of the show itself.

It consisted of a rectangular enclosure arranged symmetrically round the light well. At one end was a full-scale model of a rural automatic exchange building, complete with exchange apparatus—working—and kiosk. A "truly rural" setting, arranged in semi-circular form and executed by Court Studios, 79, Borough High Street, gave a realistic appearance to the exhibit.

At the other end of the rectangle were a suite of rooms, a business man's office, and a grocer's shop, all wired for telephone service in accordance with the plans set out in the Post Office publication "Facilities for Telephones in New Buildings." The rooms and the office were tastefully furnished by Maples, of Tottenham Court Road, W.1, and Whiteleys, of Queen's Road, W.2, while the stock of the grocer's shop was provided by the Food Manufacturers Corporation. From these rooms amusing telephone "talks," written by Michael Hogan and Mabel Constanduros, the well-known radio stars, were put out by means of loudspeakers.

In close proximity to the rooms was the Contract Office. It was the duty of the demonstrators, besides demonstrating, to inveigle the unwary into visiting the Contract Office, where they quickly became victims of the "Lords High Executioners," the Contract Officers.

Ranged down the sides of the rectangle were blocks of exhibits, each block indicative of some particular Post Office activity. In the block devoted to Telephony, the principal exhibit was a portion of a director automatic exchange, with key-sending position and C.C.I. position. A model four-digit automatic exchange, the exhibit P.B.X. and a selection of historical items completed this block.



GENERAL VIEW OF NORTH SIDE OF EXHIBIT.

In the Telegraphy block, the whole process of the treatment of a telegram was demonstrated. Visitors could hand in free souvenir "telegrams," see them transmitted from one teleprinter to another, watch them being gummed up (on specially printed forms) and the envelopes addressed, and then see them whisked away to the delivery point by the band carrier. The "telegrams" could also be handed in by telephone, a subscriber's circuit connected with the switchboard in the Telephony block, being available for the purpose. The phonograms were typed direct by the phonogram operator and tubed to the sending teleprinter.

In the Telegraphy block also the new teleprinters 7A were demonstrated, both on "Telex" circuits and private communication circuits, the block being divided theoretically into "London" and "Birmingham" for the purpose.

A selection of older types of telegraph instruments, both hand-operated and mechanically-operated, completed the Telegraphy block.

The Radio block was devoted mainly to demonstrating the work the Post Office performs in seeking out sources of interference with radio reception and the remedies it has devised. Another popular exhibit in this block was the full-scale model of a ship's wireless cabin, complete with telegraph and telephone sets. Free demonstration overseas telephone calls were also given in the Radio block.

THE IDEAL HOME IS ON THE PHONE

The Telephone Installation in this suite of rooms is based on a plan of concealed wiring drawn up by the Post Office in collaboration with the Royal Institute of British Architects.



THE LOUNGE HALL IN THE IDEAL ROOMS.

The Cables block consisted in effect of two sections, one a model cable man-hole where jointers demonstrated how easy it is to join up a 1,000-pair cable—a demonstration which fascinated the Prince of Wales when he visited the show—and the other a "still" section of specimens of submarine and underground cables, made very much alive by the interesting yarns of a uniformed officer from the *Monarch*.

A block devoted to Research and Testing apparatus completed the display. The last-named block contained such popular "stunts" as "See your Voice," "Hear your Heart beat" and "Test your Emotions."

A really great show which compared very favourably in artistic merit and general interest with the remainder of the Ideal Home Exhibition. Considering the general prestige of the Ideal Home Exhibition, this is no mean achievement, and every member of the Post Office staff can justifiably feel proud of the venture.

W. J. B.

SCOTLAND (WESTERN DISTRICT) NOTES.

THE "Request" social to the successful Christmas party held in December last, took place in Miss Rombach's Rooms, Glasgow, on Mar. 11, 1932. As success begets success, so this gathering proved more successful than the previous one. Every branch of the staff in the district was well represented.

Whist occupied the first part of the evening and on the call of Mr. Thyne, District Manager, Miss Paterson (Fees) presented the prizes to the successful winners, viz.: Miss M. I. MacLeod, Miss A. K. McNeill, Miss J. G. Fulton and Mrs. G. Johnstone.

The committee adopted a novel method of partnering the company for tea, which followed the whist. Names famous in *history* were chosen, such as Henry VIII and his six wives, Rob Roy and Helen McGregor, and so on. The characters were called out and as each answered the call, all were marshalled and adjourned to the tea room. Many members of the company acted splendidly the character parts so hastily and good humouredly "thrust" upon them.

Dancing until closing down was engaged in, interspersed with community singing, again ably led by our esteemed District Manager, Mr. Thyne.

A. MUIR.

TELEGRAPHIC MEMORABILIA.

JUDGING from the electrical press, which naturally would specialise on data of this nature, it is a fact that, "from all parts of the country reports are coming in of prosecutions for thefts of electricity." The staid *Electrical Review*, however, suggests that considerable comfort should be derived from such a state of affairs, for it is evident that in increasing numbers the public is becoming more and more familiar with electricity and no longer looks upon it with awe! Time was, not so long ago either, when a linesman could put the "fear of God" into the hearts of quite well educated people, with tales of what might and would happen if the uninitiated dared to touch a telegraph or telephone wire. Little more than twenty-five years ago, when in India, the present writer witnessed the absolute terror of an Anglo-Indian member of the Indian Telegraphs Technical Staff, who, when asked to join up 160 volts positive and negative to a long-distance telegraph circuit, actually ran out of the office, saying that he could not accept the responsibility as such a change would "burn out the test-box," returning ten or fifteen minutes afterwards, genuinely surprised that all was well. Still stranger was the fact that he had himself written an excellent little treatise on the Mathematics of Telegraphy. Well, after all it was then only sixty years since the death of Hans Christian Oersted of Copenhagen University, he who discovered the connexion between electricity and magnetism, and gave that priceless clue to Ampère, Davy, Faraday, and others, practically within twenty-four hours of his discovery. Also one recalls that Science teachers as late as the 'eighties, were still explaining how the current from the positive pole of a telegraph battery passed along the wires, say from London to Paris, and returned through the earth to our capital, where it picked out its own particular battery, entering the same at the negative pole and thus completing the circuit!

Personal.—There are undoubtedly few electrical specialists, if any, more qualified to address a foreign audience than, Dr. F. Luschen on the subject of "Modern Communication Systems." Originally an official of the German Post Office, he left that service to join Messrs. Siemens & Halske. The present writer—a year or two ago—had the intense pleasure of listening to Dr. Luschen deliver a lecture of intense interest to international telegraphy in the Lecture Hall of the above-mentioned firm. It was fluently delivered to an international audience in three languages—German, English, and French.

The Institution of Electrical Engineers were indeed fortunate on April 7, when Col. Sir T. F. Purves opened the discussion and made way for the talented, yet modest German professor. The technical press are undoubtedly adequately dealing with the subjects, but the fact that Dr. Luschen came very specially from Siemenstadt to London to read his paper is worthy of record in the less learned pages of the *T. and T. Journal*.

According to the *London Times*, Mr. C. V. Auger, London District Manager of the Western Union Telegraph Co., is to retire. Mr. Auger has seen nearly fifty years of service in the Company and will be succeeded by Mr. G. J. Oakshott.

Dr. Ing. E. H. Feyerabend, Secretary of State for German Posts and Telegraphs, has been awarded the Siemens-Stephan Memorial Plaque by the German Elektrotechnischen Verein. The plaque is a most coveted one and is only awarded once every five years to persons who have markedly assisted in the development of the electrical industry in general.

It is with special interest and satisfaction that one hears from excellent authority that "in recognition of his contributions to the art of machine telegraphy," the Senate of Liverpool University is conferring the degree of "Master of Engineering" upon our much esteemed Mr. H. H. Harrison, M.I.E.E.

Another Golden Wedding.—All old friends of Mr. Chris. Elphick, Superintendent, C.T.O. (retired), will heartily congratulate Chris. upon the fiftieth anniversary of his wedding day. None the less

heartily are those felicitations extended to the happy partner of his joys and sorrows, the ups and downs of life that with so united a couple are burdens halved, because so well shared, and whose joys are doubled. The Village of Dulwich, now grown beyond a village population, was the scene of much jubilation on April 20 last.

Countries.—ARABIA.—*Wireless at the Well!*—The *T. and T. Age* informs us that the Arabs are no longer content to tramp contentedly across the Arabian desert without relief from the silence of the sandy waste. Part of the equipment of these nomads has now become a wireless set—which the patient camel, of course, carries—while it is also stated that receivers are now installed at the various oases, the usual wells at which their ships of the desert are halted, or shall we say "anchored"?

ARGENTINA.—Buenos Aires, says the *Electrical Review*, is to have a new broadcasting station which will be constructed at the Marconi's Chelmsford works. Incorporating all the latest developments, including crystal and valve frequency control and low power modulation, the new station will be operated by Radio Excelsior of Buenos Aires on a power of 20 kw.

AUSTRALIA.—The Canberra special correspondent of the *London Daily Telegraph*, in a despatch of Mar. 16, says that, "Yielding to protests against the Broadcasting Bill, chiefly because of the extent of political control it confers on the proposed Commission, and also because of the proposed invasion of the advertising field now occupied by B class stations, the Commonwealth Ministry had agreed to accept amendments." The *Electrical Review* later, reports that, "the clause which empowers the Commission to accept sponsored advertising programmes has been deleted. The Bill is to be read a second time after the Easter adjournment." Still further information says that, "the offending political clause was included by mistake." *New Australian Station.*—The most powerful broadcasting station in Australia was opened on Mar. 15 at Crystal Brook, 120 miles north of Adelaide by the Federal P.M.G. It has a rating of 7.5 kw., and a wavelength of 417 metres. *New Broadcasting Company.*—A new company called the Goulburn Broadcasting Co., Ltd., has been registered in Sydney with a capital of £4,000, for the purpose of operating a station in New South Wales.

CANADA.—In connexion with the investigations of the broadcasting problem by the Special Committee of the Dominion House of Commons, the *Times* avers that radio advertisers and manufacturers have strongly opposed the principal of Government control, and the Canadian Manufacturers' Association has officially supported them. It is maintained that on the present licensing basis of \$2 a radio set, State control of the system advocated by the Canadian Radio League would involve an annual loss of \$4,500,000. The League has filed a long memorandum setting forth the advantages of Government control, and it has support from different quarters, particularly educationists. It is noteworthy that Major Gladstone Murray, of the B.B.C. gave evidence regarding the development of the methods of the B.B.C. He said there was no agitation in Great Britain to return to private-owned systems, and he explained the possibilities of exchanging programmes with a Canadian National system. *Regenerator on London—Montreal Service.*—The Imperial and International Communications Co., Ltd. have now for some time been working the regenerator system on two direct telegraph cable circuits, thus superseding the former system of relays at Fayal or Harbour Grace and re-transmission at Halifax, N.S.

CZECHO-SLOVAKIA.—In February the number of radio subscribers reached 397,591 as compared with 322,683 a year ago. The January increase alone was 15,171. *World Radio* hints at the erection of a national short-wave broadcasting station before long. DENMARK.—*Pirates!*—The Broadcasting Council has been investigating, with the aid of the Danish police, the unlicensed use of radio receivers. Already, according to *World Radio*, no less than 2,000 cases have been traced. Offenders are liable to a minimum fine of 40 kroner. The maximum is fixed at 400 kroner, about £22. *Licence Fees.*—The Minister for Public Works

has decided that radio listeners must pay a licence fee of 10 kroners for the year April, 1932—March, 1933. When the new high-power station—now in course of construction at Kalundborg is finished, the existing transmitter there will relieve the weaker station at Copenhagen. GERMANY.—It has been announced in the technical press that the West German broadcasting authorities closed the relay stations at Aachen, Cologne, and Münster, on Mar. 21. These areas are now being served by the Langenberg transmitter.

GREAT BRITAIN.—*Voice Frequency Developments.*—A twelve-channel voice-frequency carrier telegraph system is being supplied by Standard Telephones & Cables, Ltd., to the British Post Office, for operation over a line between London and Dundee. This system provides twelve channels of voice-frequency telegraphy over a four-wire cable circuit, and so makes available a greater number of telegraph channels than has hitherto been possible over a metallic circuit. *Cables and Wireless Ltd.*—It was with genuine regret that the Court of Directors were compelled to abandon the plan of occupying the company's new headquarters on the Victoria Embankment, London. It is easily understood that the present financial position of the entire world could not but have its repercussion upon the revenues of the associated company, Imperial and International Communications, Ltd. The monthly traffic receipts of the company showed a decline compared with the year before the present report of no less than £743,644, as reported in the *Daily Telegraph* of Mar. 8 last. The scheme was one which deserved a better fate, and had financial conditions been normal, it might have shown the world what an international telegraph office really should be. The building designed by Sir Herbert Baker, R.A., is, however, in the market and may go under the hammer. One cannot, however, but wonder what would have been the comments had the abandonment of such a scheme, however worthy, been the misfortune of a State department. *Ultra Short Waves and Television.*—The Baird Television Co. in London announces that the Postmaster-General has granted the Baird Co. a licence for the experimental transmission of television by ultra short waves.

HAITI.—*Port-au-Prince New Wireless Station.*—A contract, says Reuter's Trade Service, has been granted to an American company for a powerful wireless station at Port-au-Prince, and the subsequent construction of no less than nine receiving and transmitting stations in various parts of Haiti. At present broadcasting is a Government monopoly, there being only one station on the island, and that for educational purposes. HOLLAND.—*Interference.*—Even medical apparatus is not exempt from the regulations as to non-disturbance of wireless reception in Holland, so it would appear from a report made by the Hague correspondent of the *Daily Telegraph* who states that "a patient at Waddineveen was charged with using an electric machine to an extent and in a manner that was not necessary." The experts won the case by maintaining the position that, "it was not necessary to work the machine more than ten minutes at a time and two or three times each week, and also that it could be used so as not to disturb wireless reception." Readers will, however, be glad to hear that the culprit was treated as a first offender and let off with a warning!

IRISH FREE STATE.—It is understood, says the *Electrical Review* that an attempt is being "made to have the new high-power broadcasting station at Maydrum, near Athlone, Galway, ready to commence operation next month." ITALY.—The Italian liner *Compte Rosso* which left Trieste on the 12th ult. for Shanghai, is carrying the most powerful and modern c.w. telegraphic and telephonic apparatus so far used by passenger ships, says the *Electrical Review*, and according to *The Times*, three British engineers have been engaged with Italian experts at Trieste, in installing the apparatus which is rated at 20 kw. They are sailing with the *Compte Rosso* in order to test the apparatus. NEWFOUNDLAND.—The islands of St. Pierre and Miquelon are to have a broadcasting service for the transmissions of the French colonial station at Pontoise will be received on wavelenghts of 13.8 and 31.7 metres and relayed at a power of 250 W. on 250 and 500 metres.

NEW ZEALAND.—Reuter's Auckland correspondent reports that as a measure of economy, Imperial Cables are closing their Wellington Office and removing the Wellington end of the New Zealand—Australia cable to Muriwai Beach 30 miles from Auckland. The result will be that in future all cable traffic will operate from Auckland, two lines going to Australia, one to Norfolk Island and another to Suva, extended to Vancouver. PHILIPPINE ISLANDS.—Mr. Kuprevich of the Moscow Radio Administration has invented, amongst other interesting apparatus, a short wave installation which it is claimed makes possible two-way conversations between Moscow and the Phillipine Islands.

RUSSIA.—A new telegraph line was completed recently which connected the Aldan gold mine region in Yakutia, Soviet Russia, with main existing telegraphic systems. The length of the new line is not extraordinary for a country of vast distances, being only 365 kilometres, let us say 230 miles long. It was, however, completed well up to schedule.

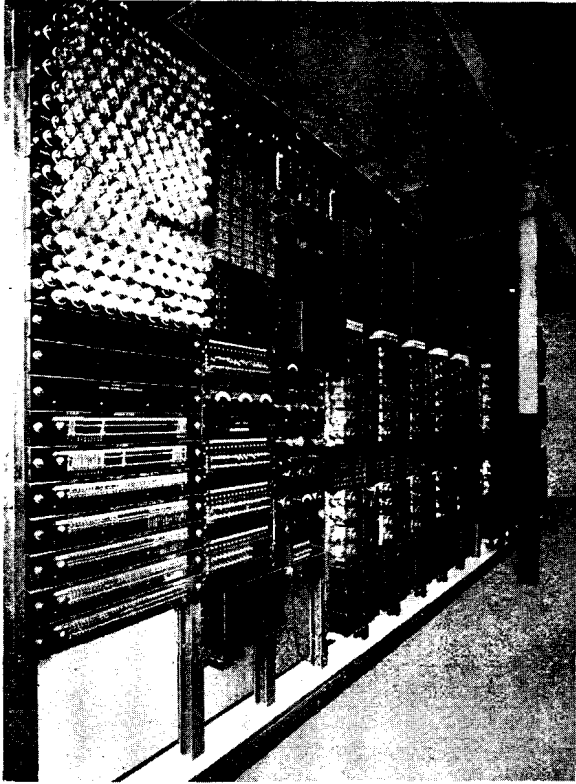
SOUTH AMERICA.—*Television News.*—According to the *T. and T. Age* a company has recently been formed in Argentina for the purpose of exploiting in Argentina, Uruguay, Brazil and Chile "all of the patents, apparatus, transmitters, receptors and accessories of the inventor, John Logie Baird," and they intend to establish in the near future a combination of television and radio telephone in these countries.

U.S.A.—*Television, Baird, and Sanabria.*—Certain of the North American technical press are inclined to the view that while the United States Federal Radio Commission has maintained that it is not yet the proper time for it to recognise the commercial possibilities of television, exponents of that science in the United States and abroad "continue to make rapid strides with it." The *T. and T. Age* remarks, that "U.A. Sanabria, of the Sanabrian Television Corporation in Chicago, and John Logie Baird, of the Baird Television Corporation in London, are two of the most prominent figures in television to-day, who are bringing this science more and more before the public by recent innovations of the apparatus."

Telegraph and Telephone Development.—The *T. and T. Age* declares that direct radio communication (Telegraph and Telephone), between Moscow and the following towns and cities, have now been made possible, viz., Khabarovsk, Sverdlosk, Irkutsk, Tashkent, U.S.S.R., Alma-Ata, Novosibirsk, and New York. Four telegraph transmitters with 20 kw. on short waves and one machine transmitter with 150 kw. on a long wave.

The same authority reports that the De Forest Radio Company has been authorised by its shareholders to purchase the assets of the Jenkins Television Corporation. The idea appears to be that this move will "facilitate the more rapid development and exploitation of the television art." *United States Radio Legislation.*—Several wireless Bills, it is stated, are likely to be introduced to Congress shortly. For example, the Treasury is supposed to have recommended a retail tax on receivers. On the other hand, it is suggested that the radio industry itself should be taxed on the revenue of broadcasters themselves. So far the extra taxation voted by the House of Representatives appears to include new taxes on telephone, telegraph, and radio messages, and also on wireless broadcast receiving sets. *New Radio Beacons.*—The inauguration of two new radio beacons to help shipping, one at Sandusky, on Lake Erie, and the other at West Quoddy Head, Me., is announced by the lighthouse service of Department of Commerce. So says Reuter's Trade Service, New York, which adds that these beacons bring the total number of such aids to navigation in the United States up to 100.

Three-quarters of a Century Ago!—"A further step has been taken towards the realisation of the Atlantic telegraph. The United States steamers *Niagara* and *Mississippi* have been ordered to proceed to England to assist in laying the cable."—*Daily Telegraph*, March, 1857.



G.E.C.

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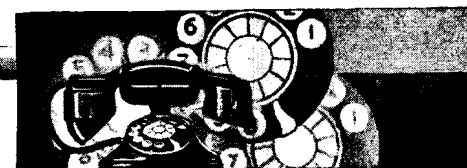
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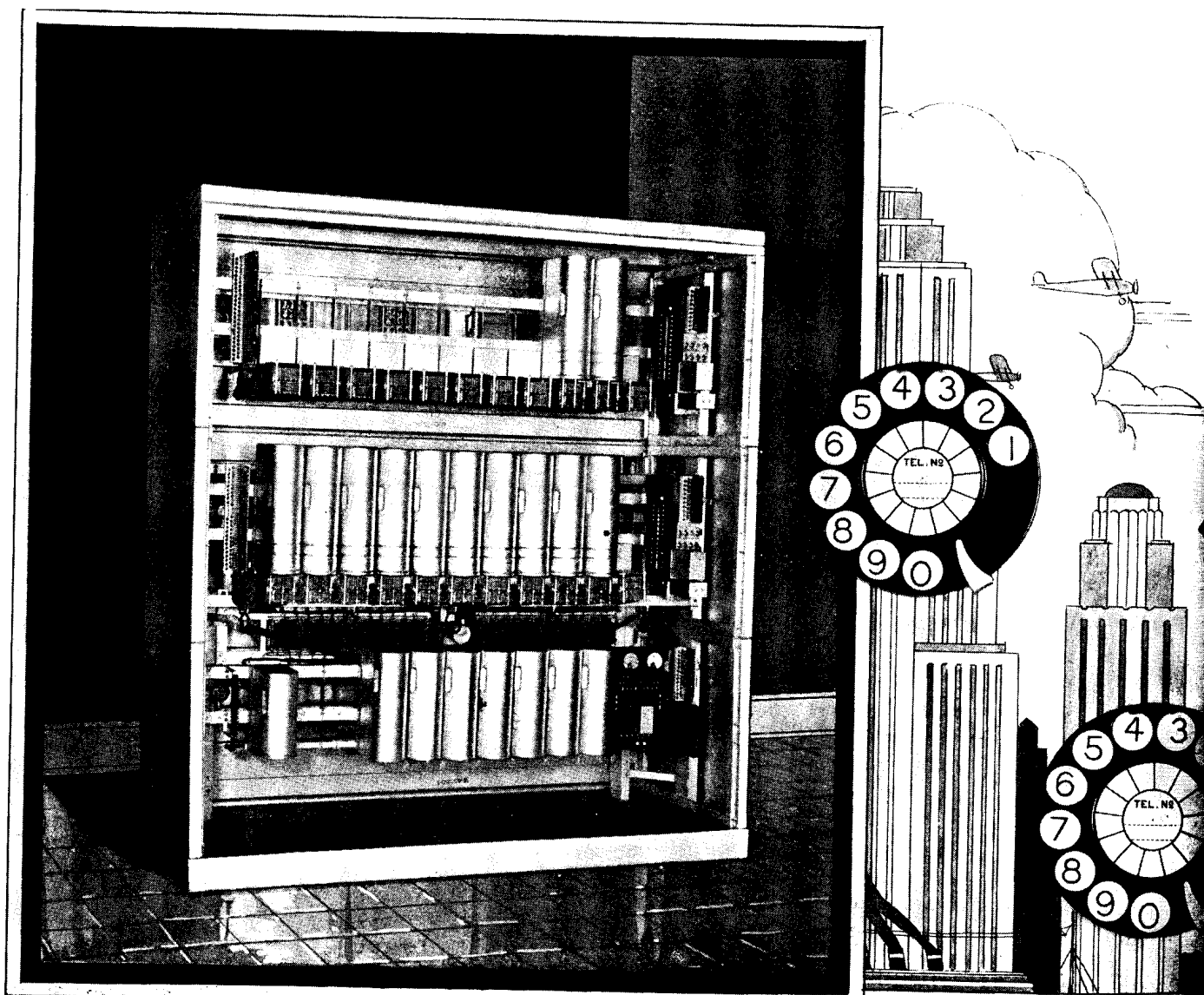
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MOST COMPANIES ARE PAYING FOR AUTOMATIC OPERATION YET ARE NOT GETTING IT

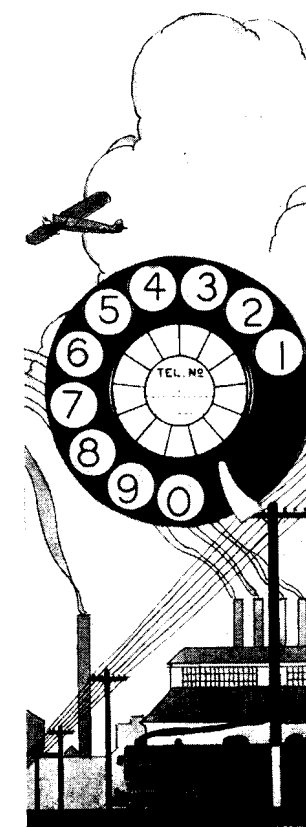


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OBITUARIES.

THE sympathetic note in a recent number of the *Electrical Review*, anent the loss sustained by Mr. H. R. Kempe, M.Inst.C.E., M.I.E.E., M.I.Mech.E., by the death of his beloved partner Helen Catherine, was much appreciated by those of the Post Office fraternity, who recall that worthy engineer. Mrs. Kempe passed away on Feb. 23 in her 87th year at their home in Surrey. It may be recalled that she was a daughter of the late Major-General Byng, C.B.

The death is also reported, in his 56th year, of Mr. James Henry Shaw, M.I.E.E., Staff Engineer of the Posts and Telegraphs, Dublin. The deceased was a past-chairman of the Irish Centre of the Institution of Electrical Engineers.

The sincerest sympathy is tendered to Mr. Bathurst, a former Chairman of the P.T.C.A. in the late 'seventies and early 'eighties, and a very much respected Superintendent of the C.T.O.—now in his 83rd year—upon the decease of his wife, Mrs. Oliver Bathurst, in her 79th year, on Feb. 3. Their happy wedded life covered a period of nearly sixty years. (See also under *Telegraphic Memorabilia*.)

The death of Mr. John Laxton, Superintendent Telegraphs, C.T.O., at Hastings on Monday, Feb. 22—where it has been his custom for some time to winter, came as a shock to many of his old colleagues, both on the active and retired lists. It appears that while playing whist at The Cabin, Claremont, he collapsed, and died before the police surgeon could arrive. The Borough Coroner was fully satisfied as to the cause of death, and the painful ordeal of an inquest was thus saved to his sorrowing wife and relatives.

For some time past the deceased had suffered from heart trouble, but it was not thought to be of such a nature as to create any foreboding of a sudden death. At the funeral which took place at Hastings Cemetery, there were present with the mourners, Messrs. T. W. Charter, H. H. Harris, G. T. Hutchinson and P. G. Stalain.

The late Mr. Laxton entered the Service towards the end of 1881 and was promoted an Overseer in 1912. Five years later he became an Assistant Superintendent, and in 1924, was made Superintendent, retiring at the age limit in 1927.

It was on his birthday, Feb. 12, that Mr. Edward Purkiss, Asst. Supt. (retired) of the Foreign Telegraphs, C.T.O., after a painful illness, passed away, leaving behind him the reputation of a "sportsman" in all senses of the word. He was a popular officer with the Staff, largely because, playing the game himself, he saw that others played it with equal rectitude. Across fields, on the track, on or in the river, he could generally hold his own.

Very little indeed came amiss to him on the physical side of life, and certainly not much on the intellectual. His technical knowledge was well above the average, and on one occasion won for him the City Guilds' Bronze Medal for Telegraphy. To the surprise of many of his colleagues, he declined the idea of any further advancement for that achievement—somewhat brusquely it was thought at the time—but "Teddy" had his own view-point on such matters. To him "the game was the thing that mattered," and having satisfied himself that he could win this or that medal, cup, or other token he wished for no other reward than the certain knowledge of his own capacity and power to accomplish that end. He accepted the exam. in the same spirit in which he would have accepted the challenge to clear a five-bar gate. They were just challenges! As a pastime the building of a bungalow in his late middle years, or the removal unaided of a few hundred weight of cement across the river Lee in its upper reaches, was an easy accomplishment. When he was compelled to retire before reaching the age-limit, owing to failing health, his interest in the Office Sports never slackened. For the rest it can be declared very definitely that he never failed one, and no-one who really needed help of any kind and went to "Purko" for assistance ever returned dissatisfied. Our friend had just completed his 67th year. Dobb's Weir will surely miss him this coming season!

On Mar. 9 we laid to rest, in the old village churchyard of Trinity Church, Finchley, the earthly remains of our esteemed colleague, Mr. A. A. Upson, who passed over in his 52nd year. He left us after an heroic struggle against what were, mainly, the after-effects of the Great War, more particularly his service in German East Africa between 1917-19. The word "heroic" is used advisedly, for he made every effort, during his illness, to minimise the duties and stress of his devoted sister and those around him. About two years after his return to civil life he was promoted to Overseer in the Foreign Telegraphs, where the greater part of his previous service in the C.T.O. had been performed. By 1930, however, the virulent malaria and dysentery had begun their insidious work anew, and his pensioning became necessary in June of that year. We all hoped that the air and sunshine of Epsom Downs, and a more regular and less strenuous life would lead to something approaching renewed health. It was not to be. The unanimous verdict upon Arthur Upson by all those who have worked with him, under him, or those who have had the privilege of his assistance as next-in-charge, may be summed up in the words of one whose letter is before the writer, "A great soul has departed from us."

The final cause of death was lobus pneumonia and blood-pressure. Those acting as chief mourners were Miss Upson, Mr. F. Poffley, Mr. A. Skinner, and Miss Allen. On arrival at the church the cortege was met by the Messrs. Allen, cousins of deceased, and at the graveside were representatives

of every grade in the Cable Room, of whom may be mentioned the following:—*Staff*: Messrs. Bray, E. Butcher, Cleave, J. Galbraith, S. R. Green, A. Salmon, and E. White. *Overseers*: E. Ireland and B. J. Salmon. *Asst. Superintendents*: Batten and Crisp. *Superintendent* (retired), J. J. Tyrrell.

There were numerous floral tributes. Eight of these altogether were from the Supervisor and Staff, Ex-Supervision and Ex-Service Members of the Royal Engineers and other friends.

Yet another link with the very early stage of the art of telegraphy has been broken by the passing of Miss E. P. F. Moore, at Thornton Heath, on Mar. 14 last, at the ripe age of 85 years. This much respected lady entered the service of the original Electric and International Telegraph Co. in 1865, and came to the "old TS" in 1870, where she reached the Higher Grade of Supervisors, in charge of the Metropolitan Gallery, in 1896, retiring in 1907.

Her junior by some few years, Miss Fanny Cruttenden, who entered the C.T.O. in 1872, passed over on the 4th ult at her home in Twickenham. Deceased was made Supervisor in 1897, Higher Grade Supervisor 1911 and retired in the early part of 1915.

C. B. CLAY FOOTBALL CHALLENGE CUP.

The final tie in the C. B. Clay Challenge Cup was played on the Nunhead Football Ground, on Wednesday, April 20, between teams representing the South East External and the City Internal Sections of the London Engineering District.

The same teams contested the final tie last year, when the South East External Section were successful after playing extra time, by three goals to two, and the large crowd of spectators which attended witnessed another most keenly contested game.

On the present occasion the City Internal Section won by 2-1. After about 20 minutes' play the City Internal Section, who had so far had the best of the exchanges, scored: the movement was started by a good run by Gilmore, the outside right, who passed to Covell, the latter centred the ball beautifully into the goalmouth for Cissell to head a clever goal. Shortly afterwards a second goal was scored for the same team by Waters.

The presentation of the Cup, together with miniature cups to each member of the winning team, was made by Colonel Clay, the original donor of the Cup, whom everybody was delighted to see looking as fit and well as ever. Colonel Clay, in congratulating the teams on their fine exhibition of football, said his object in presenting the Cup for competition was to encourage sport and good fellowship amongst the staff of the late National Telephone Company, and he was pleased to see the cup was still serving this purpose, although 34 years had elapsed since the first contest took place.

This Football Challenge Cup was first instituted in 1898, when Colonel Clay was Metropolitan Superintendent of the late National Telephone Company, and is still open for competition to all teams representing the staff of any branch or section of the Post Office associated with the Telephone Service in London, including the following Departments: Secretary's Office, London Telephone Service, Post Office Stores Department, London Engineering District, and Engineer-in-Chief's Office.

Entries for the competition are cordially invited, and particulars can be obtained from the Hon. Secretaries, Mr. C. J. Head (London Engineering District), Mr. A. E. Wild (London Telephone Service) or from Mr. F. Woollard (Engineer-in-Chief's Office). The proceeds of all matches are devoted entirely to charity, and the competition has been the means of raising upwards of £250 during the past few years.

FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

South Africa.—Durban, May 16. Elec. Supply Commission. 175 k.v.a. transformer (A.X. 11313). Pietermaritzburg, May 19. City Council. Meters (A.X. 11314), lamps (A.X. 11317), hard drawn copper wire and insulated wire (A.X. 11319), house service fuse boxes (A.X. 11315). Cape Town, June 22. Elec. Department. Voltage regulators (A.X. 11328). Overhead line material, &c. (G.X. 11372).

New Zealand.—Wellington, May 4. Post and Telegraph Dept. Telephone keys (A.X. 11310). June 2. Government Railways. Butt and arc welding sets. (A.X. 11279).

A report on trade and economic conditions in Albania during 1931, prepared by H.M. Vice-Consul at Durazzo, has been received and circulated by the Department of Overseas Trade to firms whose names are entered on its Special Register. United Kingdom firms wishing to obtain copies should apply to the Department, Reference No. C.X. 3832, as above.

By a decree dated Mar. 17, quotas have been fixed for the imports of certain kinds of electrical material into France during the period Mar. 10 to June 30. These include electric accumulators of all kinds and their component parts not specified elsewhere in the tariff, the quota for Great Britain being 462 quintals.

TELEPHONE PUBLICITY.*

(Continued from page 145.)

AMONGST the contributions to the debate were the following :

MR. POWELL-JONES (Telephone Development Association) : It seems to me that for any advertising campaign you want at least four principal factors. You want, in the first place, faith. You want courage ; you want perseverance ; you want money. You will notice I do not say anything about skill. You don't want any skill in the case of, say, toothache. You can buy something for it.

Perhaps one may just say a word about each of those things. First of all, faith. You have to have it in yourself. That is quite easy in your case and you need have no difficulty about it at all, but you have also to have faith in the efficiency of the methods you employ to sell your product to the community. You have not to be half-hearted but perfectly sure you are doing right in using certain newspapers or posters. Whatever you do, you have to have real, implicit faith in the result, otherwise you are going to tumble down to a great extent.

You know old stories nearly always illustrate the point very well, and this story I am going to tell you is very old. It is that of an old lady who was very much impressed by a powerful sermon on her favourite theme about faith. The preacher spoke on the subject of the mustard seed and he said it was not a question of the ordinary kind of faith ; it was real, hundred per cent., honest faith. The trouble was lack of faith in people. The old lady, you will remember, had a dead apple tree in her garden and she had not the strength or means to cut it down by hiring someone to do it. After the sermon she went home, and, calling up her faith, she just mentioned the question of the apple-tree and then went happily to sleep and got up in the morning in the spring sunshine. She then sprang lightly to her windowsill, pulling the curtains back, and said " I knew the darned thing would be there still ! "

That is what I was trying to illustrate—this question of faith. You have to have real, unquestioning faith, the same faith that has kept manufacturers of cable slogging along and persevering through these seven lean years simply because they know we are going to have seven fat years, thanks to the efforts you are making.

I must say a word of excuse for the biblical note that has crept into my remarks, which I think is the result of inhabiting a flat used by four clergymen !

You have certainly to have courage to meet heart-breaking events that happen in almost every advertising campaign, however well conducted. Your advertisement may appear on a page on which somebody else has been cleverer than you, and if you happen to get a page dominated by someone else's advertisement it is heart-breaking. Or again, you may have an experience that has befallen us more than once, the experience of having your advertisement appear alongside a bitter editorial criticism of the inefficiency of the telephone service ! All the good is more than undone by the editorial comment. That is the kind of thing which calls for courage, and you also need courage, I think, to face criticism. But let me put this quite strongly. There is no need to be afraid of criticism. In most cases criticism of advertisements is engineered in a roundabout way by a fellow advertiser. The idea is to stop you from advertising. It is only human nature that impels others to want the field to themselves ! And they make hostile criticism in an attempt to discourage the non-courageous.

In the days when I was in the newspaper world, we had a rough and ready definition of an advertiser. There were two classes ; the steady old people, who always went on advertising, and who were called the " stockers," and those in the other category who timidly dipped one foot in at a time and spent a little money and then came to the conclusion that it was not worth it and retired. It suggested what they were—cowardly and non-courageous. Those who nibbled and drew back.

The third quality is persistency. Mr. Taylor has emphasised that, and I entirely agree. After all, persistency and courage are very much alike. To this day we are still getting replies in some cases to advertisements that appeared in the Ideal Home Exhibition catalogue of 1927-28, so you see the cumulative effect of advertising. I often think of it in terms of blotting paper and ink. If you put the ink on the blotting paper you get the blob in the centre—the first direct result. Then you get a bigger and bigger circle, until eventually you get a larger area, and so you go on making blots until the area is really saturated. Well, there is, I suppose, a population of 46,000,000, which is a pretty wide field of paper to shoot ink at ! After all, it is often called ink slinging, so there is a good deal to be done before you get that blotting paper thoroughly well saturated. I think you have an easier job than we have. When we went out to the jungle there were a great many bumps and ups and downs, and we had a hope that all the top dressing, mowing and cultivation of the field that has been done in the past would make the going very much easier for others. Certainly we wish you the best of success and if you do not make a hundred on this beautiful wicket prepared for you we shall be very surprised.

* Open debate at meeting of the Telephone and Telegraph Society of London.

I do not propose to go over all the points raised by Mr. Taylor, because it would involve my giving another paper on my own, but I must endorse what he said about newspaper publicity. I agree with him ; it is not, I think, a question of spasmodic advertisements in newspapers. The real value, so far as newspaper advertising is concerned, comes with what you do after the advertisement has appeared : the way you handle the enquiries coming in and the follow-up system put into practice for following up these enquiries and getting the full benefit and harvest from it. My point is rather that once your advertisement is all right and your general style and copy correct, it is the beginning and not the end of your advertising. So many think it is the end, but it is not. Your sales effort should begin from the moment your advertisement appears.

One more word. Mr. Taylor began by telling us that he felt the old Civil Servants would turn in their graves at the idea of Government advertising. I do not think that would apply to the Post Office. I believe they always wanted to advertise and always believed in it. Treasury officials, I think, may be turning in their graves, and I think it would be very good if they were ! But I do not think that applies to the very great majority of Post Office people. I want to suggest to you that, even in the less civilised parts of the world, this theory of advertising still follows the same old lines of thought. I received this from Shanghai. They altered one word of it, but the alteration is so obvious that I do not think I need tell you the word :—

" Is it not funny that so many Treasury men who get up in the morning, refresh themselves with a dose of advertised fruit salt, clean their teeth with an advertised toothbrush, shave with an advertised soap, put on advertised underwear, an advertised shirt, hose, garters, collars and shoes ; eat advertised breakfast foods, drink advertised tea, coffee and cocoa ; go the station in an advertised motor-car, give letters to typists who type on advertised machines, turn down advertisements on the grounds that it does not pay ? "

There is wisdom from Shanghai !

Of course it pays, and it pays in bad times probably more than it does in good times. We of the Association welcome the appearance of Post Office advertisements and we hope you are going to go on, because we are perfectly convinced from our own experience that it will be no use at all to start now and then stop at the end of March, or whatever fateful day the Treasury have in mind for you.

We hope you will go on from strength to strength and that the results will encourage you. We suggest faith, courage and persistence. Then you will have a bigger success than you anticipate. Anything we can do to help you we shall be only too glad to do.

MR. WHITEHEAD : I came here to-night to listen. I have done it. When your Chairman calls on me I follow the example of Mr. Powell-Jones and respond, if it is only to express my appreciation at being allowed to be with you this evening and compliment you on the excellent progress of the matter under discussion generally. I listened with more than a keen interest to what Mr. Taylor had to say, and also to what Mr. Powell-Jones had to say, though not quite so much in his case because he said some things I wanted to say myself ! In fact, I cannot help thinking of the farmer who was met by the city man who had a book under his arm. During the course of conversation the farmer asked if he might borrow the book, and said he would return it to the city man, who, when he had done so, asked him what he thought of it. The farmer said : " Well ; that is a good book. That man has a lot of my ideas." I am afraid that is how I feel after listening to Messrs. Powell-Jones and Taylor.

One comment with regard to the point touched upon by Mr. Powell-Jones, and that is as to the quality of energy which we have found in our brief and exceedingly pleasant talk with the officials and others in the Post Office.

If anyone tells me there is not the same energy and open-mindedness in a Government Department, I can say that it is not so from my own personal knowledge. We could not wish for more willingness to accept suggestions, and a more eager desire to put everything into execution at once. The restrictions which, I was warned, surround every Government Department, are conspicuous by their absence, and I would like to congratulate everyone on attaining that. You are perfectly open to the Press, to listen to every complaint, even to the extent of complaints about the impertinence of an operator. I am reminded of the old muffin lady who had come upon bad times and what little money she had had she had lost, so she found the only thing to do was to make muffins. She made some and took a bell and called " Muffins ! Oh, dear ; I do hope no one hears me ! "

I am afraid there is a little of that in the Post Office.

Mr. Taylor showed us a picture (Lewisham shop, Fig. 7), and wanted to know what could be done to improve it. Anybody can come here and say pleasant things, but I believe you would prefer something constructive and critical, even if you did not agree with it. At any rate, you will give me credit for honesty of purpose.

Take away those counters and put one or two nice desks, with a couple of easy chairs and without a lot of advertising matter floating about. There is too much of the suggestion of an advertising showroom and not enough like a persuasive sale show. I should like to ask you whether you would feel like making yourselves comfortable in such a place. I also suggest that it be made permanent. It would almost require a blue print to find some offices. I am a firm believer in the advertising value of good and attractive buildings, well laid out. Any money spent in improving the appearance of buildings for Post Offices is money exceedingly well spent. Advertising

of that kind does not detract from a building. A clean and well-planned building suggests bigger progress and attractiveness which will overcome an otherwise drab inside. The more publicity matter that can be placed about it the better opportunity there will be for people to get into contact with the telephone authorities. I agree with Mr. Powell-Jones that a very efficient but none-too-attractive to the opposite sex young man would not be quite so effective as a rather attractive young lady who knows her business and knows how to talk about it persuasively. So I would make your room a little more attractive by having an attractive young lady, or more than one, because it is astonishing how much more susceptible we are to a pair of pretty lips than to the wisest saying of a hoary-headed old man.

The comments on the paper have been excellent, and I would merely suggest as an addition to what has been said by Mr. Powell-Jones that the Post Office itself, in one of its services, has the finest example of continuity, which would be an excellent thing to follow. I mean the postage stamp. It sticks to a thing till it gets there.

Now, what is advertising? I quote a little suggestion that advertising is impersonal selling, while selling is personal advertising, and therefore the two are inextricably mixed up and advertising is going to get results. The more ineffective the service advertised the more quickly the results of ineffective service are brought home, because if you advertise a thing that is not right the weakness of the advertised services or article are more quickly pronounced. So it is important that when you advertise, not only the service advertised be correct, but the method of paying for that service be made as painless as possible. And that advertising in itself should be an expression of the silent policy of the department or organisation—in other words, the selling effort is merely the advertising effort and one part of the sales effort which comprises not merely the quality itself but the general policy, the personal sales effort, so that a continuity is made of this huge thing called selling. Advertising, if you please, may be the shock troops. Selling efforts capitalise the results of the first push and it is only by looking on advertising as part of a selling effort as a whole that its true place in the scheme can be appreciated and it can be made a permanent and integral part of any sale activity as a whole.

I express my thanks to the speakers for the profitable suggestions I shall fortunately be able to take away with me.

Mr. PINK: I think there is a significance in meeting to-night in this particular hall, because those of us whose interests have been associated with telephone work for so many years and who have longed to see efforts made to widen the scope of the telephone, have hammered on occasion after occasion in this hall in order to induce the powers that be to put forth the effort to bring home what the telephone is.

I can recall instance after instance in which endeavours were made to inspire the Department to launch out wisely in advertising the telephone service. Those of you who can remember can picture the very sounds of the words. It is therefore, I think, a crowning of the efforts of the past to be able to be here and to feel that the advertising effort is at last bearing fruit.

Mr. Taylor suggested some of the ground had been cut away from under his feet. Everyone has been working—and no one has worked harder than Mr. Taylor himself—to put forth suggestions in order to widen the scope of the telephone service, and he can take satisfaction from the fact that he is simply opening a little wider a door already half open and which we all hope will be opened up by others helping him in his constant endeavours.

We have constantly to keep the telephone before the public. I pointed this out just about a year ago, and some of the suggestions made have borne fruit. Mr. Powell-Jones, who spoke at that time, was the first to get the thin edge of the wedge into the heart of that steely-hearted Treasury. Therefore, I am specially glad to be able to speak on this occasion and to wish every luck and good fortune to the campaign that has been opened.

Mr. Whitehead mentioned the case of Lewisham. That was in rather a dead-and-alive sort of locality, and we were up against a "to let" notice next door, which struck the eye more than our nice heading—a stately heading—outside the office. So we had to get the advertisement. I hope, Mr. Whitehead, that it was the sort of thing we were justified in doing, even though it removed some of the artistic conception aimed at. It is an instance of how we are trying to get the psychology of advertising and force the telephone on people in order to show them what telephones can do for them. We have got not only to sell telephones but telephone calls. The whole trend of the traffic at the present time shows that the public are not appreciating the use of the service. They think they are saving in not making calls; they are avoiding it.

We have not only to advertise the necessity of the telephone service but also the advantages of the service and to spur on the man who has the service to use it more and more. Open up to him all the possibilities of social intercourse.

With the opening of the possibilities of the future by the press campaign I think we have started on the right road and the use of the telephone can be better fostered by resorting to magazine advertisements. I would strongly urge that we endeavour, by such advertising in periodicals which are not thrown in the waste-paper basket at the end of the day, to emphasise that the telephone is the friend of men, women and children and thus build up the necessity of it and the value of using it.

I should like to thank Mr. Taylor very much for his paper; I think it has done a lot of good.

CORRESPONDENCE.

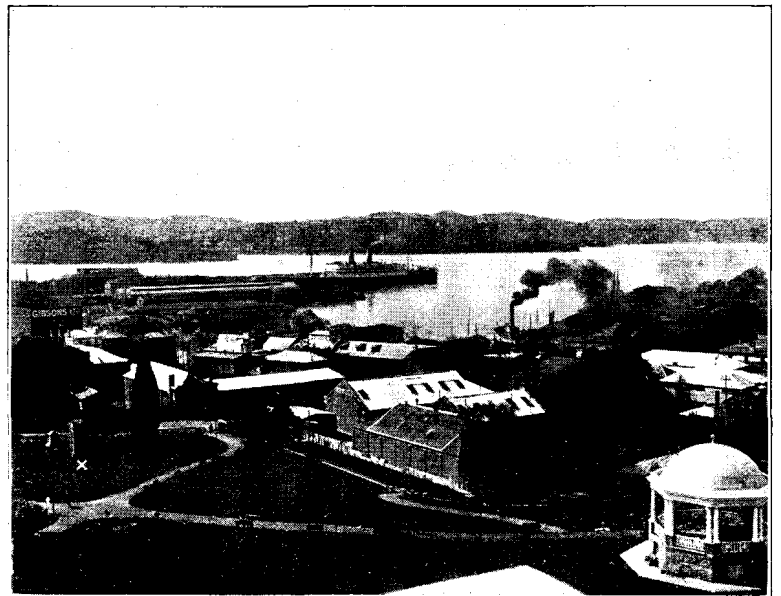
SHIP-TO-SHORE TELEPHONE.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

Dear Sir,—Your recent articles on "Ship-to-Shore" telephones have been read with interest, as it has been the practice here for many years to connect vessels to the Hobart Telephone Exchange (automatic) whenever the facility has been asked for.

Your readers would perhaps be interested to know that in connexion with the visit of the British Special Service Naval Squadron to Hobart in March, 1924, arrangements were made to instal an exchange telephone on H.M.S. *Hood* immediately she berthed at the Hobart Piers.

H.M.S. *Hood* is of 41,000 tons displacement, being the largest warship in the world, and shipowners will appreciate the fact that she was brought alongside the "Ocean Pier" without even the aid of a tug. The depth of water at this particular pier ranges from 65 ft. at the outer end to 48 ft. at the inner end. Such is Hobart Harbour.



VIEW OF HARBOUR, HOBART, WITH THE "ORONSAY" BERTHED.

As soon as the ship approached the wharf and before the gangway was down the P.M.G. mechanics were helped aboard by the sailors, and the telephone was installed and connected to the Hobart Exchange within two and a half minutes (2½ minutes). This is believed to be a record.

I regret that a photograph is not available showing the H.M.S. *Hood* at the wharves, but a view of the harbour from the roof of the Automatic Telephone Exchange Building is not without interest as the headquarters of the Engineering Branch are situated in the same building, and the view in every direction is the envy of visitors from other administrations. Immediately behind the camera, Mt. Wellington rises over 4,000 ft. just behind the city.

The ship in the photograph is the Orient Liner *Oronsay* (22,000 tons), which is berthed in the position occupied by the *Hood*. Students of earlier history may be interested in the tomb (marked with a cross) of Lt.-Col. David Collins, of the Royal Marines, first Governor of Tasmania (then Van Diemen's Land) from 1804 to 1810.

Wishing your Journal every success.—I am, Yours faithfully,

E. J. G. BOWDEN,

Engineering Branch,
Postmaster-General's Department,
Telephone Building, Hobart,
Tasmania.

Engineer, Postmaster-General's
Department, Hobart.

Mar. 8, 1932.

TELEPRINTER DISPLAY AT BRITISH INDUSTRIES FAIR, BIRMINGHAM.

BY W. J. LITTLETON.

It seems but a very short time since the District Manager told me one morning, following engineering tests between Birmingham and London, that proposals were afoot for a display and demonstration of Teleprinters at the British Industries Fair. Actually, it is close on three months, but in that relatively brief period an old order has passed away and a new era of Post Office enterprise has been initiated. For more than a decade I had listened to people propounding the possibilities of publicity, and "what should be done," and I, who lived in pursuit of the seemingly unattainable, tried to find comfort in their visionary declamations.

Then suddenly, and at last, realisation! There it was, at our feet, so to speak—Castle Bromwich, 1932—real publicity, and full of indefinable possibilities for the wondering little band of pioneers who set out on the new adventure. None could tell exactly what was going to happen. The dominant note was one of interrogation, but, it was for us to do things and see. In that frame of mind we arrived at the Fair at 10.0 a.m. on Feb. 22, and with some feelings of satisfaction, took our rightful place in those splendid lines of British industry and endeavour, which awaited the inspection of the whole world.

Our position in the Fair had been allotted only a few days before. A stand 17 ft. by 16 ft. in area was provided, and by the intensive efforts of all concerned, which were continued throughout the week-end, its equipment was completed on Monday morning. It was furnished and arranged, as far as practicable, on the lines of a commercial office of good standing in which teleprinters are installed, the instruments being situated with a view to affording the maximum accommodation on the stand for demonstration purposes, as well as easy observation from the gangways. Three teleprinters 7A, with telephones, voice frequency equipment and rectifiers, a telephone switchboard, and a separate service telephone, comprised the apparatus. We were to demonstrate in conjunction with Olympia, and additional provision had been made for setting up Telex calls on demand between the stand and Manchester Head Office, and also between the stand and Birmingham Head Office. Large notices explaining the nature of the demonstrations were displayed prominently in the stand, whilst smaller notices intimating that we were "typewriting over the telephone wires," served to call a halt to many technically-minded people. "Post Office—Private Teleprinter Services," appeared in large red and black lettering on each side of the stand superstructure, but so much incredulity regarding the connexion of the Post Office with the display was manifest on the first morning that it was found desirable, by way of emphasis, to imprint conspicuously on the insides



GENERAL VIEW OF EXHIBIT. TELEPRINTERS IN FOREGROUND.

of the stand, the familiar letters "G.P.O." It was obviously not easy for visitors to believe all at once, that the Post Office was entirely responsible for the exhibit. Regular visitors had, admittedly, seen in action at the Fair a real live Post Office staff, that they had come to regard as a model of efficiency and courtesy. But the Post Office in the market, showing, even in a little way, how it could help the business of the country, was a surprise, a pleasant surprise too, though variously expressed. The banks, municipal departments, docks, railways, shipping and other services, yes,

that was business, but the Post Office! well "I scarcely expected it in my time," they said. But there it was, in a small way, it is true, the little searching lamp heralding the coming of the full light of publicity in which each of the services would find new expression.

Time did not permit of the Teleprinter Stand being included in the official catalogue, but steps were taken in advance of the opening of the Fair to ensure that the Chambers of Commerce, and all the leading firms and business undertakings throughout the Midlands would know of the project. Hundreds of "Invitations," as well as teleprinter publications, were sent out by post, and then the newspapers, whose representatives had



A TELEPRINTER DEMONSTRATION.

already seen something of the teleprinter, made their announcements of the new phase of Post Office development. The effect of these preliminaries soon became evident after the Fair opened. The "magic" of the teleprinter itself began to be talked of, and that, in conjunction with the helpful co-operation of the Fair management, and a "Press" which featured the display every day in its columns, created such enormous interest in the demonstrations, that it became difficult at times to cope with the flood of enquiring visitors. All records were broken on the afternoon of Saturday, Feb. 27. The Fair was packed with visitors, and it seemed as if every one of them was determined to get on to the Teleprinter stand. At one time the solid masses watching demonstrations from both sides of the stand came pressing in. Salesmen and engineering staff turned to control the situation, which looked like getting out of hand. We were surrounded, almost submerged, but not quite isolated. In the midst of the turmoil, the note of proffered succour sounded clearly—"I AM THE TELEPHONE! I am your friend in time of need! I can bring the police! the —! the —! —!"—and so it did. The police came, the contractor came, his men came and brought ropes with which to barricade and protect the "wonder" of the Fair from the overwhelming interest it had brought to itself. Admission to the stand was thereafter regulated by the police, and demonstrations proceeded as usual, the staff having been pleasurably thrilled by their novel experience. Tea was sent for under police escort, and eventually arrived in one large jug, with a single communal cup, of which the lady members of the staff, and few lady visitors who found sanctuary with us, did not hesitate to make good use.

Throughout the whole period of the Fair the volume of commercial visitors did not diminish, groups of six and more being very often gathered round each instrument, all taking a very keen interest in the demonstrations, which continued uninterrupted. They came from every part of the Kingdom. Their accents varied, but not their purpose. They must keep in the van of progressive industry, and must make the most of the all-important time factor in their continuous striving. So we demonstrated how it can be done, and how the equivalent money value can be attained. The specification, the quotation, the order in writing and at once, appealed strongly. The remote control of the factory, the continuous touch with the subordinate office, the effective linking up that has become practicable and other useful possibilities, all contributed to the long lists of prospective renters which have accrued from the Fair. The interest of the police administrations, introducing a suggestion of drama to the enterprise, was also very great. To them we demonstrated how, in these days of surprise and high-speed motors, the Post Office could provide the up-to-date machinery of inter-communication which would, with even greater speed, disseminate the written and unmistakable orders essential to the maintenance of the law.

Many important Members of Parliament and of the commercial world visited the stand, witnessed demonstrations, and exchanged teleprinter

messages of greeting with Olympia. Representatives of all parts of the Empire, and of most of the nations of the earth came also. All were impressed by the practical utilities of the services. The speed and reliability of question and answer, and the facility for quick business, were points which found great favour. A member of an important party from France gave a touch of humour to an agreeable episode. A greeting had been dictated in French and transmitted to Olympia, and immediately upon its completion the ready co-operation of Olympia furnished the reply. But one of the party was incredulous. "What? Ze reply already! Eempozzebel! You 'ave zumwon in ze leetle box!"

And real business? Yes, excellent, and beyond expectations. Our lists of "prospects" contain addresses all over the kingdom, from Edinburgh to Exeter, from Belfast to Gravesend, and they are not a complete record of all the business men who came, and saw, and decided that the new service, in one form or another, would be indispensable to their future requirements. Valuable orders for private lines and teleprinters are already being received.

The scope at such events as the British Industries Fair for publicity and sales, was clearly evidenced at the Teleprinter Stand, Enquiries regarding telephones in particular were frequent. A demonstration in which a business man—a good prospect—went through the Telex operations himself resulted in an immediate order for three hand-micro instruments, and a tired visitor who rested near our service telephone was struck by its appearance, &c., and having exchanged a few words with a cheery telephonist at the "Fair Exchange" decided to have some installed forthwith.

From the purely business aspect the little venture at the Birmingham Section was an undoubted success. The verdict on its publicity value was given in the *Birmingham Mail* on the final day of the Fair: "No stand in the Castle Bromwich Section of the British Industries Fair has attracted a more constant tide of interest than that on which the Post Office is demonstrating the marvels of the teleprinter."

LEEDS DISTRICT NOTES.

CONTINUING the special effort which is being made throughout the District on behalf of the Rowland Hill Benevolent Fund, a Vaudeville entertainment organised by Messrs. Tinney and Woodhead on behalf of the Leeds Head and Sub Office District was held on Mar. 17.

The entertainment was a huge success. There were choir and orchestral effects. The Misses Brown and Ayres sang pleasingly, and Mr. Hanlon showed his ability in two songs and a monologue.

Miss Dorothy Geldart and Miss Margery Greenwood presented "Honours Divided," and the Telegraph Sketch Party in "A Family Group" caused much amusement.

Mr. Edmanson, Ventriloquist, with Jerry was also very amusing. The magician, Mr. Alf. Brown, had us all mystified, and Mr. C. Fletcher charmed with his 'cello playing, whilst we should have liked to have heard more of the Telegraph Messengers and their Harmonies.

At the interval, Col. Jayne (Postmaster-Surveyor) made a short speech explaining the objects of the Rowland Hill Benevolent Fund and the need for everyone who has the wellbeing of unfortunate colleagues at heart to subscribe regularly and as generously as possible to the fund.

The total profit accruing from the special effort in the Leeds Head Office District now amounts to £18 18s. 4d.

The number of regular subscribers also shows an increase, the total now being approximately 160.

A special word of praise is due to Miss M. Whittaker (telephonist) on the splendid results of her efforts on behalf of the Fund. By devoting one evening a week for several weeks to the making of delicious sweetmeats, she has been able to contribute £2 2s. to the Fund.

While we look on every complaint as an opportunity for the ultimate creation of goodwill, we prefer our goodwill to be built up by such little acts of helpful treatment as prompted the following appreciative note from a Luddenden Foot subscriber regarding a phonogram handled at Leeds:—

"On Monday evening I had cause to send an urgent wire, by telephone, to Nurse . . . at Castle Raasay, between Skye and the mainland of Scotland. Considerable trouble was experienced in identifying this place and later in making further arrangements to ensure that the message reached Nurse . . . at the earliest possible moment.

"I should be very grateful if you could convey to the operator responsible (I think one operator handled the numerous difficulties) my sincere thanks for her help and the courtesy which marked each stage of the somewhat lengthy negotiations."

Retirements.—On Mar. 16, Mr. G. A. Barton, Clerical Officer with allowance, Sectional Engineer's Office, York, retired on superannuation after being in the Post Office service over 45 years. He commenced as a Messenger in London in 1886. In 1890 he became a Postman, and in 1892 a Sorter in the London Postal Service. On April 14, 1903, he was appointed Clerk in the Engineering Department at Leeds, and ultimately became Clerk-in-Charge of the Sectional Engineer's Clerical Staff at York.

To mark the esteem in which he was held, Mr. Barton was presented by his colleagues with a wireless set at an informal gathering, which included Mr. J. W. Atkinson (Superintending Engineer). After several speakers had eulogised Mr. Barton's good qualities, Mr. C. E. Morgan (Sectional Engineer) made the presentation on behalf of the staff, and Mr. Barton thanked the staff for the gift and the good wishes which accompanied it.

Anno Domini has also led to the departure of another well known figure in the person of Mr. H. K. Nicholson, Contract Officer, Cl. II. Mr. Nicholson whose canvassing activities extended over a period of 30 years, was a very popular officer and was presented by his colleagues with a cheque for the purchase of an arm chair in which to enjoy such ease as his active outlook in life would allow him to take.

TELEPHONE AND TELEGRAPH EXHIBITION AT LEEDS.

BY J. F. MURRAY (*District Manager, Leeds*).

WHEN Messrs. Schofield, Ltd., The Headrow, Leeds, offered window space and a substantial area in their drapery store for a Telephone and Telegraph Exhibit during the week Mar. 7-12, it was at once decided that the result should be worthy of the offer. Engineering, Contract and Telegraph Officers entered into the scheme with enthusiasm and ideas soon began to take practical shape. Much help was received from our Newcastle colleagues who sent on a collection of exhibits, including a dainty model of a No. 2 kiosk and one of a rural automatic exchange, complete with shrubbery and fence, which had been on show at a similar display at Newcastle. From



P.O. EXHIBIT AT MESSRS. SCHOFIELD'S LTD.

Headquarters, with some other exhibits, came a replica of the 2,000,000th telephone installed for H.M. the King. The Office of Works contribution was a magnificent full-size model of a No. 3 kiosk, which could hardly be distinguished from the real thing, and a lay figure inside added to the realistic effect.

Sunday, Mar. 6, was a strenuous day, for the whole work of clearing the drapery display from the window and the allotted area inside the store and installing the Post Office exhibits had to be done between the time of closing the store on Saturday night and the hour of opening on the Monday. Everything was ready before the last tram left on Sunday night, and the photo of the exhibition gives a good idea of the general effect, although it does not give an adequate indication of the artistic effect produced by the colour scheme which was carried out mainly in two shades of green.

The display inside the store was almost entirely devoted to exhibits which could either be seen working or be worked by visitors. The principal exhibits of this type which were set up by the Engineering Officers were:—

- Two teleprinters working to each other.
- The automatic demonstration set.
- Two telephones joined up to 1,000 miles of underground cable to provide an example of the quality of speech over long distance circuits.
- An automatic final switch, which was stepped vertically and horizontally all day by clock-work.

A $\frac{10 \pm 50}{60}$ P.B.X. switchboard with lines connected to various telephones.

Two automatic final switches, each connected with an automatic telephone. Visitors could dial two digits as at a rural automatic exchange and could get the P.B.X. operator by dialling "01."

Two telephones to demonstrate calls through the Leeds automatic network. These were connected to a first selector without access to the "0" and "9" levels.

Multi-coin box with glass front to show the operation of the mechanism.

Approximately 5,000 official invitations were posted to members of the public—2,000 of them to addresses for which C.M. 58 cards were held by the Contract Department. The Exhibition was also well advertised in the Press by Messrs. Schofield, and they estimated that 100,000 people visited the store during the week. Judging by the crowds continuously to be found round the working models, a very large proportion of the 100,000 visited the Post Office display. While the Exhibition was intended as a publicity and educative effort, and was an undoubted success as such, the Contract Officer in attendance obtained agreements for no fewer than 11 exchange lines, 3 extensions and 32 H.M.T.'s, together with other minor apparatus, which brought the annual rental value to a total of £91 5s., and he is confident that there is more to follow.

At the close of the Exhibition Messrs. Schofield kindly presented each of the officers who acted as attendants with photographs of the exhibit (one reproduced here). Some of the attendants thought, by Saturday night, that a large packet of throat pastilles would also have been very acceptable.

MANCHESTER NOTES.

Visit of the Postmaster-General.—Sir Kingsley Wood visited Manchester on April 8 and made a tour of the principal Post Office Departments in the city. In the morning Sir Kingsley visited Telephone House, Moreton Street Parcels Office, the Superintending Engineer's Headquarters and the Head Post Office in Spring Gardens. His afternoon itinerary comprised an address to the Constitutional Club on the work of all branches of the Post Office, after which he paid visits to City and Central Telephone Exchanges, and Newton Street Sorting Office. He was accompanied on his tour by Mr. Maddan, Mr. Herbert and Mr. Whitelaw.

Sir Kingsley spoke very genially to several members of the staff, and was particularly pleased with the Head Office counter layout, which he considered the finest he had visited.

Retirement of Mr. W. I. Oldcorn.—Another link with the early days of the Post Office Telegraphs was severed by the retirement, on April 26, 1932, of Mr. W. I. Oldcorn, Chief Superintendent, Telegraphs, after 41 years' appointed service.

Mr. Oldcorn entered the service at Lancaster, in April, 1886, and was transferred to Manchester in April, 1891, where he was appointed telegraphist. He subsequently passed through the various supervising ranks and was appointed Chief Supt. on April 15, 1929.

During his official career Mr. Oldcorn has gained the respect and goodwill of all with whom he has worked and his numerous friends unite in wishing him many years of good health, happiness and prosperity.

Mr. W. S. Hartley is his successor as Chief Supt.

Promotion.—It was with mixed feelings that we received the announcement of the promotion of the Traffic Superintendent, Mr. J. M. Crombie, to the District Managership of Guildford. Whilst we congratulate him on his appointment, we regret that it entailed our losing him. During his comparatively brief stay in Manchester Mr. Crombie made himself liked and respected by all with whom he came into contact.

We welcome Mr. J. Magnall, who left a similar post at Reading to fill the position vacated by Mr. Crombie.

New Exchange.—The replacement of the old magneto exchange at Cheadle Hulme by a new C.B. exchange was successfully effected on April 6. Messrs. Escott and White, the Sectional Engineers, of Manchester Internal and East Sections, Mr. Whitelaw, the District Manager, and Mr. Crombie, the Traffic Superintendent, were present.

Social.—About 160 attended a dance which was held by the Telephones Social Club at Telephone House, on April 2. When these notes appear the last dance of the season, a carnival, will have been held at Telephone House, on April 23.

Golf.—In the Easter Monday four ball competition against bogey at Alderley Edge, Cheshire, Mr. Barnard, our Service Inspector, and his partner, tied for first place with a score of 3 up. Unfortunately, the partner was taken ill shortly after the morning round and was unable to participate in the play off. Like all golf stories, this was a case of a missed putt made all the worse by both making the same error at the same hole!

Telegraph Messengers' Institute.—Fresh ground was broken by the Manchester Institute, when an invitation was accepted to play the Birmingham Institute football team on April 11. The team was accompanied by several representatives of the Manchester Telegraphs, including Mr. W. I. Oldcorn (Chief Supt.) and Mr. W. S. Hartley (Organising Supt.). The game was played on the Civil Service Sports Council Ground at Perry Bar, before a good crowd. Throughout the game both teams felt the effect of a strong cross wind, which mitigated against clever or individual play. The game ended in a draw with no score, and honours were therefore equally divided.

After the match the visitors were entertained at Wimbush's Cafe, Dale End. The gathering, which included the two teams and many representatives of the Birmingham Office, was presided over by the Assistant Postmaster, Mr. M. Pearson, who was supported by Lt.-Col. Brain, late Postmaster-Surveyor, Mr. J. L. Parry, District Manager, Mr. D. H. Thompson (Chief Supt., Telegraphs), Mr. W. Woodward (Chief Supt., Postal) and Mr. Chris. Thompson (Organising Supt.).

Many of the Manchester visitors renewed old acquaintances in the Birmingham office, and altogether we shall recall with gratitude the welcome which was accorded us by our Birmingham friends. The Manchester boys also will have cause to remember their visit, and the generosity of the Birmingham officials in presenting each member of the team with a fountain pen as a souvenir of the occasion.

Lectures. The series of lectures arranged under the auspices of the T.M.I. was brought to a close on Friday, Mar. 11, when an interesting lecture on "Germany and the Rhine" was given by Mr. E. C. Gates, J.P. (Manchester Telegraphs). A good gathering was presided over by Mr. W. S. Hartley (Organising Supt.).

The manner in which the lectures have been attended is very encouraging and it is hoped that it may be possible to extend the scope of subjects in the future.

LIVERPOOL NOTES.

Rowland Hill Fund.—Concert and Lecture. As most P.O. people know, this is the Jubilee year of the Rowland Hill Benevolent Fund, of which Liverpool has always been a strong supporter.

Special efforts have been made to increase the membership, with very gratifying results, and to add as much to the fund in the way of cash as possible.

To this end it was suggested that Major Gawthorne should be asked to give his famous lecture on "His Majesty's Mails," to which he kindly agreed, and in order to relieve the lecturer and vary the proceedings to some extent a concert was added, and it became a concert-lecture.

Mr. Fearon—the energetic local representative (lately retired) took the organising task on his shoulders, and with an enthusiastic committee had the gratification of seeing a most successful issue of their efforts.

The function took place in the Central Hall, Liverpool, on Mar. 31 last, under the most distinguished patronage, viz.: The Earl of Derby, The Lord Bishop of Liverpool, The Archbishop of Liverpool, Viscount Leverhulme, Lord Cozens-Hardy and a large number of other influential people, and of both the patronage and presence of the Lord Mayor and Lady Mayoress of Liverpool (Alderman and Mrs. Cross), the Mayors and Mayoresses of Bootle, Wallasey, Birkenhead and St. Helens. They were supported by the principal officers of the Liverpool Post Office, Lt.-Col. Kempe, M.C., Postmaster-Surveyor, with Mrs. Kempe; Mr. S. Pickering, Asst. Postmaster, Mr. W. E. Gauntlett, District Manager; Mr. Fearon, Mr. R. H. Bailey and many others. The audience was not confined to the service, but large numbers of the public were present, and judging by the applause they all had a very successful entertainment.

From a financial point of view it was also a great success, and it is understood is likely to result in well over £100 being added to the fund.

A hearty vote of thanks to the lecturer, Major Gawthorne, and the artistes, which was well deserved, closed a pleasant and educative evening.

Staff Salesmanship Scheme.—The results in connexion with the Staff Salesmanship Scheme since September, 1931, when the scheme started, up to Mar. 31, 1932, have been as follows:—

Exchange lines	...	...	38
Extension lines	...	...	21
Hand microphones	...	...	133
Extension bells	...	...	21
Miscellaneous	...	...	11

Return of Mr. Woodward.—Our old colleague, Mr. H. J. B. Woodward, who left us in July last, on promotion to the position of Traffic Supt., Class II, at St. Albans, has now returned to Liverpool in that capacity. We extend to him a very hearty welcome.

A BRAKE ON PROGRESS.

BY F. J. LANE.

IF Mr. So-and-so were asked why he was not on the 'phone, he would either say he couldn't afford it, or he had no use for it. Yet when that invaluable work "Telephonelessness (if that is the word): its Cause and Cure," is written, I venture to think, that these two excuses will not be recorded as Mr. So-and-so's real mental reactions to the telephone suggestion.

I am not, of course, going to attempt to write even the first chapter of that imaginary work: but several thousands of meetings with Mr. So-and-so have led me to suppose (I hope more or less correctly) that I have some idea what he really means when he trots out his monotonous excuses. If I am entirely right—and I am modest enough to confess that this is most unlikely—I still shall not be in a position to point clearly to the solution of all the the major difficulties which confront the Contract Department and the Service as a whole. Cure does not follow cause automatically, but it is a recognised sequence in progress.

It is usual to say that the people of this country are not telephone-minded as are the people of the United States. This is true enough, but is far too vague a statement to be of any practical use. Usually, though, it is meant to imply that the British do not live at such a high speed or high pressure as the Americans, and therefore the telephone—to be regarded as a sign of this mode of life—is less (and may remain less) highly developed in Britain.

The outlook would appear to be very gloomy, for at this point I find we come to a dead stop. An American physiologist has announced the fact that this high pressure living can be ascribed to over-secretion of the hormone adrenalin. Frankly, I cannot visualise parliament consenting to mass inoculation of the nation, nor can I see Mr. Harold Whitehead and Staff touring the country with syringes and scalpels.

Fortunately it will be possible to avoid ductless glands of any kind (at least I think and hope so!) because I believe it is possible to get the telephone mind without high-pressure living. Surely this must be so. All peoples of the earth speak to one another and have a natural desire to do so when they can and when they cannot—that is when distances separate the would-be talkers—the desire is not lessened but merely put aside. If science provides a method of overcoming the difficulties imposed by distance, a high pressure manner of life is not essential to avail oneself of the opportunity offered. Then what does stop us?

A broadcast speaker some time ago said—in order to emphasize changes in our social life and manner—that thirty years ago it was considered something approaching immoral for a domestic servant to play the piano. This unreasoning state of affairs is, of course, a relic of the feudal system which has given us as a nation a heritage of complicated social snobbery. The great feature of this "caste system" is that classes claim monopolies of all kinds of privileges without rhyme or reason, (not perhaps by actual consent of others but with their acquiescence (if the domestic servant didn't actually think her musical essay immoral, she accepted the fact that it was without protest). Money was not in some ways a deciding factor by itself; the mechanic's wife might have enough money to buy a new hat, but if she "knew her place" she spent her spare cash in a manner less conspicuous and perhaps less imitative of her "betters."

Thirty years have seen the piano firmly established everywhere and, indeed, this feudal mentality may be dying out rapidly, but

it is by no means dead in spite of what is called in modern newspaper jargon "this democratic age." If monopoly of many privileges has been surrendered, millions don't seem to have noticed it, and still acquiesce in a claim which perhaps is no longer advanced.

I may be wrong in my reading of the signs, but I am convinced that the story of the domestic servant and the piano is not very different from that of John Smith and the telephone. Ask him quite casually if he's thinking of coming on the 'phone, and he will laugh; and that laugh would have just the same timbre if you had asked him if he were lunching at the Ritz that day. Ask him why he laughed, he will become slightly confused and murmur something about cost and having no use for it. You press him a little and point out that he doesn't smoke whereas his neighbour does and spends annually many telephone rentals in doing so, and you will know by his embarrassed manner that you have exceeded the bounds of really good taste—of which he is too vaguely aware to remind you or perhaps too polite. You will have offended against a "caste" idea of which he is only dimly—subconsciously—aware.

Sometimes in actual selling a person is met with who is obviously conscious (passively—there is another kind!) of his caste inferiority, and he will reply to the telephone suggestion with oddly mixed awe and ridicule.

I do not think that this suggested obstacle to progress can be pooh-poohed altogether as it must be admitted that all salesmen consciously or unconsciously know it, and knowing, too, that in the complex disorder of the feudal system "Big fleas have little fleas upon their backs to bite 'em," they make effective play with their knowledge.

In further support of the theory, it will be observed that countries which lead us in telephones are those in which feudal ideas are dead (if they ever existed) and in which social snobbery is almost an unknown quantity. In Sweden and Denmark, for instance, I believe the snob is almost non-existent, and in our own Dominions if anyone shows signs of being infected by this peculiar social virus his neighbours frankly point it out to him. In these countries the people free from the shackles of conventions, dignities, and indignities, do things when and how they want to. America perhaps has almost completed the cycle of social revolution and makes a convention of speed—which in the Old World is unconventional!

Suppose this theory be accepted as covering the main facts controlling the progress of telephone development: is it of any use knowing it? I think it is. By good salesmanship and by publicity the telephone can advance as did the piano, but obviously much money can be uselessly spent in firing publicity over the heads of the people for whom it is intended. Good advertisements could be made up which would still fail, as millions would think that they're not "for the likes of us."

Of course, it is a difficult business. At first glance one might say that the "Make a fourth?"—"Delighted" advertisement is a bad miss. But, having regard to the "big fleas and little fleas," there is a class, many of whom are not on the telephone, who think very highly of the social value of bridge parties. Nevertheless, I should like to see a drive at the man who plays other games—nap and pontoon, say, which as everyone knows, have a more plebeian flavour. I should like to see him taken into our confidence and taught something of the service of which he is a part (and why not "proud"?) owner. I believe him to be a reasonable fellow, easy to talk to, but not to be skilfully goaded like the fool who really likes Khun Khan but thinks bridge "such a nice game."

It is a case for hurry, though, for the vacuum cleaner man is hard at work, and if he gets there first, there may be something in "I can't afford it."

REMINISCENCIES OF THE OLD P.O. SYSTEM AT NEWCASTLE.

By E. M. H.

It has always been claimed by Newcastle that their P.O. Telephone Exchange was one of the first in the kingdom. Up to January, 1912, the P.O. Telephone Exchange was under the supervision of the Telegraph Supt. The exchange was staffed by telegraphists until the Telephone Branch was made a separate department in 1900.

About the year 1890 there were approximately 700 telephone subscribers connected to the P.O. system at Newcastle.

North Shields, South Shields and Sunderland were then the extent of the P.O. local Trunk system. There was no multiple on the switchboard and all local numbers, not on the same board as the calling subscriber, had to be obtained by shouting across the room for the number to be connected on certain lettered jacks, e.g., "575 on double B. for boy." The louder the telephonist could shout the quicker she was able to make her connexions. All telephonists used hand telephones. A sample headgear telephone was sent to be tried. The senior operators were not anxious to wear this instrument, so most of the experimenting was done by the juniors.

About 1890 the N.E.(N.)* system was introduced and considered a great advance, as there was a multiple, and each operator could obtain any P.O. subscriber she required without shouting for it. Each position had its own multiple. One hundred subscribers' lines could be accommodated on each section, which was staffed by two operators. All subscribers were on a "flat" rate. About this time intercommunication between P.O. and National subscribers was arranged also. Toll rate was introduced. By this latter system the subscribers' rental included a certain number of calls, and after that number each call was charged for in addition to the rental.

Telephone subscribers who sent numerous telegrams were supplied with ABC telegraph instruments on which to send and receive their telegrams. These were fitted in the Telephone Exchange adjoining the Phonogram Room. Communication between the Instrument Room and the Phonogram Room was by pneumatic tube. The Phonogram Room was removed to a lower floor and adjoined the Instrument Room prior to the transfer of the Trunks.

At the transfer of the Trunks from the private companies to the Department in 1896, none of the company's staff was transferred to the Newcastle P.O. Exchange, the work being undertaken by telegraphists.

It was necessary at that time to keep the company's trunk call and telegram accounts separate from the P.O. subscribers' accounts, and therefore white tickets were used for the National Company's trunk calls and buff tickets for the P.O. subscriber's trunk calls. These tickets were numbered and there was great consternation should a number be missing. It occasionally was observed by the telephonist that a number was missing from the sequence in the pad of 100 tickets. The trunk calls from the National to the Trunks were passed over an order wire, and there was one enquiry circuit between the two exchanges, staffed at the Trunk Exchange by a male overseer.

In 1900 the Telephone Department was formed as a separate branch, but was still under the immediate control of the Telegraph Superintendent. The Supervisor of Telephones was an Assistant Supervisor in the Telegraph Branch, and the three Assistant Supervisors were telegraphists who had had considerable experience in the Telephone Exchange. The Supervisor was an excellent officer, splendid organiser, good disciplinarian, very thorough in all her undertakings. She had an uphill fight trying to drill into shape three officers who had had no previous supervising experience, as well as organise a new department. The three Assistant Supervisors fully realised, particularly as they gained more experience, how much they had to be grateful for to Miss S. S. S. Boys for the training they received at her hands. Unfortunately, the first Telephone Supervisor of Newcastle had to give up within five years of her appointment, owing to a nervous breakdown.

In 1906 the C.B.S. No. 1 boards, at what was latterly called the City Exchange, as well as at the Trunk Exchange, which has so lately been vacated, were installed. There were 45 trunk positions in use, many of them having five lines per position.

The transfer from the N.E.(N.) system to the C.B.S. No. 1 was effected between Friday night and Saturday morning. On taking duty the staff had to tackle a Saturday morning traffic on a new board. The working was so much simpler that the staff took to it like "ducks to water." All the training that the staff had on the new working had been given them during their ordinary duty by the Supervisors in the Exchange.

In 1912 the transfer of the National Telephone Company to the Department introduced gradually many staff changes, the vacancies in the operating grades being filled by the senior staff from the operating force of the Exchange National Telephone Company.

The gradual merging of the staffs, as well as the change in the procedure in connexion with the amalgamation of systems, looked back on, is like a well-pieced plan.

The transfer to automatic working, introduced in February, 1931, is the greatest achievement of all. The one drawback to this scientific accomplishment is the reduction in the number of staff entailed, and the necessary transfer to distant exchanges of so many of the junior officers.

* North Eastern (Northern).

NEWCASTLE-ON-TYNE NOTES.

THE District Manager's staff held their last dance of the season on Friday, Feb. 26, in the Heaton Assembly Rooms.

Just over 200 members of the staff, including the District Manager, Mr. J. D. W. Stewart, Mrs. Stewart and friends, were present, and, whilst the company was smaller than usual, those present spent a most enjoyable evening.

The dances arranged by the social committee have become outstanding events in the social life of the District Manager's staff and their many colleagues in other branches of the service, and are always eagerly looked forward to.

Mr. Al. Moore's orchestra, with their usual excellent programme of music, largely contributed to the success of the evening.

The M.C.'s were Mr. J. Middlemas and Mr. J. S. Oliver.

C.T.O. NOTES.

Retirements.—W. A. Lock, Superintendent (Higher Grade), F. H. Rumsey, telegraphist.

Obituary.—We regret to have to record the passing of Arthur Upson, late of the Cable Room. He did not live very long to enjoy his pension and died on Mar. 5 at the early age of 51. He was of a quiet, retiring nature and loved gardening.

We also regret to report the death of Mr. J. D. Laxton, late Superintendent of the C.T.O., who collapsed whilst taking part in a whist drive at Hastings.

Art.—Some of the C.T.O. exhibitors were successful at the Post Office Arts Exhibition, but the C.T.O. was unfortunate in losing the Inter-Departmental Shield for the set subject of "Still Life." Certificates were obtained by Mr. Ginger, black and white and for colour, Mr. Osborne for study of horses, Mr. Davy gained a bronze medal for his "Near Ealing," and Mr. Osborne also gained a bronze medal for his black and white work.

Departmental Meals.—By the time these words are in print it is expected that a page in the history of the Central Telegraph Office will have been turned over by reason of the abolition of the breakfasts and teas which, since the transfer of the Telegraphs in 1870, have been provided by the Department free to the staff and served in the Instrument Galleries. The passing of this phase of the daily life of TS conjures up memories of our youth. A meal consisted of two thick slices of bread and butter, three thin slices if you were a lucky Supervisor, and either a cup of tea (sweetened or unsweetened) or coffee. Tea time was a veritable feast, the bread and butter being made delectable by such things as jam and cream (in the summer, when our pals were holidaying in Devon or Cornwall), mustard and cress with sardines, tomatoes, Loom's sausages, cod's roe (this meant two cups of tea). We hungry youths could generally manage a double portion and obtained this by slipping round to another Division. No more shall we see the dear old dames (some of them young, of course), spick and span, parading the instrument rows with piles of bread and butter (white and brown, covered with beautiful napery). No more shall we see the polished tea urns and hear the piping voice "Unsweetened." Gone are the days when on cold and frosty mornings, having got up at 6 a.m. or earlier, we have arrived "creeping like snails unwillingly to school," and warmed ourselves with hot coffee (for we were not always so hungry).

The abolition of the official meals is a severe blow to the milkman, baker and grocer, who have served the Department for so long, and our sympathy is offered to them in the loss of custom.

GLASGOW DISTRICT NOTES.

We congratulate the following members of the Clerical Staff on their promotion: Mr. R. F. Gilchrist, Higher Clerical Officer, to be Chief Clerk, Belfast; Mr. J. M. Kennedy, Clerical Officer, to be Higher Clerical Officer; Miss I. R. Wilson, Writing Assistant, to be Clerical Officer.

Mr. L. G. Allen, Traffic Superintendent, Class I, who came to Glasgow from Birmingham only six months ago, has now been transferred to Bristol. Although his stay in Glasgow has been of short duration, Mr. Allen has made his influence felt, and he will be remembered for his courtesy and consideration and his readiness to help. Those who had any dealings with him found him approachable at all times. To mark the esteem in which he is held he was the recipient of several presents, including a quaih, an automatic pocket lighter and something with a Scottish flavour. Mr. Allen was then despatched on his new mission with the united good wishes of the Glasgow staff.

A most hearty welcome is offered to Mr. R. Teasdale, Traffic Superintendent, Class I, who reaches us from Sheffield, and to Mr. W. S. Dabs, Assistant Traffic Superintendent, from the Leeds Training Reserve.



L.T.S. CONTRACT OFFICERS' DINNER.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

DURING the month of March, there was a net gain of 2,599 stations, including 174 stations in the transferred area. In March, 1931, the net increase was 1,239 stations.

At the Ideal Homes Exhibition, held at Olympia, 201 telephones were provided for 500 exhibitors.

The old Post Office premises at 14, Topsfield Parade, Crouch End, were used for the purpose of an advertising drive from Feb. 29 to Mar. 22, and the display created considerable local interest. A large number of people visited the showroom, and were given demonstrations in the use of telephone apparatus. Upwards of 15,000 copies of advertising literature were distributed in the district, and Contract Officers were employed during the drive to follow up the literature. An additional attraction was provided by a special signalling display which alternately automatically flashed the signals "Stop," "Be ready," and "Go."

Arrangements are in hand for an advertising drive to be held at Kennards Store, Croydon, from May 2 to 21, in connexion with a special birthday sale. The firm are making arrangements to advertise the exhibition by direct mail circular of which they intend to issue about 250,000.

An advertising drive is also being arranged at 52, High Street, Notting Hill Gate, to be held from April 20 to May 14. 13,000 copies of a tariff card, together with suitable literature, will be distributed in the district.

The result of the efforts of the staff in the various departments of the staff salesmanship scheme since September last, when the scheme started up to April 16, 1932, has been as follows:—

	Total No. ordered.	Orders received Month ended April 16, 1932.
Exchange lines	550	92
Extensions	530	90
Private Lines	9	1
Plugs and Sockets	87	13
Hand-microphones	2,413	495
Extension Bells	192	44
Miscellaneous	270	48

This notice in a music shop in the city was observed the other day:— "Ring us up and listen to your favourite record by 'phone." We often think that business people, particularly shopkeepers, do not give sufficient prominence to their telephones. It is yet to be realised in many quarters that the field of residential telephone subscribers is rapidly widening.

L.T.S. Contract Officers' Annual Dinner.

The Third Annual Dinner took place at Ye Mecca Cafe, Ludgate Hill, on Feb. 5.

A representative gathering of over 130 assembled under the Chairmanship of Mr. A. Elsey, and the company were very pleased to welcome as their guests two retired colleagues, Messrs. Potkin and Northmore, who were obviously pleased to be in the company of their old associates once more.

An excellent dinner was served to the accompaniment of a musical programme supplemented by items performed by members of the Staff. Mention must be made of the yeoman services of Mr. Fergusson as accompanist.

The usual Toasts were honoured, and there was no lack of evidence of the goodwill and fellowship that pervades the ranks of Contract Officers.

Reference was made by the chairman to friends who were unfortunately absent through illness or other causes.

The proceedings terminated with the singing of the National Anthem, all agreeing that a most enjoyable evening had been spent and expressing the hope that before the next gathering, a very material improvement in business would have taken place, to the benefit of all concerned.

The Organising Committee are to be heartily congratulated on the success which attended their efforts.

London Telephone Service Sports' Association.

Netball.—The final in the "Liddiard" shield will be held at Chiswick Civil Sports Ground on Saturday, May 7, at 2 o'clock. The teams will be Royal Exchange and London Telephone Service. In addition to this match, a knockout Tournament will be held during the afternoon when 17 Exchange and one office team will play.

It is pleasing to record that during the past season, 4 members of the London Telephone Service have been awarded Representative badges by the Civil Service Sports Council, viz., Misses D. M. Bugden (Langham), N. D. Hollman, P. C. Revill, and E. C. Symonds (Accounts Branch A.R., 4, 7 and 6 respectively).

These members are to be warmly congratulated for obtaining their Colours in the Civil Service Net Ball Matches.

Miss Martin, of Accounts Branch A.R. 10 Section, already holds this honour and is now Captain of the Civil Service Club.

Tennis.—The arrangements for the annual Tournament in respect of the "Agnes Cox" Cup (ladies doubles) and the "Pink" Cup (ladies singles) have now been made.

The competitions will commence early in May and will proceed throughout the season until Saturday, Sept. 17, when the finals for both cups will be played at Chiswick Service Ground.

Readers are kindly requested to book this date. The Competitions (usually between Exchange and Office Sections) are interesting. The conditions for watching the games are excellent and the support of the Staff is very encouraging to the players and organisers.

Football.—Our Club has completed its fixtures in the Civil Service League, the last two resulting in victories of 3 goals to 1 over the Labour Ministry and War Office.

When the remainder of the teams have played their matches it is anticipated that the L.T.S. Club will be 12 points ahead of their nearest opponent, thus securing the Civil Service League Championship for the 2nd year in succession.

The Season from a playing point of view has been most satisfactory especially in connexion with the Lewis Cup. We entered this competition for the first time and succeeded in reaching the Semi-Final, which was lost to Rompton Institute by 2—1 after a very hard struggle.

L.T.S. (Men's) Swimming Club.—This club opens the summer season on Thursday, May 5, at Holborn Baths, 4.30 p.m. A series of events has been arranged throughout the season for the purpose of a points competition on a handicap basis.

A team has been entered and will swim in Division II of the Civil Service League.

Members desiring assistance in any branch of swimming should get in touch with the Club Captain, Mr. Waghorn (AN) or Mr. Frier (Secretary, T. EDE). Either of these officers will also be pleased to furnish full particulars regarding the club.

National Sanatorium, Benenden, Kent.

On Saturday, April 2, the National Sanatorium, Benenden, was favoured with another visit from a party under the direction of Miss Margaret Worth, organised by the Staff of the London Telephone Service, and the patients were treated to a really splendid concert. The Artists on this occasion were Miss Nellie Beare, Soprano, Miss Madge Harwood, Elocutionist, Mr. Hugh Williams, Tenor, Mr. Bob Douglas, Entertainer; The Beverley String Trio, Mr. A. C. Vincent, Accompanist, and, of course, Miss Worth herself. There was also an item given by a Mr. Jimmy Mack, whose name did not appear on the front of the programme, but who was subsequently discovered to be none other than Mr. Bob Douglas disguised as a Negro Reformer. During the interval Cigarettes and Confectionery presented by the London Telephone Service, were distributed among the patients, a very kindly thought for which we say "Thank you." After the singing of Auld Lang Syne, led by Mr. Douglas, during which the stage and audience joined hands, Doctor Spurrier, the Medical Superintendent, thanked Miss Worth and the rest of the Artists for giving us such a delightful evening, and this sentiment was echoed by the patients with three hearty cheers. The ladies of the company were presented with baskets of Benenden Primroses, gathered that day on the "Long Round" by the patients, which was a more tangible expression of appreciation than mere words. We hope it will not be long before we receive another dose of their wonderful tonic.

(Sgd.) H. H. CARVER (a patient).

Battersea Exchange.

Another highly successful Dance was held on Mar. 5, when members of the Battersea Exchange staff with their friends and visitors from Wimbledon, Hop and other Exchanges, paid homage to Terpsichore in the approved manner at the local Town Hall.

It was with great pleasure that Miss Searle (Chief Supervisor) was welcomed by her colleagues, this being the first function of its kind that she has been able to attend since her illness. She was accompanied by the popular Miss E. D. Stevens, who had substituted her during sick absence and who had associated herself with the staff's social activities throughout that period.

Traffic Officers were well represented, Messrs. Rollings and Hickmott (Battersea), Maynard (Greenwich), Nice and Davies (Headquarters), Mann (Hampstead), and Cooper and Saunders (Merton Abbey)—the last-named acting as M.C.—being amongst those noticed.

Altogether about 90 persons were present and, as on previous occasions, the inner man and inner woman were well catered for by Miss Stallan and the Refreshment Club Committee.

Personalia.

Promotions.

To Assistant Supervisor, Class II.

- Miss D. E. Simon, of Trunks-Continental.
- " D. Vidler, of Trunks-Continental.
- " A. N. Harris, of Trunks-Continental.
- " C. F. V. Smith, of Trunks-Continental.

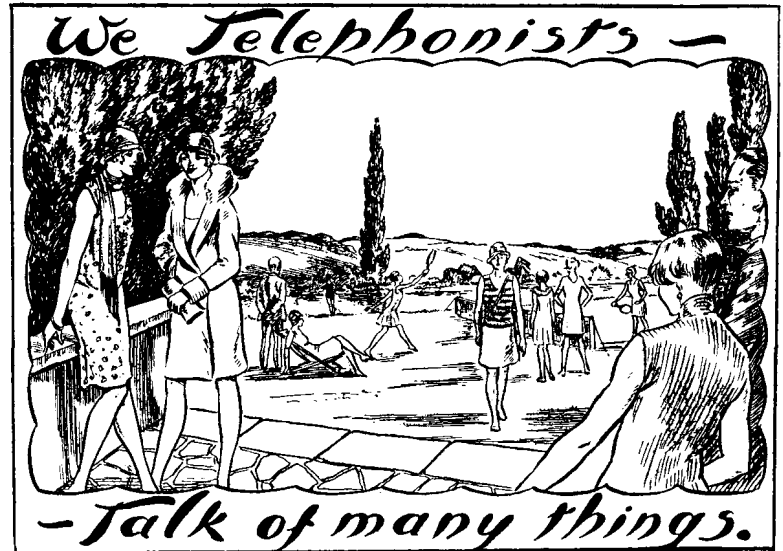
Resignations on Account of Marriages.

Assistant Supervisor, Class I.

- Miss E. Drewe, of Trunks.

Telephonists.

- | | |
|---------------------------------------|---------------------------------|
| Miss M. G. Alexander, of Clerkenwell. | Miss I. V. Young, of Regent. |
| " P. Peddar, of Toll "A." | " D. M. Vincent, of Putney. |
| " E. M. Watson, of Toll "A." | " M. K. Robertson, of Trunks. |
| " F. Farey, of Mountview. | " E. M. Haberfield, of Trunks. |
| " H. M. Martin, of Gerrard. | " D. E. M. Hull, of Trunks. |
| " B. O. C. Hawley, of Mayfair. | " D. A. Stocker, of Central. |
| " A. G. Rover, of East. | " E. M. E. Poulter, of Central. |
| " E. Northwood, of Toll "B." | " M. V. Semmence, of Richmond. |
| " E. M. Grimsey, of Barnet. | " I. Samways, of Terminus. |
| " L. S. E. Matthews, of Barnet. | " E. A. Sharpe, of Western. |
| " E. Sear, of Popesgrove. | " E. M. Reeve, of Langham. |
| " E. F. Mitchell, of Hampstead. | " A. M. Sumner, of Museum. |
| " D. A. Barnes, of Regent. | " I. L. M. Prior, of Museum. |



What IS all This.

EVER since Birdie was added to the establishment of the Office of the Column life has been—well, a trifle volcanic. I mean, really—dash it all, even I am falling into her jargon. You see she's always erupting into my sanctum and disturbing the trains of thought which form the basis of the effusions which somehow get past the High Editorial Vigilances and appear in print. Only to-day the door burst open suddenly; there was a waft of some high-powered penetrating scent and in hurtled Birdie with a bounce. "It's 'What is All This!' and I'm going, I mean really, and you're taking me." Now can any man in his senses, let alone one who is not, be expected to make head or tail of a cryptic remark like that? I put my pen down with a sigh, assumed a pained but patient look and said "Which is all what, Birdie?" "You see," she rattled on, "I mean there's two shows—tenth and eleventh—but, of course, one will do if I can't get in twice with the same ticket. Of course," she added, thoughtfully, "I mean I could go as the Press, really, don't you think, so I mean really?" "One moment, please," I said, wearily, holding up my hand, "just one moment. Suppose you start at the beginning and proceed very slowly to unburden yourself to me. I daresay, if you have committed some small crime, I could arrange to visit you in Holloway. But—" "Perce," she said, "you're so slow that one day you'll be run over by a steam-roller. I mean that's just where I jumped, right at the beginning." "What is all this," I said as clear—"Yes. Yes. Yes." I shouted, "But my dear Birdie, which is all what?" "Why, imbecile, 'What is all this.' I mean, really, it's all so perfectly plain. I mean aren't you the stodge, I mean really." "Yes," I moaned, "but—" "Oh, Gee," said Birdie, "what a dolt. Well listen here, mutt. The Play this year—the Telephone Play—does that filter into the dust-box—the Play, I say, is entitled 'What is all This,' by which I mean that's what it's all about—see." "OH, the Play," I said, "oh, yes." "Ha," said Birdie, "close up of Perce registering 'Intelligence—Gleam One.' So that's all right, isn't it, I mean, really." "If you mean the Play's all right," I replied, "why, of course—" "Jumping popcorns," snapped Birdie, "You make me tired, I mean, yes, really and positively. What—I—said—was—You're going—to—take me—to the Play. Make a note of that on your dicky." "But where is it?" I asked. "At the Y," said Birdie. "What why or why what, as the case may be," I said meekly. "Y.M." said Birdie. "But why M. and what do you mean, anyway?" I faltered. She looked at me threateningly. "See, eh?" she said. "No," I moaned, "I don't." Birdie fixed me with a withering look and said, "Perce, I really do wonder how Camou stands it, I mean really. You couldn't appear more daft if I was trying to borrow a fiver. The Play—is being held—at the—Y.M.C.A." "Ah, yes," I said eagerly, "of course. Tottenham Court Road, to be sure. I know." "Close up and spot light 'Intelligence, Gleam Two.'" snapped Birdie, "and, of course, I mean Camou will be only too glad to have me for her bright companion for the evening, don't you think so, I mean really." And with that she was gone and a great peace descended upon me.

The way that woman gives herself airs is perfectly sickening. Of course, I knew all about the play, and of course, I intend to go to see it. Well "Aren't We All"—I mean, really!

PERCY FLAGG.

Central.

Yet once again has Central proved
Her worth in song and story,
The Optimists' dramatic club
Has won its way to glory.

In the Central dining room on Friday, the 18th instant, a play entitled "Ten Days before the Wedding," was produced by our clever young producer, Miss V. A. Morris.

The evening was a great success and great praise is due to all those taking part. The audience thoroughly appreciated the succession of thrills, including various unceasing noises followed by violent thunderstorms.

Our best thanks are also due to Mr. Sawyer and Mr. Kirk who so ably assisted with stage arrangements and effects.

We are all looking forward eagerly to Miss Morris's next production.

P. P.

Contributions to this column should be addressed: The Editors, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

GLOUCESTER DISTRICT NOTES.

THE month of March saw two important changes in the personnel of the Gloucester District Telephone Office.

Mr. John H. Storrie, M.B.E., the District Manager, retired on Mar. 1, having reached the age limit in December of last year. A substantial sum of money has been subscribed by members of the District Manager's, Sectional Engineers and Exchange Staffs, in order to give Mr. Storrie a suitable present, but up to the time of writing the recipient has not decided on the specific nature of the gift he desires. We hope, however, to report further on this matter in the next issue of the *Journal*.

Mr. Storrie has been succeeded by Mr. R. M. McLarty, formerly Staff Officer in the North Western Telephone District. We extend to our new Chief a very hearty welcome and trust that he will find his new sphere of activity congenial in every respect.

The second change was in the Chief Clerkship. Mr. W. R. Kelly, who had been with us for 18 months only, left at the end of March to take up the Staff Officership at Brighton.

We are all glad he has left us, but, lest that statement should give a wrong impression, it should perhaps be explained that the reason for our rejoicing is entirely unselfish. There is not a Staff Officership at Gloucester, and we rejoice only in the fact that Mr. Kelly has received deserved promotion. Our selfish feelings are sorrowful, for we have lost a Chief Clerk who, in a comparatively short space of time, won our respect, esteem, and gratitude. We assure our Brighton colleagues that in him and their District Manager, who also was with us some years ago, and for whom we still retain a very high regard, they possess two very loyal servants of the Department and at the same time sympathetic and helpful chiefs.

Before his departure, Mr. Kelly was presented with a wrist watch as a mark of the esteem and regard in which he is held by his Gloucester colleagues, and we hope that this will not prove to be the "utmost round in his ambitious ladder."

Our new Chief Clerk is Mr. C. Sadler who, like Mr. McLarty, comes to us from the North. We welcome him also and hope that the change from the bustle of a large industrial centre to the quiet of our cathedral city will not be out of accord with his own inclinations.

LONDON ENGINEERING DISTRICT NOTES.

Perivale Automatic Exchange.

THIS exchange, which is the first of the single-sided rack type to be installed by Messrs. Siemens Bros. & Co., Ltd., in London, was brought into service on Wednesday, April 6, at 1.30 p.m.

Approximately 1,450 lines were cut over from Ealing Exchange. The engineering test of the lines after the transfer was completed in an hour and a quarter with practically no faults. The building which is situated in Montpellier Avenue, Ealing, houses the automatic plant only, which has a multiple capacity of 4,480 lines. All manual board traffic is handled at the Acorn Automatic Exchange, which was opened for service in January last.

The Civil Service Cup.

For the fifth time in the history of the Lewis Cup Competition, which was established in 1922, when Sir John Lewis presented the magnificent trophy for competition between Civil Service Clubs, the cup has gone to the provinces.

By defeating the London Engineering District by three goals to two, the Rampton State Institution followed Southampton, Devonport, Plymouth, and Birmingham, in securing premier honours.

The L.E.D. have a good cup fighting record, having reached the semi-final on three occasions and the final twice. The match was played on the Civil

Service Sports Ground at Chiswick. The London team winning the toss, played in the first half with the wind, which was very boisterous, and should have scored during this period, but their forwards seemed to lack the ability to keep the ball on the ground and the first half ended with no score. On the resumption the visitors, through their centre-forward, C. Wall, scored three times in fifteen minutes. The Londoners defended pluckily and made strenuous efforts to get on terms. The arrears were reduced by S. V. Brocklesby, who headed two fine goals for the L.E.D., the game ending as stated, with Rampton winners by the odd goal in five.

Rampton deserved their success as the relay of their forward line was much more deadly in front of goal than that of their opponents. J. T. Donegan, the goalkeeper for the L.E.D. carried off the individual honours of the game. Although injured he played magnificently throughout.

SHEFFIELD DISTRICT NOTES.

Promotion of Mr. R. Teasdale.—We wish to offer our hearty congratulations to Mr. R. Teasdale, Traffic Supt., Cl. 11, on his promotion to Traffic Supt., Cl. 1, Glasgow.

Mr. Teasdale has had 31 years' service in Sheffield, 21 years of which were spent on the telephone side.

On Monday, April 3, a large and representative company were present at a smoking concert under the chairmanship of Mr. F. H. Woodrow (Traffic Supt., 1), in the absence of the District Manager. The evening passed most pleasantly with songs and entertainment by various members of the staff. Before the presentation of several gifts as a mark of appreciation to our departing Traffic Supt., Mr. Hamm (Chief Clerk), in a short speech, paid tribute to Mr. Teasdale for the very valuable assistance which had always been forthcoming, followed by Miss Carr (Supervisor), Mr. Abbot (Asst. Traffic Supt.), Miss Macrone (Exchange) and Mr. Stokes (H.P.O.). The Postmaster-Surveyor, Mr. T. J. Hubbard, who was able to be with us for a short while, congratulated Mr. Teasdale on his promotion and expressed the predominant feeling of everybody that Sheffield was suffering a severe loss. The Chairman, after wishing Mr. and Mrs. Teasdale the best of good fortune, then presented them with a canteen of cutlery and fish eaters on behalf of the District Manager's Office, Engineers and Head Post Office; a set of gold studs and cuff links, with an evening bag for Mrs. Teasdale, from the Exchange supervisors; and a silver cigarette case, together with a morocco leather hand-bag for Mrs. Teasdale, from the Exchange staff. Mr. Teasdale, replying, said he appreciated very deeply all that had been said during the evening and thanked everybody on behalf of himself and Mrs. Teasdale for their gifts and expressions of goodwill.

We wish to extend a cordial welcome to Mr. G. A. Beaumont (Asst. Traffic Supt., Newcastle) on his promotion to Traffic Supt., 11, Sheffield.

There is humour even in the life of a phonogram operator—witness the following.

A telegram was to hand for delivery by telephone to a certain House of Holy Orders, and the phonogram operator was making enquiries of the caretaker of the nearest exchange. When asked if she knew the convent the caretaker replied: "Yes, there is a place of that name near here, and it's full of mothers and fathers!"

The same operator had just finished dictating a telegram addressed by telephone number to a subscriber. She then asked the subscriber for her name in order that the confirmatory copy could be marked, "Gladys," was the sweet reply.

BIRMINGHAM NOTES.

Birmingham Telephone Society. The last of the meetings of the society for the season was held on Mar. 17, when Mr. E. G. Smith, Assistant Traffic Superintendent, gave an address on "The Work of the Observation Office," which he illustrated with lantern slides. Mr. Smith gave an exceedingly interesting account of the activities in the Observation Office, which was keenly appreciated by an enthusiastic audience. After the questions had been satisfactorily disposed of, the District Manager (Mr. J. L. Parry) advised the members that this was the last occasion on which Colonel Brain would preside over them as Postmaster-Surveyor and on behalf of the society he thanked Colonel Brain for the great interest he had shown in the society's activities and for the wonderful help and encouragement that it had received from him. Mr. Parry's remarks were seconded by Miss Hyatt, who asked Mrs. Brain (who was present on this occasion) to accept a small token as a mark of the members' appreciation of Colonel Brain's work for the society.

Colonel Brain spoke feelingly of the pleasure it had been to him to preside over the meetings and of the regret it was to him that his connexion with the society was so soon to be severed.

The musical part of the programme was rendered by members of the Traffic Section and a few dances terminated the most successful and best attended meeting of the society since its formation.

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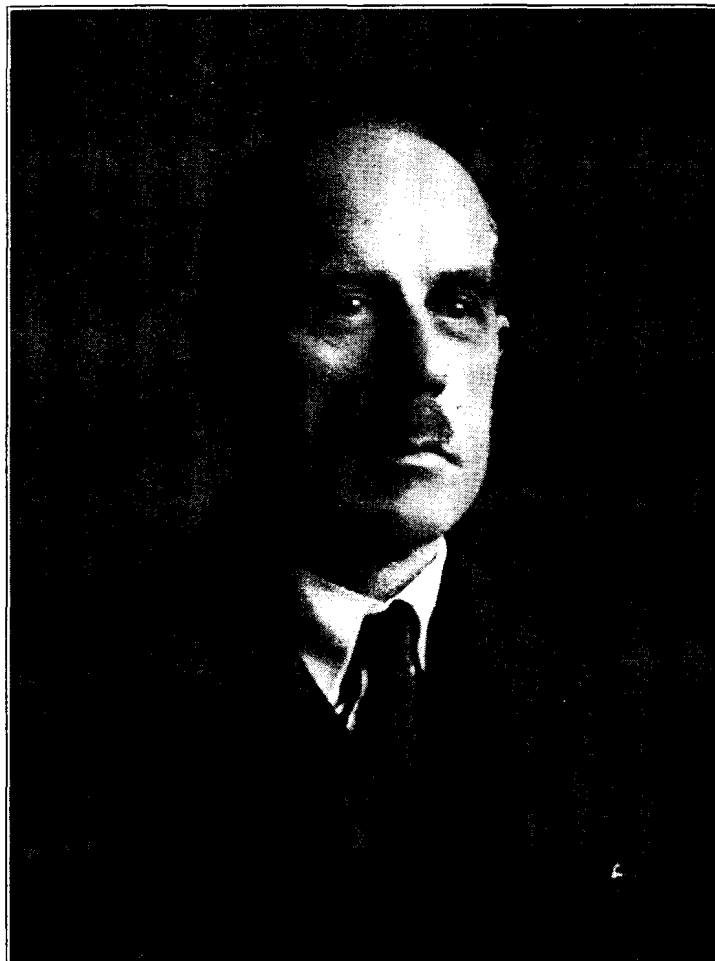
TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCVIII.

JOHN MILNER SHACKLETON.

OVER 20 years ago a biographical sketch of John Milner Shackleton, in the old *National Telephone Journal* traced his educational and professional attainments to date, left him, a young man, in the very heyday of an active and successful career in the service of the late *National Telephone Company*.

That important event which we refer to as "the transfer," found Mr. Shackleton already in charge of important London telephone engineering works. With his ready disposition and marvellous combination of theoretical and practical knowledge, he carried on under the new conditions "as though nothing ever was," as they say in Lancashire, the county of his adoption, and it was inevitable that he should have moved uninterruptedly through the grades of Executive Engineer and Assistant Superintending Engineer in the London District,



to his present responsible position of Superintending Engineer of the North Western District of England, which he has filled with distinction since 1925.

He has an outstanding capacity for grasping essentials and arriving rapidly at sound decisions, but, a valuable combination in a chief, he combines with this always, a readiness to listen to and discuss his subordinates' views, never losing an opportunity for practical demonstration. A man of wide interests and ready wit, he loves, on occasion, to bring to these discussions, however serious, a light or philosophic turn, thus supplying the oil of good humour to many a difficult problem.

He is ever ready to interest himself and take part in the various Staff sports and social activities, and one reason why in these as in his work, he is a success, is that he so obviously enjoys all.

His conduct of the large amount of staff work which

(Continued on page 183.)

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

VOL. XVIII.

JUNE, 1932.

No. 207.

THE NEW LONDON TELEPHONE AREA.

THE recent extension of the London Telephone Area to include many towns more than 20 miles distant from the City of London, amongst them boroughs with an individuality of their own, such as St. Albans, Watford, and Gravesend, widens out the boundaries of that area far beyond the limits of any Greater London or other known geographical entity, and raises the problem of finding a basis for comparisons between the telephone development of London and that of foreign cities. Not only the whole of Middlesex, but also the most populous parts of Hertfordshire, large tracts of Essex, Kent and Surrey, and a small section of Buckinghamshire, now constitute parts of the London Telephone Area. Not only the boroughs mentioned, but numerous urban residential districts such as Walton, Weybridge, Chertsey, Leatherhead, Staines, Uxbridge, Hatfield, Welwyn Garden City, Harpenden, Dartford, and Orpington have been added to an area which already reached eastward to Tilbury and southward to Epsom and Reigate. The population of this huge district is estimated at eight and three-quarter millions, and it contained at the end of March last, 769,928 telephones. It is gratifying to note that the addition of so many heterogeneous districts, comprising large tracts of an entirely rural character, yet unspoiled by the invasion of bricks and mortar, to the London telephone area has not adversely affected its telephone density as a whole, the ratio of telephones to each hundred inhabitants being nearly 9 (8.8 to be exact). This is practically the figure at which the telephone development of the old area stood.

For purposes of comparison with foreign cities whose telephone area coincides with the city limits, there is the London County

Council area with its 4,396,800 inhabitants and its 519,012 telephones, yielding a ratio of nearly 12 telephones per 100 inhabitants. But in a comparison with Paris, where a large business and residential population is gathered within the old city boundaries, London is handicapped by its larger and more diffuse administrative area. Then again, the city of Berlin, with its comparatively recent inclusion of Charlottenburg, Spandau, Rixdorf, and other places, and New York, which some years ago was enlarged to include Brooklyn and other adjacent localities, claim comparison with a Greater London. Here the adoption as a standard of the new London telephone area, with the huge purely rural districts recently added, would place our metropolis at a disadvantage. What is required for such a comparison is an area including exchanges in Croydon, Wimbledon, Chiswick, Hornsey, and West Ham, and many others, which are essentially part of the London telephone system although outside the administrative area. But it would be a matter of extreme difficulty to decide exactly what places should be included in any area devised *ad hoc* for purposes of comparison. Altogether a nice problem for the statistician.

NIGHT CALLS.

THE *Manchester Guardian* in referring recently to the night service in small rural places, where the caretaker operator has to be aroused by a night bell, made a singularly unfortunate comment when it said, "In the upshot the telephone fails to gain in Britain half the confidence as a service that it commands in, for instance, the Scandinavian countries, where even the most unlikely and remote farm usually has a service on which it can rely." In Sweden, for example, continuous service is provided only in the case of exchanges with 500 lines and upwards—which are anything but small ones. In fact it is only in Great Britain and North America that continuous service is afforded to over 98% of the total subscribers to the system. On the Continent day and night service in small places is unknown. The *Manchester Guardian* suggests that as users of electricity, in places where they are few, pay more for their current, why should they not pay more for their night calls. But how much would it be necessary to charge for rare emergency night calls in order to cover the cost of providing a full-time night operator in a place with a handful of subscribers? Would the countryman cheerfully pay an adequate special fee as our contemporary suggests? The suggested solution sounds simple, but it is not economically sound.

HIC ET UBIQUE.

A Chiswick subscriber writes a polite letter to *The Times* complaining that when he complained that several people had rung him up on the day before and had been told "No reply," the Supervisor asked him, "Was there anyone in the house to answer the telephone?" No one, he contends, but a congenital idiot would make a complaint of this kind if there had not been. Alas! experience shows that it is not the congenital idiot, but many a very human subscriber who makes a complaint of this kind without making previous enquiry whether his house was left for 10 minutes or half an hour or more on the day to which his complaint

refers or whether his family might perchance be in the garden or elsewhere inaccessible to the telephone bell. The supervisor when faced with such a complaint has to explore all possible causes of fault. Whether, in this case, the question was put in a tactful manner we do not know. If it was it should have appeared merely a request for information necessary to elucidate the complaint, and need not have conveyed any suggestion of congenital idiocy.

A correspondent sends us a press cutting about the new White Star motor liner *Georgic*, with its two funnels:—

One of the uses of the dummy first funnel will be to house the Mareconi wireless set, which is designed to keep the ship in constant telegraphic communication with the land and with other vessels over exceptionally long distances.

Both the direction finder and its aerial are also inside the funnel, which provides a screen against electric interference from any of the many motors on board, while the open funnel top permits uninterrupted reception of signals for direction finding.

Our correspondent remarks: "Sez you!"

A Sussex doctor in remitting payment recently for his account added his compliments and grateful thanks for kind attention during the quarter. "One often reads in the papers of grumblers finding fault with the Telephone Service, so have pleasure in stating that my calls are *always* attended to with a promptness and accuracy which could not be beaten.

May I state that I don't know a single member of your Telephone staff, so these remarks are quite unsolicited!"

The District Manager said in his reply:—

I thank you for your remittance in payment of the current quarter's accounts and enclose herewith the official receipt.

It is gratifying to the Department to receive your complimentary remarks and a pleasure to me to convey them to the staff responsible for your service.

I am sure that the efficiency to which you testify has been contributed to in no small measure by consideration and co-operation on the part of yourself and of your household, and you may be assured that it is the Department's constant endeavour to encourage and develop this spirit of mutual service and goodwill.

The Anglo-Brazilian telephone service, which has hitherto been available to subscribers in the City of Rio de Janeiro only, has now been extended to all parts of the State of Rio de Janeiro. The charge for a call from Great Britain to any point in the State of Rio de Janeiro is £6 for the first three minutes and £2 for each additional minute.

M. Grysouille, one of the directors of the Belgian knitwear firm which is fitting up a new factory in Erskine Street, Leicester, recently paid tribute to the efficiency of the L.N.E.R. and the G.P.O.

"We have met with various delays," stated M. Grysouille, "but your authorities have been exceedingly helpful.

"Our machinery was sent by the Harwich-Zeebrugge train-ferry and the special wagons were, through the instrumentality of the London and North Eastern Railway Continental agent in London, worked through the Customs on Friday, railed on Saturday and reached Leicester in time for delivery on Sunday.

"We wanted a telephone installed. The result was surprising to us. It took three days to complete our telephone installation.

"Had we sought the same facilities in Belgium it would have been a month before our wishes would have been met.

THE EDISON SCHOLARSHIP COMPETITION.

MESSRS. FOYLES have sent us for review an interesting little book entitled "Edison and his Competition,"* translated from the German of A. Horschitz and Paul Oestreich by Alice Hohenemser-Salt. Edison, it seems, full of years and honours at 84, established a scholarship competition "to promote the interests of the young American in his own intellectual development, to lead him to the sciences, but above all to the ideals which characterise the best type of American manliness." "This competition," he added, "is to select the very best out of the best." Accordingly, 49 selected boys, the final competitors from 49 American states and territories were received by Edison, accompanied by Messrs. Ford and Lindbergh, fêted for 3 days and presented with an album and a 400 dollar gramophone. The winner, Wilbur Houston, who obtained 92 marks for his replies to the 57 questions set, is the son of the Bishop of Olympia, in the state of Washington.

The book under review gives these questions in full, with some critical remarks as to their value in judging the knowledge and character of the future great men, for the German critics seem to persist in believing that Edison instituted the scholarship with a view to finding a "successor," although he himself denied that intention. The successful paper is not to be published until 1939, so that the basis of the judges' awards have not been revealed. "The competition in this form and contents," complains Mr. Oestreich, "is out of touch with the times. Two respectabilities of the past—for Ford (who set some of the questions) has been exposed, and by his overproduction has carried out his ideas *ad absurdum*—are celebrating their past and wish to prolong it; and that is simply performing at a Museum-Theatre, which is harmful, because it is breeding beings different from those needed by the future, and because the whole proceedings are at best a festive interruption of the educational process, though never education itself." Surprise is expressed that Edison, brought up in a hard, practical school, should have sought to find genius by a comparatively academic process. "Where have the serious values of life been revealed in the case of the 49 candidates? Where have they been sought? Can one create the unusual by education and examinations? Can the spirit of a genius be bred?" we are asked. The questions in mathematics, chemistry and physics (18 in all) are admitted to be passable knowledge tests of honest school work, but the 39 general questions come in for much criticism as foolish and trivial or such that the answers furnished by boys of 16 must necessarily be valueless. Moral and didactic questions arouse the scorn of the critic. "Evidently," he says, "the judges possess a step ladder of virtues, and now the candidates are unconsciously to betray their 'grade.'" He concludes:—

"The man who wants to render vital help to our needy times must become a real pedagogue. Then he will not slip out of the world of reality into an imaginary one. Then he will not hypothesise a 'neutral' education which grows into a training in subjugation, into the settling down to things, and to didactic methodical art, really acting very politically in the blind stabilisation of social present-day connexions in order to avoid conflicts."

The book, whether one agrees with all its strictures or not, is a stimulating one, and we recommend it heartily to the enquiring reader.

W. H. G.

* Edison and His Competition, a Critical Study. (W. & G. Foyle Ltd.) Price 3s.

(Continued from page 181.)

falls to the lot of a Superintending Engineer is marked by rigid justice tempered with sympathy, and an ever present sense of humour, and there was never a chief to whom the rank and file might appeal with more confidence.

Hardy to a degree, and rugged now—thinking comparatively of the portrait of years ago—he has not added an ounce of flesh to his tall frame; and, it seems to his friends, increasingly, he enjoys all kinds of outdoor sport—fishing, shooting, golf, motoring, and at his pleasant home near Ormskirk, still finds time and energy to do a lot of his own gardening.

BROADCASTING DEVELOPMENTS.*

BY N. ASHBRIDGE (*Chief Engineer, British Broadcasting Corporation*).

THE object of this paper is to review the development of apparatus used for broadcasting, mainly in this country, but it is also intended to refer to developments in other countries. Owing to the fact that a complete broadcasting plant covers a wide range of apparatus, it will be necessary to deal somewhat briefly with any one item.

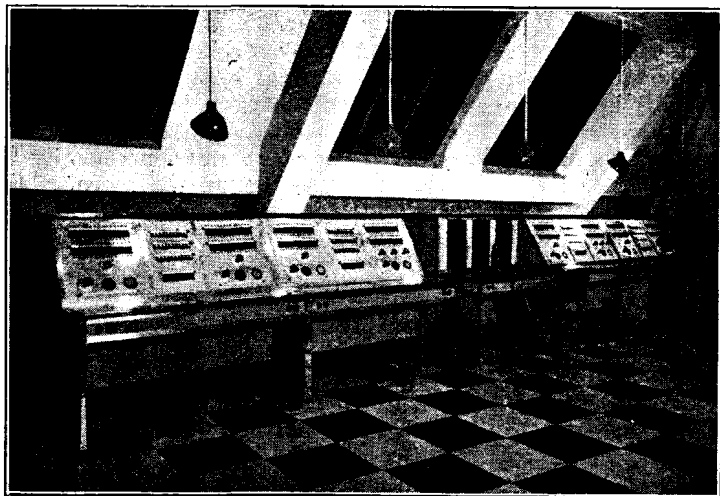
Studios.

The most important question of studio acoustics was dealt with in a paper by the author read before the British Association in September, 1931. Briefly summing up the conclusions which are reached in that paper, we find that for a music studio the following main requirements are considered necessary, so far as B.B.C. technique is concerned:—

- (1) The reverberation period should bear a definite relation to the volume of the studio.
- (2) The reverberation time should be sensibly constant over the range of musical frequencies.

With regard to the first requirement, it should be carefully noted that it can only be applied in a general way to a studio used mainly for music, and that other considerations enter into the problem when the studio is to be used for lectures, plays, dramatic effects, and special forms of music such as dance music. Regarding the second requirement, it has to be noted that it should only be applied as a guide. It seems now a fairly general opinion that if there is to be any inequality in the reverberation period over the range of frequencies, it should take the form of a slight increase of reverberation time at the lower end of the frequency scale: in fact, this is the state of affairs in most of the music studios at Broadcasting House. There is no doubt, however, that a studio with equal reverberation at all frequencies gives satisfactory results, but the tastes of the majority of people might, nevertheless, tend towards a slight increase at the bass frequencies.

With regard to studios used for lectures, it is reasonable to assume that the conditions at the receiving end should be similar to those which would be obtained were the speaker situated in an ordinary room sitting at a distance of a few feet from the listener. For this reason it might be considered that the speech should arrive at the loudspeaker with no reverberation superimposed on it, the reverberation effect heard by the listener being



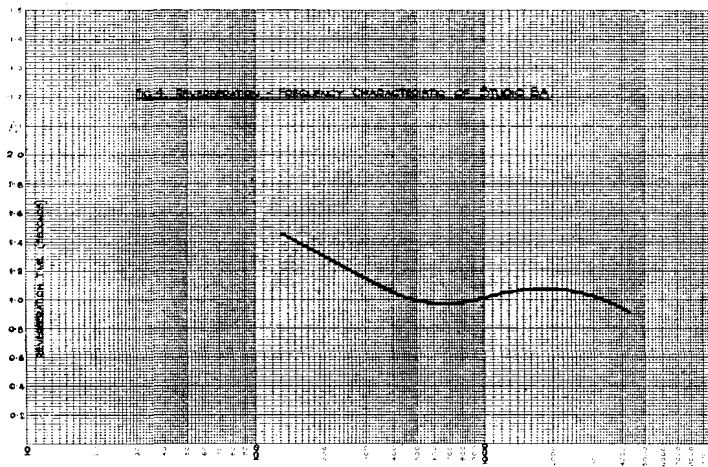
REHEARSAL CONTROL POSITIONS IN CONTROL ROOM, BROADCASTING HOUSE, MARCH 1932.

only that of his own room. If this line of argument is followed, it would mean that a studio for lectures should have no reverberation time at all. However, anyone who has spoken in such a room will realise that the conditions are peculiar, and this might tend to affect a speaker not used to such conditions. Nevertheless, we have considered it desirable to treat one of the three "Talks" studios at Broadcasting House with a rock or slag wool treatment, which has the effect of completely absorbing sound waves at all speech frequencies. The other two studios are being treated to have an even reverberation time of a value corresponding to that of an ordinary sitting room of moderate dimensions, e.g., about 0.5 seconds. In this case, of course, one has the reverberation of two rooms superimposed on each other, which, as mentioned above, might be considered wrong, but at least the broadcaster has the advantage of speaking under familiar conditions.

When considering the question of plays, very considerable advantages can be obtained by the use of a room with no reverberation at all, because obviously, when this is the case, the reverberation effect does not vary with the distance of the speaker from the microphone, and, therefore, the producer has the advantage of being able to place his actors at different distances from the microphone in order to obtain perspective effects. Thus studios intended only for speech in connexion with plays are being treated in this manner.

The third case in which this special treatment is used is for studios concerned in the making of noises used during the production of a play. In this case, the reverberation period requires to be very widely variable, so that it may correspond either with the open air, where reverberation is non-existent, or a church or large hall, where the reverberation period is very long. The variable degree of reverberation is obtained by means of an artificial reverberation room, a description of which is given in the paper referred to above.

Returning again for a moment to the question of music studios, it is fairly obvious that the argument used in connexion with a speaker does not apply, because an orchestra never plays in a small room, and, therefore, it is essential to super-impose on the music the reverberation corresponding to the hall in which the orchestra would normally be heard. At Savoy Hill it has sometimes been necessary to do this by an artificial reverberation room, but at Broadcasting House the music studios have been so designed as to possess the correct acoustical qualities in themselves.



REVERBERATION-FREQUENCY CHARACTERISTIC OF ONE OF THE LARGER MUSIC STUDIOS AT BROADCASTING HOUSE.

There are, of course, other requirements in connexion with the design of studios which are bound up with the above remarks; for instance, there must be no diaphragm effect in the walls, there must be no sound leakage from one studio to another, and no leakage of outside sounds into the studio.

This very briefly outlines the main requirements of studios so far as the B.B.C. practice is concerned, but it does not apply invariably to studios in other countries. For instance, in Germany the reverberation time allowed in a music studio is, in general, longer than that adopted by us, while considerable stress is laid on the necessity of making the values variable for any one studio. In order to achieve this, shutters are fixed on the walls of the studios which can be rotated so as to present a different wall treatment, according to which side is presented to the interior. It will be seen that this is a departure from the idea that the reverberation time should correspond to the surface or volume of the studio. From experience, however, we are doubtful whether such arrangements are entirely satisfactory in practice, as the reproduction as broadcast is liable to depend too much on the individual taste of the person responsible for any particular programme.

With regard to the question of rock wool treatment for speech studios, so far as is known this has not yet been adopted by other countries: in fact, it was only adopted experimentally by the B.B.C. This may be due partly to the fact that in practically all other countries plays are not produced on the same lines as in the B.B.C., where each incident in a play is enacted in a different studio, the transition from one incident to the next being by means of electrical fading devices operated by the producer.

In Germany and America plays are more usually produced in one fairly large studio, each group of performers approaching the microphone as their cue is reached. This, of course, tends to prevent the use of special acoustic treatment as described above, since music and speech, and even effects, may be produced in the same studio in quick succession.

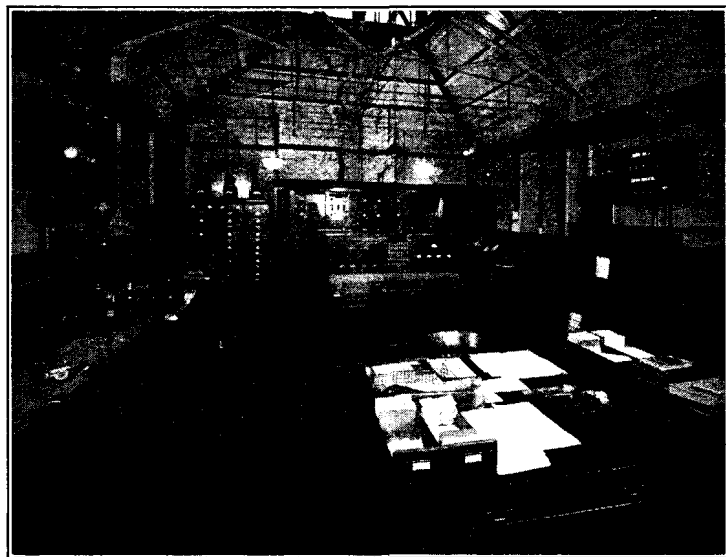
Before leaving the question of studios, it is interesting to note that in America a special method has had to be devised of insulating one studio from another, since, owing to their great height, all buildings in New York must be of steel frame construction. In general, it is most desirable to avoid the use of a steel frame building when a number of studios is to be accommodated, owing to the fact that the framework is bound to transmit

* Paper read before the Telephone and Telegraph Society of London.

sounds readily from one part of the building to another. In the United States the method of getting over the difficulty is to insulate the complete studio structure from the steel frame by some absorbing device: in fact, the studios are virtually suspended within the main steel frame. In the case of Broadcasting House, the difficulty was tackled in a different way, the inner portion of the building, which consists of studios, being composed almost entirely of brick, this type of construction, in our opinion, being the best.

Microphones.

There is at present no very marked tendency in connexion with the development of microphones, either at home or abroad, except perhaps an inclination to return to the electro-magnetic type. In the B.B.C., the microphone most generally in use is the Marconi Reisz, which is, of course, a carbon type. The advantage of this particular microphone lies in the



CONTROL ROOM, SAVOY HILL. DEC., 1928.

fact that it is first of all robust in construction, and at the same time the level delivered is high as compared with other types. It has the disadvantage, however, that it is inclined to be non-linear with amplitude, unless great care is taken not to exceed a certain limit of pressure on the diaphragm. It is also non-linear with respect to frequency, but this can be corrected, and is, therefore, not essentially a disadvantage. We have done a considerable amount of work in connexion with condenser microphones, not so much in connexion with the actual microphone unit as in connexion with the amplifier, which has to be closely associated with the microphone, mainly owing to the high impedance of these instruments. This amplifier can be looked on more as a transformer for changing the impedance of the condenser microphone to a value equal to that of the Reisz Carbon microphone.

Condenser microphones of various types are being used in the B.B.C. mainly on an experimental basis. These include microphones made by Standard Telephones & Cables, Ltd., the Radio Corporation of America and Edison Bell.

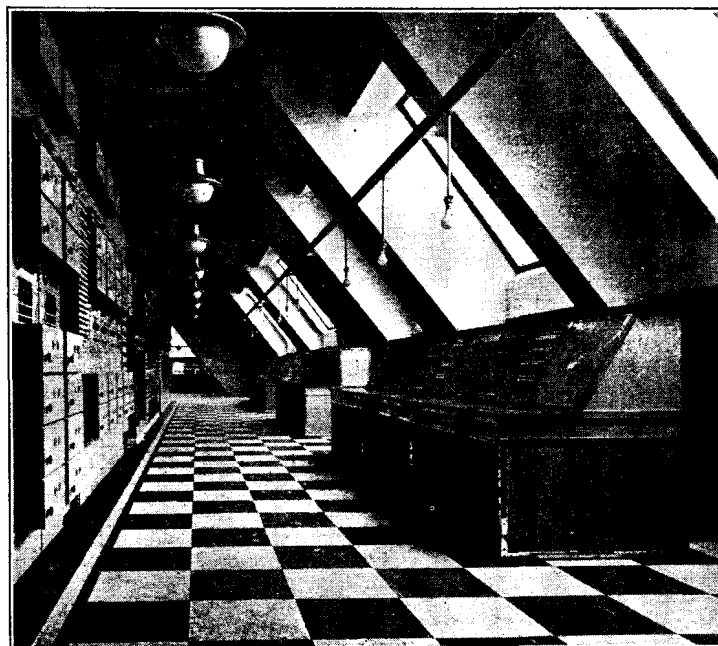
Some work has also been done on baffles used in conjunction with condenser microphones, the object being to improve the frequency characteristic of the microphone itself by increasing the response at the bass frequencies. It cannot be said, however, at present, that advances have been made in this connexion which are obvious to listeners generally, although the advantage possessed by the condenser microphone of being less subject to over-loading is becoming more manifest in connexion with modern studios, having a longer time reverberation, and consequently higher sound intensity. Some condenser microphones have other advantages in addition, such as an improved polar diagram and a much reduced "background" noise.

In Germany a microphone known as the "Bändchen mikrofon" has been developed by Messrs. Siemens & Halske. This is virtually a return to the electro-magnetic type of microphone which was used in the B.B.C. before the Marconi Reisz, and was known as the Magnetophone. There is, however, a wide difference in detail between the Magnetophone and the present "Bändchen mikrofon," in that the latter consists of a single turn of wire operating in a magnetic field, while the Magnetophone employed a very light coil of aluminium wire with many turns.

In America the type of microphone widely used is the condenser, but more recently the Bell Laboratories have developed an electro-magnetic instrument similar, in principle, to the Round-Sykes Magnetophone—but using a diaphragm to actuate the moving coil. It appears that this microphone has many advantages, and the B.B.C. hopes to be able to make tests on it in the near future.

Amplifier and Control Apparatus.

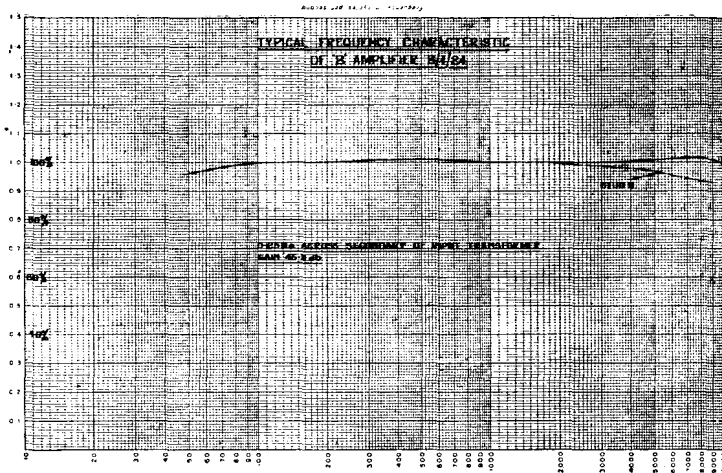
A great deal of development has been done by the B.B.C. on this subject during the past two years, particularly in connexion with control apparatus. The general lines on which the control of the microphone output from studios is based is as follows: No control of volume or switching takes place local to the studio, the only important technical function which is performed there being a loudspeaker check in a room adjoining the studio, in order to ensure the correct placing of microphones and performers in the studio itself. There is, however, a "fade" unit which determines the amount of sound picked up from each microphone when more than one is used in one particular studio. All the music lines, therefore, are conducted by means of lead-covered cable direct to a central control room, which in Broadcasting House is situated, for various reasons, near the top of the building. This room contains the whole of the amplifiers, checking apparatus, testing apparatus and switching gear for the complete control of all studios and outside broadcasts. There is also switching apparatus for controlling the trunk lines to the various transmitters all over the country, and apparatus for controlling a programme which is passing from one station to another via London. There are four main types of amplifier used for handling the actual programme, and the way in which these are used is as follows: On arrival at the control room the output from the studio is first of all passed through what is termed an "A" amplifier. This is a three-stage resistance-coupled amplifier, with a double output, that is to say, there are two separate valves in the last stage. One output passes on to the next amplifier and the second output is used in connexion with artificial reverberation apparatus which is available for superimposing reverberation mainly for dramatic effects. The maximum gain of this amplifier is 50 decibels, and the working gain is approximately 42 decibels. The gain is, of course, variable, but remains fixed for one set of conditions. Each studio has its own "A" amplifier, to which it is normally permanently connected. The output from the "A" amplifier then passes to the "B" amplifier, which has three stages and a total gain of approximately 40 decibels. This amplifier is provided with a potentiometer and associated with it is the apparatus registering the volume delivered. The gain, therefore, is not fixed during the performance of a programme and is varied either by the engineer on duty or, in the case of musical programmes, by a musician who uses a score to aid him to adjust the volume in such a way as to retain the interpretation of the conductor so far as this is possible. The gain used during a symphony



BROADCASTING HOUSE. TRANSMISSION CONTROL POSITIONS AND AMPLIFIERS IN CONTROL ROOM. (MARCH 1932.)

concert may vary over as much as 30 decibels. There is one further amplifier normally in circuit (a "C" amplifier), which has a single stage consisting of two valves in push-pull; the output in this amplifier is delivered to the line. The gain of this last amplifier is quite small and it acts more in the nature of a trap valve than as a definite amplifier. When artificial reverberation is used, it is inserted by means of the second output valve of the "A" amplifier, i.e., between the "A" and the "B" amplifiers; also, when the dramatic control panel is in use, this is inserted between the "A" and the "B" amplifiers. The dramatic control mixing unit itself is situated in a separate room and operated by the producer himself. In this way he has direct control over the fading or mixing of the performance in each of the studios used, and he listens to the complete mixed programme in similar conditions to an outside listener. There is one further essential amplifier used directly in connection with the transmission of programme currents,

known as the "D" amplifier. This is a three-stage amplifier, also with a double output, and it is used as a repeating amplifier, when passing a programme through London from one centre to another. It is used in conjunction with the necessary equalising network on an incoming trunk line, and its output is connected via one or more "C" amplifiers to outgoing trunk lines and the lines feeding the local transmitting station. The second output valve is used for obtaining artificial reverberation as on the "A" amplifier.



FREQUENCY RESPONSE CHARACTERISTIC OF "B" AMPLIFIER.

There are, in addition, trap valves for working the monitoring headphones, and for supplying the various loudspeakers all over the building (each loudspeaker being operated by its own local mains-driven amplifier), the Greenwich time signal apparatus, line testing gear and, of course, the usual termination racks, &c. The whole of the amplifiers, testing apparatus, &c., is mounted on racks and the switching apparatus is divided into two groups, one group for rehearsals in which a microphone and loudspeakers are required, and the other for the actual transmission of programmes. No programme wiring is brought to the switching positions, all switching of programme currents being carried out by relays, operated by punching keys on the switching positions. The same method of switching is also used for the trunk line circuits. The object of remote control is, of course, the avoidance of crosstalk.

Three programmes are monitored by wireless in London, namely Daventry 5XX, and the two London transmitters at Brookmans Park. The receivers for this purpose are also mounted on the main racks.

The whole of the valves associated with this apparatus (some 400) are fed by batteries, both for filament heating, anode supply and grid bias. This method was adopted after careful consideration, as being preferable to the direct use of machines where a large number of studios is to be handled through one control room. All filament and anode supplies are common to one battery, with the exception of the "A" amplifiers, which have a separate common battery for each type of supply. There are also other batteries for relay switching and for polarising the microphones.

The above give a brief description of the lines on which the new design of the control room has been developed, but it is obviously outside the scope of this paper to go into the details of switching.

Telephone Cables for Simultaneous Broadcasts.

During the past two years a gradual change-over has been in progress from overhead circuits to underground circuits for broadcasting purposes. It is not proposed to go into any technical details concerning this important development, since members of this Society will no doubt be fully informed as to the lines on which this is being done. With the exception of the apparatus at the B.B.C. Repeating Stations, it is, of course, being carried out entirely by the Post Office engineers. It is considered, however, that this is a very important step in the development of the service as a whole, because, while a few years ago simultaneous broadcasts were always looked upon as giving second-class quality as a matter of course, now the difference in quality between distant broadcasts and a local broadcast is only distinguishable on the best types of receiving apparatus.

Transmitters.

No striking development has taken place in connexion with transmitters since the design of entirely new transmitters for the Brookmans Park station, which was opened in November, 1929. These transmitters were designed by the B.B.C., following experiments which were carried out at the Daventry station. This experimental transmitter, known as 5GB, afterwards became the Midland Regional transmitter. Thus, a 50-kw. transmitter has been developed as standard for all the Regional stations. Eight transmitters of this type have now been constructed, or are in course of construction, namely, those for Brookmans Park (London), Moorside Edge (North Region),

Westerglen (Scotland) and Washford Cross (West Region). These stations, however, are not entirely standard with regard to the remainder of the plant, the principal difference being in connexion with the mast and aerial design. In this respect London was a special case, owing to the limitation of mast height to 200 ft. At Moorside Edge three insulated masts of 500 ft. were erected. In the case of the shorter of the two wavelengths (301 metres), this allows the use of a pure half-wave aerial. The other transmitter at this station, working on 479 metres, employs a "T" aerial tuned to approximately .4 of the wavelength. At Westerglen, near Falkirk, the aerial conditions are different again, since it has been decided to develop aeriels supported by one mast only. Probably, therefore, the aerial in this case will be somewhat similar to the old umbrella type, with three wires radiating at 120° with each other from the top of the mast to within a few feet of the ground, with horizontal portions led into a central feeder hut containing the tuning apparatus. The aerial design, however, in this case is not yet complete. Two 500 ft. masts have been erected, one for each wavelength.

Other differences in the various Regional stations are chiefly in the type of building, the diesel engines used for generating power, and arrangements for water storage and valve cooling apparatus.

The B.B.C. is now engaged on the design for rebuilding the long-wave station 5XX and the Midland Regional station, which, as already stated, is at present in an experimental form. A preliminary survey has indicated the neighbourhood of Droitwich as a suitable place for this new station, and several sites in this district are at present being investigated in detail by the use of a transportable 1-kw. transmitter working in conjunction with field measuring apparatus.

The new 5XX transmitter will probably be on somewhat similar lines to those adopted for the 50-kw. medium-wave stations. That is to say, modulation will take place at a low power level of about 200 watts, subsequent amplification of the modulated high frequency energy being carried out by water-cooled valves. One of the latest types of extra high power valves will be used for the final stage of this station, but the actual type has not yet been decided.

Miscellaneous Development.

Perhaps the most important development which falls under this heading is concerned with the isochronous working of two or more stations on the same frequency. For the past three years we have been working a number of low power stations in this way, and the method adopted is to drive each transmitter separately by means of a thermostatically temperature controlled tuning fork, associated with a frequency doubling amplifier. The frequency of the fork is adjusted in the neighbourhood of 1,015.6 cycles per second by temperature control, so that after ten doubling stages a radio frequency of 1,040 kc. s. is obtained. This method of working has been found satisfactory for low power stations, although the accuracy maintained has been of the order of 10 to 15 cycles in a million only. This can be ensured on a basis of two checks a week. However, recently a good deal of research work has been done by the B.B.C. in connexion with the design of tuning forks and the frequency doubling apparatus, with the result that it is now considered practicable to maintain two stations at an accuracy of less than one part in a million. The apparatus associated with tuning forks is, of course, somewhat complicated, and the question is now under consideration as to whether equal or better accuracy could be obtained more simply by means of crystals, also temperature controlled by thermostat.

The conclusion was come to some three years ago that when stations were operated in this way, it was necessary for the field strength of the wanted station to be five times that of the unwanted station or stations, if the deterioration of quality was to be undetectable. Recently, tests have been made to determine whether this was too conservative a figure, but these tests have confirmed that the 5:1 ratio stands as being necessary for a condition of no audible distortion due to the unwanted fields when using a high quality receiver. On the other hand, on a basis of acceptable reception on average commercial apparatus, it is considered that a ratio of the order of 3:1 is sufficient. It is further considered that no particular advantage is gained by driving the stations by line from the same frequency source, as compared with separate driving, assuming for the latter an accuracy of not less than one part in a million.

At the same time, experiments have been carried out in America on this problem, and somewhat similar tests have been made. It is extremely interesting to find that their ratio figures for wanted to unwanted field strength are very similar to ours. The Americans stress the point, however, that the service area of a station working on this basis is greatly increased if the accuracy can be maintained at a fraction of a cycle, even as compared with, say, one or two cycles. It is not entirely obvious why this should be so, but there would seem to be little reason to doubt that this is so in practice.

Experiments have also been carried out in Germany on similar lines, the stations of Köln, Aachen and Münster having been synchronised using separate crystal drives. No quantitative results, however, are available from this source.

In Sweden also this system is in use for small stations, and a similar scheme for small stations is contemplated in Hungary.

The question as to what success would attend the synchronising of two high power stations by this method, using powers of, say, 50 kw. carrier, is very interesting and important. Having regard to the values of indirect ray which are known to exist at night, taken in conjunction with the

permissible ratio of wanted to unwanted field strengths, it would seem likely that the area covered by each station would be somewhat limited in relation to the power. Nevertheless, there are possibilities for economy in wavelengths by this means which are highly important, and it is intended to investigate the problem further in the near future.

It has to be borne in mind, of course, that to obtain the results given above, it is essential that all the stations concerned in this scheme shall radiate the same programme, unless they are separated by a distance of the order of 1,500 miles. Having regard to the dimensions of Europe, it is doubtful whether an economy of wavelengths could be effected by synchronising distant stations, considering that they are bound to transmit different programmes. Nevertheless, this is a proposition which is receiving attention by the U.I.R.

Empire Broadcasting.

Another development of very great importance arises from the decision of the B.B.C. to build a transmitter for radiating programmes to the Empire. Obviously it is outside the scope of a paper of this kind to go into all the considerations in connexion with such a station, but it may be interesting to mention some of the decisions which have been come to at this stage.

There is no need to tell a meeting of Post Office engineers that the general problem of providing broadcast reception to the whole of the Empire is an extremely difficult one, and that at the best one can only envisage a quality of service altogether less reliable than we are used to in this country. It is for this reason that for several years an experimental transmitter has been operated in order to find out the value of such a service from the point of view of direct listening and relaying by overseas broadcasting organisations. Having obtained evidence that such a service has a value in the eyes of overseas listeners, the problem has to be tackled as to the best technical means of providing a service which shall be as reliable as possible, consistent with reasonable expenditure. The first question which presents itself is whether the use of directional aerials is practicable for covering the whole Empire. The B.B.C. has considered this question in co-operation with Messrs. Standard Telephones & Cables, Ltd., and the conclusion has been arrived at that, even for such a widely distributed area, an advantage can be obtained from the use of directional aerials, even taking into account the necessity for economy in expenditure. The Empire, therefore, has been divided up into five zones on a basis of:—

- (1) Time of transmission.
- (2) Direction of transmission.
- (3) Distance from this country.

At the same time, it has been laid down for this purpose that the main object in view shall be to provide good reception in each zone at some time between 6 p.m. and midnight, local time. As is, of course, well-known, one cannot lay down one wavelength even for each of the five zones. In most cases three wavelengths and, therefore, three directional aerials will be provided, and the aperture of the beam is, of course, adjusted in relation to the extent of the particular zone to be covered. The type of aerial used in this case is of comparatively simple construction and, therefore, it will be possible to add to the number of directional aerials in order to cover gradual variations in the optimum wavelengths for each region, and to cover seasonal variations, if not already provided for in the first instance.

Fortunately, this five zone arrangement does not necessitate the use of five separate transmitters, owing to the time difference in the various zones, and on the above basis it is possible to provide broadcasting in each of the five zones with two transmitters only. However, in order to cover the necessity of transmitting simultaneously to all parts of the Empire on certain occasions, omni-directional aerials will be erected in addition to the directional ones. It is obviously beyond the scope of this paper to go into further particulars regarding the aerial arrangements, but the general principle is being maintained of making the whole system as flexible as possible.

Ultra Short Wave Transmissions.

One further development should be mentioned as being of outstanding importance. The B.B.C., working in conjunction with the Marconi Company, is carrying out experiments in order to investigate the possibility of using wavelengths of the order of 7 metres for broadcast distribution in large towns. A transmitter is now in course of construction, which will be erected on the roof of Broadcasting House, which stands in a high part of London, and is itself high in relation to most of the other buildings in the neighbourhood. A great deal of information is available concerning the behaviour of these waves, but some of it is conflicting and it would seem necessary, therefore, to carry out exhaustive experiments before determining the possibilities of this type of transmission. It is known that difficulty exists not only in connexion with shadows cast by buildings, but also in connexion with parasitic noises, such as those set up by motor cars. Where evidence conflicts, however, is in connexion with the severity of both these difficulties, and particularly in connexion with shadow effect. The whole value of a service of this kind from the broadcasting point of view depends also on the question as to whether such a transmission is reflected or not under any condition of service. In other words, great use could be made of these waves if the same wavelength could be used over and over again at distances of, say, 50 or 100 miles apart. Actual transmission has not yet begun, and it would be very rash to attempt to forecast results in advance.

Recording of Programmes.

The last few years have seen a very great development in the art of sound recording. Methods for recording sounds on film and on wax are prominently before the public, and for cheapness, reliability and good quality of reproduction, present-day gramophone records attain a high standard. The gramophone has been adopted in Germany for use in broadcasting, particularly at rehearsals, but in this country a less well-known system—i.e., recording on steel tape—has been developed. The amplifiers and correction circuits for the apparatus for this purpose (which is known as the "Blattnerphone") have received considerable development at the hands of the B.B.C., and as now used by us the quality of reproduction is comparable with that of the best gramophone records. In the present machine a tape speed of 1.2 m. per second is used and a playing time of 17 minutes is given. This is only limited, of course, by the length of tape at present contained on the reels. Experience regarding the effects of time is necessarily limited, but there is as yet no evidence that the record is not permanent or that it is deteriorated by repeated playing. The tape can be cut and joined again just as is done in film reproduction, if a composite programme is required. This system suits the B.B.C.'s requirements extremely well, as one of the most important uses to which sound recording can be put in broadcasting is in the rehearsal of programmes, particularly of talks and radio drama. It is found to be a great asset to be able to let a speaker or an actor hear for himself what his voice sounds like to others, and although the Blattnerphone is used for taking a certain number of records which are kept for subsequent re-broadcast and as archives, its major use is for rehearsals, for which the very quick play back is invaluable. The time needed between the end of recording and the beginning of reproduction is approximately half the time taken in making a record.

TWENTY YEARS "ON."

THE course of my duty as a Contract Officer often takes me to a riverside district. No stretch of imagination could make this district a pleasant one, although there are, here and there within its borders, small areas of such gentility as seem to apologise for the remainder. But on the whole the term "depressing" could justly be applied to this district.

Narrow, squalid courts wander off from its High Street to the river, and often the blunt nose of a barge may be seen prying into the end of a court. The riverside wharves are places of much activity, and it was on a journey to one of them that I first noticed a very small shop.

It would be difficult to describe this shop in ordinary trade terms. Certainly the word "Fruiterer" can be detected in faded letters, and a certain amount of fruit is displayed; but so also is a bell which announces the sale of wood, coal and coke.

Whenever I have passed this shop, I have never seen a customer, and a few shillings would cover the value of the whole stock in trade.

The thought came to me one day that it would be a good idea to canvass this tiny business. I could picture to myself the look of dazed astonishment on the face of the elderly owner, who often smoked at the door.

Entering the shop, I announced to the old chap, "Post Office. I've called to see if you would like a telephone."

The dazed look, however, did not appear. He merely raised a soiled thumb and jerked it over his right shoulder. This, I thought, was intended to imply that the responsible person was in the gloom at the rear.

"May I see him," I asked. Another jerk of the thumb, so I went in the direction indicated, but had only advanced a few steps when I pulled up with a start, for on the wall, I saw—yes, there was no doubt about it—a telephone.

"Had it twenty year." I passed out.

F. W. C.

THE SERVICE ASPECT OF AUTOMATIC WORKING.*

By H. A. LONGLEY (*Assistant Superintendent of Traffic, London*).

THE efforts of every enterprising telephone organisation are continually directed towards reducing the cost of the service and increasing its efficiency, and it is to this end that the British Administration is at the present time replacing the manual system by the automatic system. The criterion of telephone service efficiency is the subscriber's opinion of the service. The highest standard of service efficiency attainable should be rendered, provided that the cost is commensurate with the value of the service to the subscriber.

The most important feature of automatic working, from the subscriber's point of view, is that he is required to obtain numbers himself by dialling. The work involved in establishing connexion has been reduced to a minimum and delegated to the subscriber. It is very necessary, therefore, that the operations required of the subscriber shall be as simple and as few as possible, and that in case of difficulty every assistance shall be given.

In any discussion of telephone service efficiency there are two main factors to be considered. They are

- (1) The standard of service rendered to the subscribers generally, over all or particular channels, and
- (2) The reliability of the service from the point of view of individual subscribers.

A discussion of manual service efficiency would be concerned mainly with questions of operating methods, loads and fault procedure. The fault procedure in manual exchanges is directed almost entirely to keeping at a minimum the time taken in clearing faults on subscribers' line equipment. Faults on common equipment at manual exchanges hardly affect the service at all, since they are usually detected almost immediately by the operating staff and the apparatus concerned is put out of use. With automatic working, however, faults on common equipment have a serious effect on the service of subscribers in general, and, moreover, the apparatus associated with each subscriber's line is much more complicated than in the manual case. Engineering maintenance and fault procedure are, therefore, prime factors to be considered in connexion with automatic service efficiency.

The maintenance of automatic plant is a technical matter, a detailed consideration of which does not come within the scope of this paper. The vital fact, however, from the service point of view, is that until detected every fault which occurs on the plant causes failure of calls to a greater or less extent according to the nature of the fault, and the position in the switching network of the item of plant affected. The standard of the service, as indicated by the percentage of satisfactory connexions, is dependent largely on the frequency with which the apparatus is tested and inspected; if the period between tests were short enough, it is conceivable that there would be no subscribers' complaints at all arising out of plant defects. For each item of apparatus this period should be decided by the liability of the item concerned to faults in relation to the amount of traffic carried, with the proviso that the number of subscribers' complaints should not be allowed to exceed certain limits. The fault procedure under automatic conditions should, therefore, be directed towards detection and speedy clearance of faults which occur between the routine tests, and which come to light as the result of subscribers' complaints.

The common apparatus in a Director automatic exchange falls in two main categories according to its function,

- (1) Apparatus over which the conversation is conducted: this includes code selectors, and numerical and final selectors.
- (2) Apparatus which is in use only during the setting-up of a connexion this includes "A" digit selectors, directors, coders, &c.

Automatic equipment is, of course, accommodated on racks, a separate rack usually being used for each rank and level of switch. On any given rack the main items to be considered in connexion with maintenance are the electrical and mechanical operation of the switches, and the wiring from the multiple banks via the grading to the next rank of switches. In the case of equipment such as directors, coders and senders, the mechanical and electrical operations only are involved.

Routine testing is carried out by means of automatic routiners and portable manually-operated testers. Whether automatic routiners or manually-operated testers are used for a given item of plant depends on the comparative capital cost and labour charges of the two methods taking into account the frequency with which the items should be tested. An automatic routiner connects to each switch in turn, testing all its functions automatically, and applying slightly more onerous conditions than those experienced with ordinary working. In this way faults are anticipated as well as merely detected. A routiner stops only when all switches have been tested, or a faulty switch has been found, the nature of the fault being indicated by means of a lamp display. It may be "camped" on a particular switch and will test it continuously; this facility is useful where an intermittent fault is suspected. Automatic routiners normally require no attendance, and apparatus can, therefore, be under practically constant test at a minimum cost. All keysender, voice-frequency and C.C.I. equipment is tested by

automatic routiners: this is necessitated by the complexity of this equipment. The only items of plant involved in an automatic to automatic call which are at the present time tested by automatic routiner are the directors and the 1st code selectors. All other equipment is tested by means of portable manually-operated testers. The frequency of test is as follows:

Directors	Daily.
1st code selectors	Weekly.
A digit selectors	Weekly.
Other code selectors	Six weekly.
Numerical selectors	Six weekly.
Final selectors	Monthly.

Subscribers' rotary line switches (now known as "uniselectors") are tested weekly.

In addition to ordinary routine testing, periodic inspection and overhaul of the equipment is carried out; by this means the apparatus is maintained in good condition, and potential faults are anticipated. The bank contacts are cleaned at the same time as the selector mechanism is overhauled. Normally no test is made of the continuity of bank wiring and grading, except in the case of outlets from subscribers' line switches, the reason given being that the fault liability is so low that a test is not justified. An automatic routiner is provided for testing the continuity of all outgoing junctions.

The existence of certain abnormal conditions is indicated to the exchange maintenance staff by means of delayed alarms. The conditions concerned include "loops" on subscribers' lines and incoming junctions, the "called subscriber held" condition, and the failure of a selector to release. The first two conditions are, of course, analogous to "L.G." and "calling supervisory clear" in the manual system, and are treated in a corresponding manner. The "called subscriber held" alarm is given at both the 1st code selector in the originating exchange and the final selector in the distant exchange. The "howler" is applied by the patrolling officer at the 1st code selector in the case of L.G.'s on subscribers' lines.

Automatic routiners have now been designed to test all the types of selector at present tested manually, and also the outlets from the banks, and these are to be provided in the near future. By far the greater proportion of the apparatus in an automatic exchange consists of group selectors and final selectors, so there is little doubt that the provision of these routiners will result in a very considerable improvement in the automatic service, particularly if the period between tests is reduced in consequence.

The foregoing indicates briefly the present arrangements for maintaining common equipment. Improvements which are being effected in switch mechanism and relay design will reduce the fault liability of the equipment, and improvements in circuit design are being made which will minimise the extent to which faults affect the service efficiency. It is possible, therefore, that in future exchanges the effect of faults in common equipment may be small. At existing exchanges, however, the chance of calls failing due to common equipment faults is still a very real one, and routine testing and fault procedure are of vital importance.

Automatic working introduces several factors which affect the reliability of individual subscribers' service. The addition of a dial and a line switch increases considerably the fault liability of the line equipment, and, further, a higher standard of insulation resistance has to be maintained. The proposed introduction of line-finder working will be an improvement from this point of view. The manipulation of the dial demands of the subscriber a certain amount of skill and care which is not required of him under manual conditions. The imposition of dialling on the subscriber is offset to a certain extent by the instantaneous answer (connexion of dialling tone) and clear, and the improved speed of connexion on calls to automatic exchanges. The significance of the tones and the procedure when abnormal conditions are encountered is additional information of which the automatic subscriber must be aware. A given subscriber's service is affected by a faulty switch in proportion to the rank of the switch concerned, its position in the grading, and the amount of traffic at the time a call is made. To take an obvious example, if the subscriber's line switch is faulty, his entire service may be affected, but a faulty 1st code or final selector will affect his outgoing or incoming service intermittently, according to the choice of the switch, and the number of simultaneous calls at any given time.

The abnormal conditions which a subscriber may encounter are generally indicated by the absence of tone or the connexion of an incorrect tone. When reporting such conditions the information which a subscriber can give is inevitably of a very limited character, being generally confined to the nature of the condition obtained, the circumstances, and the frequency with which it occurs. To illustrate this point it is proposed to consider in some detail the case of failure to hear the dialling tone after lifting the receiver. Callers are instructed to listen for the dialling tone before dialling. If the tone is not heard immediately the receiver is lifted, in certain circumstances, provided the caller waits or depresses the receiver rest for a few seconds, the dialling tone may be heard. The "no dialling tone" condition may therefore be described as permanent, temporary, or intermittent. A few of the principal causes of this condition are as follows:

- (1) Permanent N.D.T. (no dialling tone):
 - (a) Fault on subscriber's telephone or in street cables.
 - (b) Fault affecting subscriber's line switch and associated equipment.
 - (c) Line O.C.B. (originating calls blocked) or T.O.S. (temporarily out of service).

* A paper read at the London Traffic Officers' Informal Meeting on Feb. 3, 1932.

- (2) Temporary N.D.T. :
 - (a) Subscriber's line switch cannot find a free 1st code selector.
 - (b) A digit finder cannot find a free A digit selector.
 - (c) Previous incoming call not cleared by distant caller.
- (3) Intermittent N.D.T. :
 - (a) Subscriber's line switch picks up a faulty 1st code selector.
 - (b) A digit finder picks up a faulty A digit selector.

In brief, anything which prevents a caller from reaching an A digit selector gives rise to the N.D.T. condition. Four of these causes relate to plant faults; two relate to service matters, and two to inadequacy of automatic plant. If the condition is permanent, to report it, the subscriber must, of course, use another telephone. In any case, although the cause of the condition may vary greatly and involve a variety of service or engineering considerations, the subscriber can only report whether it is permanent, intermittent or temporary in nature, and how often and when it occurs. This applies to practically every faulty condition which a subscriber may have occasion to report.

By far the greater proportion of subscribers' complaints relate to the receipt of "no tone," "wrong numbers" and "false number unobtainable tone." Other complaints which are often made relate to "permanent dialling tone," "false no reply advice (R.T.O.K.)" and "continual or false number engaged advice." The aim of the officer receiving a complaint should be to detect the cause of the difficulty with a view to expeditious clearance of any fault, and giving a reasonable explanation to the subscriber. In endeavouring to ascertain the cause of difficulty the officer can be guided only by the subscriber's statement and the result of a test of the line, since in practically every case the faulty condition must be released in order to report it. The object should be to minimise the inconvenience to the subscriber while insisting that whenever possible he shall obtain numbers by his own efforts.

No Tone, N.U.* Tone and W.N.† are kindred conditions, the causes of which may be classified as follows:—

- (1) Carelessness or irregularities in dialling,
- (2) Faults on the calling subscriber's dial, line, line switch, &c.,
- (3) Incomplete or incorrect sending by the director,
- (4) Faults in the switching network,
- (5) Faults on the called party's line.

The officer receiving a complaint must first be in a position to judge how far the subscriber himself is responsible for the difficulty. With regard to the "no tone" condition, if the usual "click" is heard after the 7th digit has been dialled, the fault is as a general rule in the common equipment or the called party's line. If the click is not heard, the forced release feature usually operates provided the caller waits long enough, and N.U. Tone then results. The speed of connexion of ringing tone on calls to manual exchanges via C.C.I. positions is slower than on calls to automatic exchanges, and may vary within wide limits; subscribers who are either impatient or unaware of this fact are therefore often led to complain unnecessarily. The N.U. Tone is normally heard after the 3rd or 7th digit has been dialled, indicating that the caller has dialled a spare exchange code, or a number which is spare, out of order, or temporarily out of service. The tone may, however, be heard at any stage in a call as a result of apparatus defects or delay in dialling. The subscriber's dialling operations may be observed by means of a trunk-offering or test distributor, the subscriber being asked to dial again for this purpose. In order to ascertain if the difficulty is caused by line or dial faults, the officer should be able to test the line equipment, if necessary obtaining the co-operation of the subscriber in a test of the dial. This can be done by means of a test distributor. Should the "no tone" condition be obtained while observing the subscriber's dialling operations, it is obviously desirable to hold the faulty condition, while releasing the subscriber's line in order that the connexion may be set up separately. The subscriber may then be asked to replace his receiver, being advised that he will be called when the required number can be obtained. By throwing a key associated with the test distributor the call may be held, while the release of the subscriber's line is effected manually at the 1st code selector. The faulty connexion may then be traced and the fault which gave rise to the complaint cleared.

Of the other more frequent complaints which have been mentioned, "permanent dialling tone" (i.e., dialling tone after dialling) may be due to a fault on the subscriber's dial or line, or to a faulty 1st code or A digit selector. From the point of view of the subscriber this condition also may therefore be intermittent or continuous. False "number engaged" advice may under automatic conditions be due to plant deficiency if experienced during busy periods, or to the condition usually known as "permanent busy back." In the former instance the busy tone may be heard by the subscriber after the 1st, 3rd, or 7th digit has been dialled, according to the location of the congestion. The level from which the busy tone is being given can be located by passing and tracing test calls. P.B.B.‡ may be due to faulty apparatus in addition to the more obvious causes such as delay in clearing previous outgoing or incoming calls. Congestion on numerical selector levels will give rise to requests to "tap" lines affected by the congestion, and if the usual operating procedure is followed, the lines concerned will usually be reported as P.B.B. With regard to false no reply advice, a faulty final selector, disconnection in the bank multiple, or a line or bell fault may prevent the subscriber's bell ringing though ringing tone is being given back to the caller.

* Number unobtainable. † Wrong number. ‡ Permanent busy back.

The information obtained from subscribers' complaints, if suitably analysed according to line switch groups, director levels, code selector levels and so on, in the form of a running record is very useful in the detection of faults at an early stage. The value of test calls in connexion with the maintenance of automatic plant is, generally speaking, confined to the treatment of particular subscribers' complaints in the manner previously described. The chance of picking up a particular faulty condition twice is, however, not great, and in any case the A digit selector, director, and such like equipment, cannot be held. A special overhaul of a subscriber's equipment should always include a test call via each line switch outlet, and via each final selector on the unit. For this purpose Service Inspectors working in co-operation with a maintenance officer have proved extremely useful. Analysis of the faults cleared as a result of holding faulty connexions is a valuable indication of any weaknesses in the plant and in the maintenance methods. The practice of passing test calls purely with the object of detecting plant defects is, however, unsound, and if many faults are detected by this means the standard of maintenance is open to grave suspicion.

In order that complaints may be dealt with satisfactorily on the lines described above, the following facilities are required:

- (1) For observing subscribers' dialling operations,
- (2) For testing subscribers' dial, line and associated equipment,
- (3) For holding faulty connexions,
- (4) For connecting a subscriber to the required number if the test call fails or if he refuses to redial.

All four of these facilities are available on automatic exchange test desks, but only the first and last are provided on auto-manual positions. For this reason, and also on the assumption that an engineer is more competent than a telephonist to deal with complaints arising out of faults on automatic plant, arrangements now exist whereby subscribers may obtain access to a test desk officer by dialling the code "ENG," this service being known as the "Engineering Repair Service." Subscribers are expected to dial a number twice before reporting difficulty, the principle being that failure may be caused by irregular dialling, an intermittent fault, or by a faulty switch which may not be picked up on the second attempt. Subscribers are requested to dial "O" in case of difficulty, and "ENG" to report faults. With automatic working subscribers' difficulties are so closely linked with plant faults that the division between matters proper to the "O" and "ENG" services is a very thin one. The following schedule illustrates this point, but the arrangements indicated are at the present time subject to modification.

TREATMENT OF SUBSCRIBERS' COMPLAINTS AT AUTOMATIC EXCHANGES.

Nature of Complaint or Difficulty.	Sub. should dial ENG.	Sub. should dial O.	Sub. cond. to ENG by O.	Sub. asked to dial again.	Remarks.
N.R.T. 1st attempt ...				×	
N.R.T. repeated attempts	×		×		
N.R., R.T.O.K. ...				×	
N.R. disputed, R.T.O.K.		×			
N.R. incoming ...	×		×		
W.N., 1st attempt ...		×		×	Credit allowed by O.
W.N. repeated attempts	×		×		Credit allowed by ENG.
N.U.T. verification ...		×			
False N.U.T. ...		×	×		
Busy tone ...				×	
N.E. disputed ...		×			Reported to ENG by O if P.B.B.
Line O.C.B. or T.O.S. ...	×	×			
N.D.T. ...	×		×		
P.D.T. ...	×		×		
Called in error ...		×			
False rings ...	×		×		
Misc. faults ...	×		×		
Misc. enquiries ...		×			Sub. cond. to O by ENG.

Accurate adjustment of the amount of plant to the traffic carried is an essential of telephone service efficiency. If the plant is in excess subscribers pay more for the service than they need; if in defect the service is degraded during busy periods. Reduction of the amount of plant to the traffic requirements is by no means so necessary with automatic working as with manual working, since operating costs are not involved. An exception to

this is the case of lines to auto-manual boards. The cost of carrying out alterations is, moreover, greater than with manual working, and a reduction is not justified until the saving in maintenance charges is greater than the cost of making the alteration. The possibility or otherwise of using surplus plant elsewhere in the system has also to be considered. Inadequacy of plant will result either in delay in the connexion of dialling tone, or failure of calls and the connexion of busy tone. The basis of provision of plant is a grade of service of 1 lost call in 500 at each switching point. The number of switching points at which busy tone is given may be anything between 4 and 9, the average being probably about 5. The average grade of service, therefore, assuming that all switching points are fully loaded is approximately 1 in 100. The grade of service at any switching point is allowed to fall to 1 in 200 before any adjustment is made; the number of circuits is then increased to give a grade of service of 1 in 1,000.

The traffic records taken at automatic exchanges, are, briefly, as follows:

- (1) The number of ineffective calls at each grading during the busy hour is obtained twice weekly from the overflow meters.
- (2) A record of the B.H. traffic on outgoing junctions, 1st code selectors, and local numerical selectors, is taken quarterly by 3-minute lamp-counts on 3 representative days. The traffic at every rank and level of switch is obtained annually by a similar method.
- (3) The total weekly originating traffic is obtained from the director call-count meters. The total exchange originating B.H. traffic is obtained monthly from the same source.
- (4) A record of traffic on indirect routes is taken by means of a special set of meters which can be attached to any desired level of directors when required.

Supplementary traffic records are sometimes taken in exceptional cases where excessive congestion is indicated by the overflow meters, or where the local Traffic Officer has reason to suspect that the plant is inadequate.

The Traffic Recorder, which has been promised for so long, is now available, and will replace manual methods of taking the traffic records under heading (2). The Recorder will take the traffic records automatically by $\frac{1}{2}$ -minute counts, meters being used for recording purposes.

All these records are initiated and taken by the Engineering Department, and the responsibility for the adjustment in the amount and arrangement of the plant, and the routing of traffic, also rests with that department.

The levelling of the loads on line switch groups has, up to the present time, been attained by suitable distribution of the subscribers among the groups. This involved a certain number of cross-connexions, and the allocation of line switches to the subscribers with the object of obtaining equal loads has been the responsibility of the Traffic Branch. It has now been decided that equality of loading shall be attained in future by suitable adjustment of the size of the groups, and all I.D.F. connexions—except in the case of Barred Trunk and large P.B.X. lines—are in future to be "straight." The responsibility for arranging the size of the groups to equalise the loads will rest with the Engineering Department. With regard to final selector units, the original procedure, where the number of final selectors for each type of unit was uniform and the incoming loads were equalised by suitable allocation of subscribers numbers, is no longer followed. The number of final selectors on each unit is now varied according to the amount of traffic incoming to the unit.

A feature of the automatic system is its inflexibility from the service point of view as compared with the manual system. Facilities which are readily and cheaply provided at manual exchanges by suitable multiple marking, multiple pegging, and lamp opals, have to be met at automatic exchanges by the provision of special equipment for each type of facility. The special blocks of numbers for P.B.X. groups and the special line switch groups and routing for barred trunk and combobox lines are cases in point. Separate groups of circuits to the manual board are provided to cater for changed number interception, service interception, and special interception for short daily periods; in all these cases the subscriber's circuit has to be specially wired for the purpose, and interception at short notice cannot be given. Class A and B night service is afforded by wiring the exchange lines concerned to keys which are fitted for the purpose at the manual board. Facilities for taking filter records are at present non-existent, except in special cases, but a busy subscriber's recorder which would enable both preliminary and filter records to be taken, has been under consideration for some time. The local observation position is particularly valuable under automatic conditions, both in connexion with the investigation of complaints, and in revealing irregularities and difficulties which would otherwise probably never come under notice. Automatic exchanges without local observation facilities are severely handicapped in this respect.

Automatic working introduces several limitations and complications, which do not apply under manual conditions, in connexion with P.B.X. and extension working at subscribers' premises. For instance, with parallel extensions the dialling from one of the instruments may be upset when the receiver of another instrument is lifted. This is an inevitable consequence of automatic working, but in the examples that follow a remedy would at least appear to be within the bounds of possibility. With Plan 7 extension working, for instance, while the extension is dialling the bell rings at the main instrument. Also, if a call is made from the main instrument when the exchange line is switched through to the extension, W.N.'s and false N.U. Tone may result. With cordless board working, since the exchange line indicator drops

when an extension is dialling out, the night service key must be thrown to cut off the buzzer. If this key is not restored at the end of the call, the buzzer will not operate when an incoming call is received. If more than two extensions on a cordless board are left switched through to an exchange line at one time, the ringing is likely to be tripped prematurely on incoming calls, and on outgoing calls the dialling may be distorted, giving rise to W.N.'s and false N.U. Tone. When an extension on a 25-line P.B.X. is dialling out, the corresponding indicator is partially operated and may be mistaken by the operator for a flashing signal. All these difficulties arise out of the fact that the circuits concerned were not originally designed for automatic working, but are modified manual circuits; none of the difficulties mentioned would, however, appear to be insuperable. Such conditions are eminently unsatisfactory from the service point of view and often give rise to complaints which, both in ascertaining the cause and satisfying the subscriber, present great difficulty. It is understood that switchboards which overcome some of these difficulties are under consideration for gradual introduction.

An attempt has been made in the foregoing remarks to state in as unbiassed a manner as possible the factors upon which the efficiency of automatic telephone service depends, and the principal features of the London system have been outlined. A discussion of this subject would be incomplete without some reference to the questions of responsibility and control. It should be understood, however, that most of the following remarks are purely personal views.

The ideal organisation is undoubtedly one where the control is in the hands of the person or persons held responsible for the service. With the manual system this is the case, the Traffic Branch being in every sense answerable for the service. With the automatic system, however, this is not so: the Traffic Branch is still held responsible to the public for the service rendered, but the control of every factor upon which the efficiency of the service depends rests with the Engineering Department.

Within the existing organisation, however, in connexion with such matters as the provision and distribution of plant, the routing of traffic, and the treatment of complaints and disputed account cases, the present arrangements would appear to call for review.

In the opening phases of the conversion of the telephone system from manual to automatic working, involving primarily questions of equipment, the Engineering Department were necessarily concerned with problems relating to the system as a whole, and were not restricted to the primary engineering functions of installing and maintaining plant. The new system has now been fairly launched, and there would appear to be no justification for the continuance of a situation in which the organisation responsible to the subscriber for the service is denied effective intervention in the very matters controlling service efficiency.

RECOLLECTIONS OF AN OLD TELEGRAPHIST.

In 1866 and 1867 the Government of this country was much troubled, owing to the growing activity of Fenianism in Ireland. One Sunday morning, in the early part of the latter year, a man named Jewel was in charge at Southampton, and Smith was the name of the telegraphist at Newport, Isle of Wight. Smith called up Jewel and asked him whether there were any new movements in Ireland, when Jewel told him that there had been much fighting and loss of life, that the streets were running with blood, and the Channel Fleet had been ordered to proceed to Dublin. Jewel naturally thought that the information was for Smith alone, but it was the Vicar of Newport who sought it and conveyed it to his congregation in the course of his sermon, and it was reported that tears were in some of the women's eyes when they left the church. When Smith went to the office at 5 p.m. (hours of Sunday duty were 9 to 10 a.m. and 5 to 6 p.m.) the Vicar was waiting on the doorstep for further information, which Smith tried to gather, but there was another man on duty at Southampton, and Smith had to tell the Vicar that the information given in the morning was false. Smith told me himself that the Vicar cut up rough, and threatened him with a good thrashing. His retort to this was "I thought you returned good for evil."

I don't know how the Vicar appeased his congregation at the evening service. The matter soon got to Headquarters, and Henry Weaver, the Secretary of the E. & J.T. Co., ordered the morse slip both from Southampton and Newport to be sent to him. When this was translated the conversation was not confined to Fenianism! The sport of kings was another subject and Smith particularly wished to know Jewel's opinion about some of the horses that were running in the Derby and whether Lady Elizabeth, the favourite, or Hermit would pull it off.

The owner of the latter horse was Mr. Henry Chaplin. His fiancée was a member of the Anglesea family, and the date of their marriage was announced. On the morning preceding the fixture, Mr. Chaplin drove his fiancée in his brougham to some emporium in the West End to make some purchases. He awaited her return for some time, then made enquiries when it was discovered that she had left the premises through a different door from the one she entered, where the Marquis of Hastings awaited her with a special marriage licence, which they put to immediate use by getting married. Mr. Chaplin soon got a bit of his own back, as his horse, Hermit, beat Lady Elizabeth, she being a hot favourite, and her owner, it was said, was a loser to the extent of £70,000.

P. J. S.

TELEGRAPHIC MEMORABILIA.

THERE is at the moment, unfortunately, but quite understandably, a tendency to consider telegraphy, both short and long distance, as a dying industry, whereas the present slump in telegraph traffic, especially of the long distance type, is largely due to the world-wide depression. Excerpting haphazard from the financial columns of the most reputable scientific weeklies one has met for months past with painful monotony such items as: "Marconi Marines continue to fall in price since dividend reduced from 15 to 10%." Cables & Wireless latest traffic figures unsatisfactory. American Telephones fell in Wall Street to below 100. No recovery has occurred in Globe Telegraphs," &c.

To dwell too lingeringly on such quotations is not a healthy exercise. Rather should we look around for signs of technical progress tending to improvements in the apparatus of transmission and reception. Such exist and are still being perfected in our own country, while turning to France one cannot ignore the progress made by the Baudot-Verdan system of telegraphy as exploited by the French State Telegraphs on the Paris-Alger-Tunis-Oran wireless circuit. A wavelength of 4,000 metres is used, and no less than eleven millions of paid words was its output for the year 1931. These results, according to an article in the April number of *Le Relais*, were equally successful on the Paris-Rabat communication, which disposed of six millions of paid words during the same period. The ingenious details of the new method of utilising the Baudot system would occupy several columns of this journal, but it is claimed that both for long- or short-wave transmission parasitic and fading trouble are very largely overcome. It remains to be seen whether a translation of *Le Relais* article would be acceptable to a sufficient number of readers to justify its appearance in the very valuable space of the *T. and T. Journal*.

Centenaries and other Celebrations.—During the last twelvemonth there has been quite an interesting number of commemorations of celebrities in the electrical world. Last year the centenary of Faraday in the Albert Hall was supported by some thousands of enthusiastic men and women of all ages. On April 21 last, at the Institution of Electrical Engineers, Dr. W. E. Sumpner read a most interesting paper on "The Work of Oliver Heaviside," whose labours should for ever be remembered by all those interested in the science of telegraphy. As Dr. Sumpner pointed out, Oliver Heaviside was entirely self-trained; he had great mathematical powers. He might, indeed, without exaggeration, be called the Superman of Telegraphy. All his early work dealt with telegraphy; the induction balance, duplex circuits, quadruplex telegraphy, for example, say between 1872 and 1882. After the period covered by these dates he dealt with transmission problems as problems in directed radio-telegraphy, that is to say, "from the point of view of waves," stated Dr. Sumpner, who went so far as to declare that "Heaviside was the first radio-telegraphist." Here one must stop quoting this highly interesting history except to mention that fascinating criticism of Kelvin's K.R. law, which law, as is well recognised nowadays, entirely ignored the self-induction of the line in long distance submarine telegraphy.

Yet another electrical centenary has been noted, though not directly connected with telegraphy, for in March, 1832, in the district of Poplar, James Wimshurst was born, the maker and inventor of the electrical machine which bears his name. In his private workshop in Clapham, London, for at least 20 years, Wimshurst concentrated his energies on the improvement of electrical "influence" machines. It is true also to say of certain of Wimshurst's inventions that his machines are even to-day preferred, for certain purposes, to more modern apparatus.

Yet again, on the 5th of last month another celebration took place, when Lt.-Col. A. G. Lee, also from the lecture-desk of the I.E.E., gave an intensely interesting address on the place in

telegraphic history held by the Varleys, a separate account of which will be found in another column of this issue.

Personal.—On April 21 the Faraday Medal was presented to Sir Oliver Lodge, F.R.S. This medal was instituted in 1921 to commemorate the 50th anniversary of the Society of Telegraph Engineers, which society, as Capt. J. M. Donaldson mentioned when making the presentation to Sir Oliver, was the first designation of the Institution of Electrical Engineers.

Capt. P. P. Eckersley is on his way to investigate broadcasting in Australia, if he has not actually landed there by the time these lines are in print.

Monsieur D. Arsonval has been elected honorary president of the Société Française des Electriciens. He is best known in this country probably through the special galvanometer which he designed, although he has wide interests in the electrical industry in general in France.

On the 3rd ult., at the Institution of Civil Engineers, Marchese Marconi was presented with the 1932 Kelvin medal, Lord Rutherford making the actual presentation.

The gifts in appreciation of Mr. H. R. Kempe's "life-long service for others were received from friends throughout the world," says the *Electrical Review*, and on May 8 the choir stalls in Christ Church, Brockham, purchased as a result of these gifts in commemoration of the golden wedding of Mr. and Mrs. Kempe, were dedicated by the Bishop of Kingston. The reference is, of course, to that of Mr. Harry Robert Kempe, M.I.C.E., &c., &c., who retired from the E.-in-C.'s Department of the G.P.O. in 1912.

C.T.O. Obituaries.—The death of Miss Edith Dolby, on May 6, is announced with deep regret. Deceased, who was in her 83rd year, was of a charmingly sweet disposition, and her demise is yet another broken link with the mid-nineteenth century, as she entered the Electric & International Telegraph Co. in 1867, T.S. in 1870, was made C.-in-C. 1874 and Asst. Supervisor in 1877, but was compelled to retire, due to failing health, in 1900. The funeral took place at Golders Green.

Also, at Romford, on Friday, May 13, Mr. E. F. Fox, who entered T.S. in 1870, retired due to ill-health in 1910 and passed over at his residence, as above.

Countries.—AUSTRALIA.—The Melbourne *Argus* says that the State Electricity Commission has issued a series of regulations with which all new radio receivers operated from domestic electricity mains must comply. All parts which are energised above 100 volts must be adequately "covered" to prevent them being touched accidentally. BELGIUM.—The recently appointed Broadcasting Commission met about a month ago and is to inquire into the position of private transmitting stations. CANADA.—The Special Committee of the House of Commons which has been investigating the broadcasting service concluded the hearing of evidence on April 22. An "All Red" Empire-wide service, operated by an Imperial Radio Commission, has been suggested as likely to meet with the approval of all delegates to the forthcoming Imperial Economic Conference at Ottawa, and to be of sufficient importance to be discussed at the Conference. *Radio Sales.*—The number of wireless receivers sold last year was 266,122, or over 40,000 more than in 1930.

CHINA.—Reuter's Nanking agency reports, on the authority of the Minister of Communications, that preparations for the erection of a powerful Chinese radio station capable of communicating with any station in the world are being made by the Government.

FRANCE.—Reuter's Paris Agency informs us that a police wireless station has been installed at Le Havre, in the new

headquarters of the Police Brigade specially attached to the Port. The receiving station is already in action, and the transmitting station will be ready shortly. In this way the police will be able to keep in constant touch with shipping. From the Trade Service of the same agency at Rennes we learn that the actual land has been bought at Thourie (I. et V.) for the building of a broadcasting station for Western France. The Minister of Public Works has given the scheme a favourable reception, but has not, at the moment of writing, passed the plans. *The Legality of French Broadcasting.*—It was surprising to read in a report of the speech of the Minister of the Postal and Telegraph Services, when opening the new plant of the *Poste Parisien* at Molières, 30 km. from Paris, that according to the Minister, "the development of broadcasting had been materially slackened in France owing to the lack of *legal status*. A Bill for fixing the rights and obligations of broadcasting enterprises was suggested for the next Parliament. The new plant mentioned above has included provision for eventual television.

GERMANY.—Nearly 200,000 new radio licences were taken out during the first three months of the current year, says Reuter's Berlin agency, bringing the total of subscribers up to 4,168,440. Of this total 356,837 were unemployed, blind or disabled ex-service men, all of whom are exempt from payment of the annual licence fee of 24 marks.

GREAT BRITAIN.—*Radio Exchanges.*—The writer has before him a list of between 30 and 40 towns, where individuals or organisations are applying or have recently applied for permission from the local authorities to establish broadcasting relay services. More than half of such applications are at present either under consideration or have actually been refused. There are more than 100 of these relay stations in Great Britain, and it is a pity that several of these should have departed from the terms of their licences and have included in their transmission programmes of their own originating. The official warning given to the delinquents should be sufficient; meanwhile, such infringement of clearly stated agreed terms may have influenced local opinion as to the wisdom of granting the facilities. *Waterpipes and "Earths."*—It appears that the Metropolitan Water Board (London) has been making enquiries as to the advisability of permitting the use of public water-pipes for earthing purposes, not only for wireless apparatus but for all electrical installations. *Radio Licences.*—The number of broadcast radio receiving licences in Great Britain totalled 4,624,153, an increase of 976,663 compared with the previous year. *Radio Beacons and Receivers.*—About two years ago a wireless beacon transmitter was erected by the Board of Trade and the Air Ministry at Orfordness. It has been found by observations made by ships at sea that the effective range is only in the neighbourhood of 100 miles. "At greater distances," says the *Electrical Review*, "the observed bearings are accurate in the daytime but at night are subject to variable errors." Investigations are therefore being made by the Laboratory for the Radio Research Board, with the result that certain basic features of the design of a station which should give a reliable bearing range of 300 to 500 miles have been settled. The experiments are still proceeding. *Television.*—During the first week of last month, in a small room on the roof of one of London's largest stores, Mr. J. L. Baird demonstrated certain further progress which had been made with his system. A wavelength of 6.1 metres was used, taking advantage of the recent granting to the Baird Company of a short-wave transmitting licence. About a score of persons were present and were able to see collectively the artists, including a dancer and cartoonist. *Marine Wireless Conference.*—Fourteen countries connected with marine wireless communication in over 20 countries, all jointly responsible for the service of most of the wireless ship stations of the world, recently met in London to consider problems arising out of the International Radiotelegraph Conference to be held in Madrid in the coming autumn, and will consider proposals respecting the existing Convention and Regulations, signed at Washington in 1927.

INDIA.—According to the *Electrical Review*, the merger between the Indian Radio Telegraph Co. and Imperial & International Communications, Ltd., came into operation on April 1, and a purely Indian Company has taken over the working of the cable service, owned and conducted by the British company. The new concern is to be known as the Indian Radio & Cable Communications, Ltd., with a board of directors in Bombay consisting of representatives of each company and the Government. "The merger," says my informant, "will result in considerable benefit to the public by a reduction in rates charged for foreign messages." Tenure of service has been guaranteed to the covenanted staff of the Eastern Telegraph Co., both in Bombay and Madras. IRISH FREE STATE.—The Minister of Posts and Telegraphs, in his estimate to Dail Eireann for £60,310 in respect of broadcasting, stated that last year's accounts were expected to show a surplus, but in the coming year a deficit was expected, though the increase in the total number of licences was 2,700. ITALY.—The broadcast radio receiver licence fee has been increased from 75 to 80 lire per annum, or 84 lire if paid half-yearly. The increased revenue is to be used for subsidising theatrical performances. *New Telephone and Telegraph Cable.*—The Italian electrical papers report that the Pirelli Co., of Milan, are manufacturing a land and submarine telephone and telegraph cable to be laid between Rome and Sardinia. The cable will measure about 156 miles in length, and in parts will be grounded under the sea at approximately 4,900 ft.

NORTHERN IRELAND.—The Belfast Corporation Electricity Committee, it is understood, has been moved to take the necessary steps to reduce the electrical disturbances of radio receiving apparatus in those dwellings where electric lighting is installed. It has been suggested that the difficulties can be minimised by the use of condensers of the electrolytic type in the sub-stations of the corporation. PORTUGAL.—The order for the first official broadcasting station in Portugal has been placed by the Portuguese Posts and Telegraphs with Standard Telephones & Cables, Ltd., London, who are also building the new Empire broadcaster for the British Broadcasting Corporation and the 100-kw. Kalundborg station for the Danish Government. The last-mentioned station will embody all latest improvements, including crystal control, and will work on a wave-length of between 400 and 500 metres.

SOUTH AFRICA.—*Teleprinter Progress in South Africa.*—For some unknown cause this writer's correspondence with our South African colony has suffered considerable delay these last few months. Nevertheless, the following outstanding news does not appear to have been hitherto published in the home Press. Judging from the following few figures taken during the Christmas pressure of 1931 the success of the teleprinter under the South African Post Office administration has proved a notable one. Between Durban and Port Elizabeth 115 messages one way, to the hour, was accomplished by the Durban operator, over a distance of 400 miles, as the crow flies. The Cape Town "Tele"—as the staff now abbreviate it—also behaved well when working to East London (550 miles) when a maximum output of 117 messages was typed and run through by a Cape Town young lady. Between Johannesburg and Port Elizabeth (also a 550 miler), the following result is recorded by the Johannesburg statistician: "Miss X of P. Elizabeth on Xmas Eve transmitted to JH. in one hour 78 actual messages with an average of 203 depressions of the perforated key per message." That is to say the operator tapped the perforator keys 15,810 times in that hour, or an average of 263.5 depressions per minute. On a five-letter basis this equals 52 w.p.m. The operator had also to time-in each message.

SPAIN.—According to the Madrid correspondent of Reuter's agency, Spain also is to have a national broadcasting organisation, and on the lines of the B.B.C. Tenders have been invited by the Government for the erection of wireless stations at Barcelona, Bilbao, Corunna and Valencia, in addition to a 120-kw. station outside Madrid. Free receiving sets are to be installed in 1,000 villages. The present tax will be increased when the new national organisation takes full control.

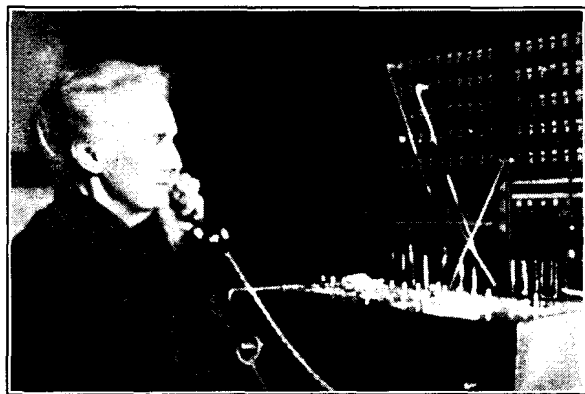
SWITZERLAND.—The League of Nations wireless receiving and transmitting stations recently opened near Geneva are now capable of providing the League of Nations with an ultra efficient means of world-wide communication in times of crisis. The equipment is international in character, and Great Britain's contribution is a Marconi short-wave transmitter with feeder and aerial systems and also terminal gear supplied by a British company. The transmitter, of which the *Electrical Review* recently gave an illustration, gives an output to the feeder system on telegraphy of 20 kw. on the shortest wavelength and correspondingly greater outputs on the longer wave-lengths. *New Regional Station for Italian-speaking Switzerland.*—The Swiss Telegraph Administration have already placed an order for a 15-kw. broadcast transmitter to be erected at Monte Ceneri, in Tessin.

Stop Press Notes.—(a) The I.E.E. at a general meeting, made the welcome decision to reduce members' subscriptions from the beginning of next year. (b) The 12th Annual Summer gathering of Old C.T.O. Colleagues (Ladies and Gentlemen) will be held on the 8th inst. Meeting place, Palm House, Kew Gardens.

Springtime.—Bluebells as yet but half awake,
Primroses pale and cool,
Anemones like stars that shake
In a green twilight pool.—H. NEWBOLT.

J. J. T.

RHOSLLANERCHRUGOG.



The above is a portrait of Mrs. Jenkins, the first Caretaker-Operator of Rhosllanerchrugog Exchange, which was taken on her 80th birthday.

Although her daughter has been Caretaker-Operator for some years, Mrs. Jenkins still takes her share of operating, particularly in the early morning, and she can deal quite satisfactorily with all classes of traffic.

The Rhosllanerchrugog Exchange was opened in November, 1906, with a magneto switchboard which was changed for the existing C.B.S. 2 board in 1926.

SOUTH WEST DISTRICT NOTES.

Presentation to Mr. J. E. Collins.—On Wednesday, May 11, a presentation was made to Mr. J. E. Collins upon the occasion of his transfer to the Headquarters Observation Section.

Mr. Collins, upon his promotion to the post of District Superintendent about two years ago, took charge of the then newly formed South-West District, and his sympathetic outlook and the help which he was always ready to give to the staff under his control, speedily assured him popularity and respect. His transfer was, therefore, the cause of general regret in the

District, and the presentation—which took the form of a set of woods for Bowls and a supply of cut table-glass—was a token of the high esteem in which he is held.

In acknowledging the gift, Mr. Collins emphasised his appreciation of the co-operation which had enabled him to build up an efficient district, and expressed his keen regret at having to leave the "happy family" which the staff constituted.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office system at April 30, 1932, was 2,059,751, representing a net increase of 5,502 on the total at the end of the previous month.

The growth for the month of April is summarised below:—

Telephone Stations —	London.	Provinces.
Total at April 30, 1932	771,787	1,287,964
Net increase	1,859	3,643
Residence Rate Stations—		
Total	246,909	320,972
Net increase	792	1,405
Call Office Stations (including Kiosks)		
Total	8,267	29,273
Net increase	30	129
Kiosks—		
Total	3,102	9,922
Net increase	42	164
Rural Railway Stations connected with Exchange System—		
Total	51	2,011
Net increase	--	4

The total number of inland trunk calls in February, 1932 (the latest statistics available), was 9,601,182, representing an increase of 658,705, or 7.4% on the total for the corresponding month of last year. International calls in February numbered 101,006, and show an increase of 8,877, or 9.6%, over February, 1931.

Further progress was made during the month of April with the development of the local exchange system. New exchanges opened included the following:—

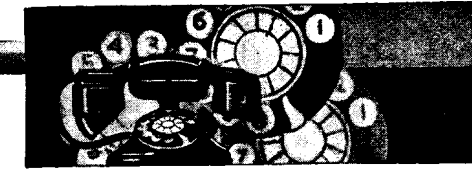
LONDON—Perivale (automatic).

PROVINCES—Automatic exchanges: Calthorpe, Great Barr, King's Norton, Smethwick, Solihull (Birmingham), Gibbet Hill (Coventry); and the following rural automatic exchanges: Bramfield, Suffolk (Halesworth), Chaddesley Corbett (Kidderminster), Church Stanton (Taunton), Culbokie (Dingwall), Dittisham (Dartmouth), Eskdale (Whitehaven), Glandyfi (Machynlleth), Hatherden (Andover), Isleham (Newmarket), Kempsey (Worcester), Lochans (Stranraer), Muir of Fowlis (Alford, Aberdeen), Pailton (Rugby), Saundby (Gainsborough), Tean (Chester), Wicken (Stony Stratford), Wolvey (Hinckley), Well (Northallerton):

and among the more important Provincial exchanges extended were:—

Birmingham (Central) automatic, Cheadle Hulme, Dumfries, Wednesbury.

During the month 73 new overhead trunk circuits were completed, and 84 additional circuits were provided by means of spare wires in underground cables.



Handwritten numbers and symbols: 1254, \$18, 6, \$1933, 128, \$, 5, \$, 9, 7, \$, 5.

A Type 51 Strowger Unattended Dial Unit Equipped for 50 Lines and Two Toll Trunks. Toll and Information are handled from the nearest Toll Operating Centre.

LET'S GET DOWN TO FIGURES!

THIS advertisement is addressed to telephone company executives who like to get down to "brass tacks"—who are interested in facts and figures and results, and whose decisions are based on such evidence.

Have stated that the newly developed Type 51 Strowger Dial units give small exchanges a proven means of operating profitably, and at the same time supply telephone users in small communities with the up-to-date, modern service obtainable. This statement admits that such equipment requires slightly increased capital investment, since it entirely replaces and carries out the functions of the local operator. An important point, however, is that the elimination of local operating staffs not only allows the slightly increased carrying charges to be easily met, but by furnishing a vastly improved, modern type of service, it provides a basis for an adequate rate structure.

The financial success of hundreds of small exchanges which have adopted Strowger operation furnishes undeniable proof of the above assertion. Besides this, such small dial exchanges also reap the distinctly important advantages of acceleration in new business, and enthusiastic public good-will—all direct results of the modern, twenty-four hour service which dial operation provides. Send for Bulletin 1551, which describes these small units in more detail.

STROWGER AUTOMATIC
DIAL SYSTEMS

*Exclusive Sales Agents
In United States and Possessions*
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY
1033 W. Van Buren St., Chicago, U. S. A.

Automatic Electric Company
Manufacturers of Strowger Automatic Dial Telephone and Signaling Systems
CHICAGO, U. S. A.

Exclusive Export Distributors
AUTOMATIC ELECTRIC SALES COMPANY, LIMITED
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AUTOMATIC ELECTRIC SALES COMPANY, S.A.
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THE
GEOPHONE
 SUBSCRIBER'S SET

The COMPLETE TELEPHONE



DOMINION and Colonial Administrations have quickly realised the advantages to be gained by standardising this modern instrument. Not only does it reach the highest standard of efficiency, but it represents the greatest advance made towards the simplification of subscribers' apparatus. Constructed from a minimum number of parts, it is low in cost and both easy and inexpensive to maintain. For reliability and lasting service in either a temperate or tropical climate it is unequalled.

THE GENERAL ELECTRIC CO. LTD. — TELEPHONE WORKS — COVENTRY.

Telephone: COVENTRY 4111.

LONDON OFFICE: MAGNET HOUSE, KINGSWAY, W.C.2.

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BRANCHES AND AGENCIES THROUGHOUT THE WORLD.

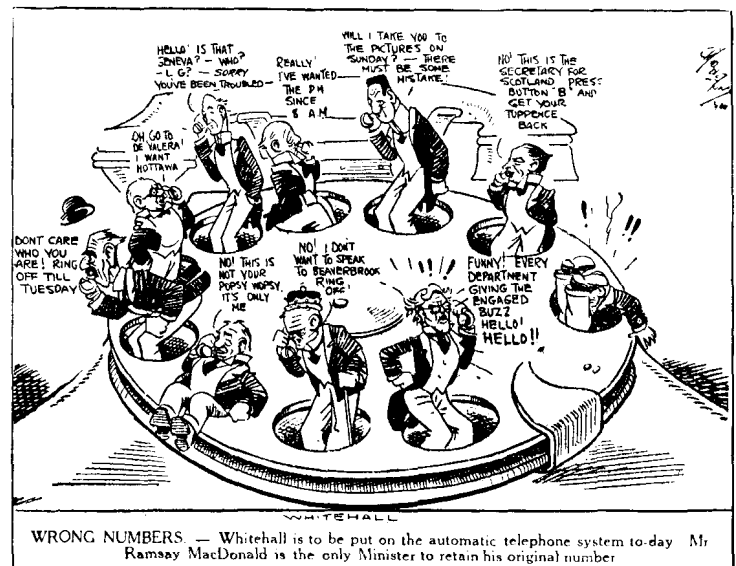
FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

New Zealand.—Wellington, June 7. Post and Telegraph Department. Magneto bells. Ref. No. A 11331. Also June 22. P. & T. Department. Insulators (A.X. 11335). *India.*—Simla. Indian Stores Department. Wall plugs and ceiling roses. (A.X. 11340). *Uruguay.* Montevideo. July 11. National Administration of the Port. Electrically operated goods lifts and cranes (A.X. 11338). *South Africa.*—Cape Town. June 22. Electricity Department. Voltage regulators (A.X. 11328).

A confidential report on the market for radio apparatus in Lithuania, based on information received from the British Consul at Kovno, has been issued by the Department of Overseas Trade to firms whose names are entered on its special register. United Kingdom firms desirous of obtaining a copy of the report should apply as above. Quoting reference No. A.X. 11323.

Persian Import Restrictions. Notice is given that under the Persian Trade Monopoly Law import quotas have been fixed for the year ending June 1933 for 1,000,000 krans of telephone and radio-telegraph apparatus. Other electrical material is limited to 828,000 krans.



[With acknowledgments to the "Yorkshire Observer."]



THE POST OFFICE PLAYERS' DINNER AND DANCE.

[Photograph by Rawood Ltd.]

G.P.O. PLAYERS' DINNER AND DANCE.

THE G.P.O. Players held a very successful dinner and dance at the Quadrant Restaurant, Regent Street, on May 4, attended by the acting and honorary members in strong force, including Mr. L. Simon (Director of Telegraphs and Telephones), the President, who was in the chair, Mr. F. H. S. Grant and Mr. J. Stuart Jones. Amongst the guests were the Assistant Postmaster-General and Major Galpin, Chairman of the Civil Service Drama League. Major Galpin proposed the toast of the Society, to which Mr. Simon replied. The toast of the visitors was proposed by Mr. C. W. Drew, to which replies were made by Mr. Graham White, Assistant Postmaster-General (who in a humorous speech suggested that he had been lured into speaking upon false pretences and that he suspected his speech was in the nature of an "audition") and by Mr. E. I. Halliday. Dancing was kept up until about a quarter to twelve.

MANCHESTER NOTES.

Telephone House.—A Carnival Dance, the last social event of the season, was held at Telephone House on Saturday, April 23. It was very successful and about 250 attended. Mr. Whitelaw, the District Manager, Mr. Field, the Sectional Engineer, Manchester West, and Mr. Crombie, the Traffic Superintendent, were present. The prizes for the spot waltzes were presented by Mrs. Whitelaw.

Members of the District Manager's Staff gathered on May 7 to bid farewell to Mr. J. M. Crombie, the Traffic Superintendent, whose promotion to the District Managership of Guildford was announced in our May issue. Gifts from the District Manager's Staff and the main Exchanges were presented by the District Manager.

Telegraph Messengers' Institute.—The Annual Prize Distribution was held on Thursday, April 28, at the Milton Hall, Deansgate, when a large gathering attended. The Surveyor presided and Professor Alexander, O.M., M.A., LL.D., presented prizes and gave the Address. The programme included the plays "The King of Barvender," by Alan Monkhouse, and "Water in a Sieve," by Margery Allingham, the casts of which included Boy Messengers and Girl Probationers. Musical items were also rendered by the Manchester Singers' Male Quartette, Miss Elsie Brookes and Mr. W. I. German.

CORRESPONDENCE.

HEARING.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."
How often one hears the remark: "This Telephone is bad." I heard it recently and, as the comment came from a lady, I mildly hinted it was not the instrument but the hearing of the lady and this might need attention. When we become aware that our sight is defective and we are unable to read with ease and comfort, we find it imperative to consult an authority on vision, and after careful investigation comply with his decision that we must get means, which he suggests, to improve of seeing. In the course of years we make many visits to the optician and get his aid. May I ask of the millions of persons who use the Telephone daily how many have consulted a specialist on the condition of their hearing? At rest in sleep the eyesight has a respite, but in modern life those who reside in the industrial centres or live near one of the main roads of the world, are still the victims of sound during the day and night. The road traffic during the night seldom leaves a silent hour, and so in sleep the ears are assailed and the organs get no rest. There is therefore the more urgent need that the ears or hearing should be tested from time to time to ascertain if defects exist. I presume this is done in the Telephone Exchanges and the staff engaged on the switchboards are examined by an expert auralist; but the examination should also apply to those in charge of the Exchanges of private firms. This subject might be ventilated and opinions ascertained in the interest of the public and the working of an important national institution.

CHARLES IRWIN, Chairman,
Telegraph and Telephone Advisory Committee,
Newcastle-on-Tyne.

A BRAKE ON PROGRESS.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."
Dear Sir,—In connexion with the article "A Brake on Progress" appearing in last month's Journal, the following story appears to me to support your contributor's theory.

A tenant of a "Council House" in a borough in this district applied for telephone service, but before installation was proceeded with the borough council decided that tenants of their houses could not be telephone subscribers.

Apparently a tenant of the council may buy a piano and most likely submit his son and daughter to the drudgery of learning to play at say 30s. per quarter, and as far as I know the tenant may have an evening Guinness if he like, but he's getting a "bit above himself" when he wants a telephone.—

I am Sir, Yours faithfully,
Post Office Telephones, Reading.
April 5, 1932.

H. JAMES.

THE VARLEY CENTENARY.

ON May 5 last, at a crowded meeting of the members of the Institution of Electrical Engineers, Lt.-Col. A. G. Lee delivered a most interesting lecture in celebration of the one-hundredth anniversary of the birth of Samuel Alfred Varley. Among those present who were not members of the Institution were the Rev. Telford Varley and other members of the family. Two of the brothers Varley were specially interested in electrical matters, the second being Cromwell Varley, and both appear to have owed their taste for experimental work from the early training of their father, Cornelius Varley. It has been somewhat of a mystery to the writer, a layman, as to what degree the two brothers shared the study and the practical work which accompanied their ultimate success. Col. Lee, in his discourse, however, informed his audience that both S. A. and Cromwell Varley were pioneers, and in celebrating the centennial event it would only be bare justice to link the two names with the honours.

In fact, it appears that even the contemporaries of these two worthies confused one with the other, and to such an extent that the following are the facts of what then happened. It was recorded, in the *Electrical Review*, said the lecturer, that in 1859 Samuel read a very interesting paper before the Society of Arts, as a result of which, in 1889, his brother Cromwell was offered, and accepted, the post of electrical engineer to the Atlantic Telegraph Co., which offer was accompanied by a guarantee that he could safely name his own salary! It says much for the spirit with which the family was imbued that there is no record of any bitterness between the brothers as a result. Both Varleys were closely associated with telegraphy, short and long distance, overhead, under-sea and underground. If Cromwell predicted that the first underground lines between London, Manchester and Liverpool would not work, it was Cromwell who supplied the remedy with his D.C. system. If Cromwell designed the Varley needle, it was Samuel who improved it in 1866, and who invented the lightning bridge—the fore-runner of the coherer! It was Samuel, too, who invented the first self-excited dynamo, and who gallantly and successfully proved the British claim to precedence against the Anglo-American Brush Corporation.

There was an interesting show of exhibits, which included the Varley slide resistance, and the actual chronofar that, one is old enough to remember, functioned unfailingly in the C.T.O., also the first telegraph repeater used in 1861 in Amsterdam to convert D.C. to S.C. for the Continental system. The association of Cromwell Varley with Sir William Thomson, as representing the Atlantic Telegraph Company on the Government Committee of 1859, which dealt with the whole problem of submarine telegraphy was also elaborated by the speaker. What test-clerk or student telegraphist does not remember the Varley Loop Test?

A clap of the heartiest applause greeted Col. Lee as he resumed his seat, the spontaneity of which appreciation was undeniable. The Rev. Telford Varley, on behalf of himself and the Varley family, most suitably expressed their acknowledgment of the honour accorded to the family name by Col. Lee, and the I.E.E. Committee, as also the special privilege which made possible their attendance at so memorable an occasion.

J. J. T.

C.T.O. NOTES.

Retirements.—Misses E. K. Lewin, Assistant Supervisor, and G. M. Ford, Telephonist, and Mr. A. H. Bennett, Telephonist.

Obituary.—We regret to have to record the passing of Mr. A. W. Edwards, late Deputy Controller of the Central Telegraph Office, after a short illness. A memoir appears elsewhere.

We also regret to learn of the death of Misses E. P. F. Moore, F. Cruttenden and F. A. Simpkins. The former entered the service of TS in 1870, Miss Cruttenden in 1872 and Miss Simpkins in 1898.

Golden Wedding.—We are happy to note that Mr. and Mrs. C. Elphick, who joined hands on April 20, 1882, were able to celebrate the fiftieth anniversary at their home in East Dulwich. Mr. Elphick was formerly a Superintendent at TS and retired in 1919.

Chess.—The Centels Chess Club finished their 1931-2 season by a fine win against the L.C.C. III and won the championship of the Civil Service League, Section III.

This is the second season of the team going through their league engagements without being beaten, playing 9, winning 8 and drawing 1.

The first team also reached the semi-final of the "Post" Annual Cup but failed to go further.

GUILDFORD DISTRICT NOTES.

AFTER tendering our sincere congratulations to our District Manager, Mr. Tucker, on his appointment to Preston, we thought the occasion demanded that we should show our esteem in a more tangible form. To this end a Social was organised, and took place in Guildford on April 20, some 170 people being present.

Mr. Hood, Staff Officer, presided, and after the representatives of the various departments, the Sectional Engineer and Head Postmasters, had paid tribute to Mr. Tucker's ability and popularity, Mr. Miles, Asst. Surveyor, asked Mr. Tucker to accept on behalf of the whole of the staff in the District, a wireless set and a clock. Mr. Miles, who expressed regret for the unavoidable absence of Mr. Gayes, paid a strong tribute to Mr. Tucker's sterling qualities and wishes him every happiness and success in the future.

Mr. Tucker replied in suitable terms, thanking the several speakers for their kind words, and the staff for the acceptable gifts.

It was a source of much gratification to us, and at the same time a strong testimony to Mr. Tucker's popularity to have with us the Sectional Engineer and several members of his staff, and also so many Head Postmasters and the staffs from several exchanges in the district, not forgetting our erstwhile friends from Weybridge, Walton, Cobham, and Petworth.

Whilst there is general regret throughout the District at Mr. Tucker's departure, we extend a very hearty welcome to our new District Manager, Mr. J. M. Crombie.

BRISTOL DISTRICT NOTES.

MR. R. A. DAVID, Traffic Superintendent I, has left us for Norwich. We wish him every success and happiness in his new sphere.

On the afternoon of Mar. 23, Mr. Bristow, District Manager, on behalf of all sections of the District Manager's staff, presented Mr. David with a moving coil loudspeaker, and in the evening he was entertained to dinner at the City Hotel by the Traffic Staff and Engineering Branch colleagues who had been closely associated with him in connexion with the recent transfer of the Bristol Exchange to automatic working.

To his successor, Mr. L. G. Allen, who has been transferred from a similar position at Glasgow, a hearty welcome. We trust that he will find "west is best."

After a stay of twelve months, Mr. F. Veal, Assistant Traffic Superintendent, has returned to Newcastle-on-Tyne. As a mark of appreciation of his good fellowship he was presented with a Rolls shaving set before leaving.

To Mr. Fenton, Assistant Traffic Superintendent, from Birmingham, a cordial welcome.

Retirement of Mr. J. T. Mayo Smith.—On April 29 a representative gathering of the District Manager's staff assembled to wish Mr. J. T. Mayo Smith, Staff Officer, farewell and Godspeed on the occasion of his retirement.

Amongst those present we were pleased to see Mrs. Smith and two of our late colleagues, Miss Dance (now of Gloucester District Office), and Mrs. Hill.

Mr. Smith entered the service of the National Telephone Co. Ltd., at Brighton in June, 1891. In April, 1894, he was transferred to the Audit Staff at the Head Office, and in that capacity visited most Telephone Districts.

He was appointed Chief Clerk at Bristol in September, 1901, and has therefore held that position for nearly thirty-one years.

The best wishes of the staff, and regret at his departure, were conveyed to Mr. Smith in a pleasant speech by Mr. A. G. Bristow (District Manager),

other speakers being Mr. A. C. Smith (Higher Clerical Officer), Miss Jarrett (I. c. Fees), Mr. L. G. Allen (Traffic Superintendent), Mr. W. Edwards (A.T.S.), Mr. S. Gamlin (Contract Officer, Class I) and Mr. Knowlden (Clerical Officer).

Mr. A. C. Tucker (Contract Manager) sent his regrets for his unavoidable absence.

Mr. Bristow, on behalf of the Staff, then presented Mr. Smith with a walnut quintet table as a token of respect and esteem from his colleagues and friends.

After Mr. Smith had responded he invited those present to partake of an excellent tea, which he had provided, and it was amazing how those "trifles" vanished.



Mr. J. T. MAYO SMITH.

Two most enjoyable hours followed, during which old times were recalled and, at Mr. Smith's suggestion, a number of tales of humorous experiences in the Service were related, to the great amusement of all present.

Later, at his kind invitation, a party accompanied Mr. Smith to the Bristol Hippodrome.

We extend a hearty welcome to our new Staff Officer, Mr. J. W. Fairhead, formerly Higher Clerical Officer with allowance at Belfast, and offer him our congratulations upon his promotion.

RURAL AUTOMATIC EXCHANGES.

TRAFFIC PRELIMINARIES.

BY G. D. BATEMAN, *Traffic Section, Western District.*

ABOUT the best example of enterprise I ever heard of was that of the night club proprietor who opened a club in Labrador where there is night for six whole months. The British Post Office, however, was not far behind him when it introduced Rural Automatic Exchanges to our hamlets and remote villages, and persuaded the dwellers therein to make the telephone their servant. It should be remembered, when appraising the measure of the Department's success, that the urban habit of using the telephone is recent compared with the long-established rural custom of doing without it, and it is easier to overthrow a dynasty than a custom. But the conservatism of the countryside is being gently overcome, and it is remarkable how quickly subscribers to these exchanges increase soon after opening, necessitating in many cases the addition of the second or third equipment unit far earlier than might be expected. Up to March last, the Western District had 42 Rural Automatic Exchanges working, 39 others authorised and 17 cases

in preparation, while the interesting leading article in the March issue of the *Journal* showed that there seems to be every prospect of their increasing at a higher rate than 300 per annum. It will thus be seen that opening Rural Automatic Exchanges is now not so much an event as a habit, and one that seems destined to have far-reaching effects on our efforts to develop that other one—the Telephone habit.

Small as a Rural Automatic Exchange usually is, it is as much a unit of the great telephone network as one of its larger neighbours, and has to conform to many of the initial requirements of a larger exchange. The need for some clear-cut procedure which will economise the time of Traffic Officers whilst ensuring prompt attention to every item, is clearly indicated. These items at various stages, establish contact with the Secretary, Surveyor, Controller and Accountant-General, Superintending and Sectional Engineers, Stores Dept. Head Postmasters, the local Accounts and Contract Sections, the Press, and, of course, the all-important subscribers themselves. The accompanying "Control Sheet" is the Western District solution of this little problem, and it is hoped that at least some part of it may prove useful to Traffic Officers in other Districts. A separate "Control Sheet" suitably modified, is used for conversion cases. Traffic Officers who have not yet been concerned in the opening of these Exchanges would be surprised at the irritation these insects of the Telephone Service can cause in their embryo stages, and it is to prevent this that more care than at first glance seems necessary has been given to the matter.

Only a moderate amount of a Traffic Officer's time can be spared for this work. Therefore, having organised it, he must be prepared to leave the correspondence and detail to others, for the bigger we grow the further the top of the business must be from the bottom. A set of mimeographed letters and forms used with the "Control Sheet," and covering all phases, enables much of the work to be delegated to a male Clerical Officer. It will be obvious at what stages the knowledge and experience of a Traffic Officer is necessary. The items in the second column, e.g., T. 1, C.I., &c., represent the respective Traffic or Contract Section steps which must be taken in proper sequence in the early stages of a case.

Secretary's Typed Cir. 55.31.

WESTERN DISTRICT: TRAFFIC SECTION.

NEW RURAL AUTOMATIC EXCHANGE CONTROL SHEET.

NAME OF R.A.X.....		HEAD POSTMASTER.....		DATE.	
PARENT EXCHANGE		SECONDARY OUTLET.....		Out.	In.
Item No.	"Joint" Ref. No.	Mimeo Letter No.	PROCEDURE ITEMS.		
1	C. 8	---	From C.M. Appvd. Form C.M. No. 31 and 1-inch blue print showing practical centre; also quoting distance from nearest exch. and certifying whether a relieving exchange.		
2	T. 1.	—	To C.M. stating whether area suitable from Traffic point of view.		
3	—	R.A.X. 1	To Sectional Engineer for cost of Junctions to probable Parent Exchange and any alternative exchange and asking whether measuring point more economical.		
4	T. 2	R.A.X. 2.	(a) To C.M. quoting Parent Exchange and enclosing Auto Equipment Form R.A.X. 20/6, Part 2, for his initials, or (b) To C.M. stating that a measuring point more economical and C.M. to pursue, or (c) To C.M. stating cost of Junctions above standard, measuring point not more economical and that Junction question has been referred to Secretary.		

Item No.	"Joint" Ref. No.	Mimeo Letter No.	PROCEDURE ITEMS.	DATE.		Item No.	"Joint" Ref. No.	Mimeo Letter No.	PROCEDURE ITEMS.	DATE.	
				Out.	In.					Out.	In.
5	T. 3	---	Complete Auto Equipment. Form R.A.X. 20/6, Part 1.			35	---	---	From Superintending Engineer. Date of Completion of Installation (Form TE. 668).		
6	T. 4	R.A.X. 3	To Surveyor. Proposal for R.A.X. enclosing Form R.A.X. 20/6, Part 2.			36	---	---	To Superintending Engineer. Form 668 fixed time and date of opening.		
7	T. 5	R.A.X. 4	From Surveyor. Exchange authorised.			37	---	R.A.X.13	To losing exchange <i>re</i> transfer subs.		
8			To C.M. Advice of Authority.			38	---	---	Prepare subs.' Alphabetical list (Stencilled).		
9	---	4a	To H.P.M. " " "			39	---	---	To Secretary. Form Tp. 56 W. (full details of R.A.X.)		
10	---	4a	To "S" A.T.S. Advice of Authority.			40	---	---	To Accountant-General. Advice of opening (with 15-mile charge list).		
11	C. 12	---	From C/M Advice that 6 or more agreements are held.			41	---	---	To Secretary. (Telegraph and Telephone Traffic Section) date of opening and Appointed Office.		
12	T. 6	R.A.X. 5	To Superintending Engineer. Form R.A.X. 20/a. Number of agreements held and instruction to proceed with search for site, building not to commence (see item No. 14).			42	---	R.A.X. 14	To Surveyor. (T.B. and E.B.) Advice of opening.		
13	---	5a	To Secretary (B. & S.B.) <i>vide</i> para. 8 Circ. 55/31.			43	---	R.A.X. 15	To D.M., T.S., A.T.S., T.S.R., S.I., T/G. 1, C.M. Date and time of opening.		
14	C. 13	---	From C.M. Advice that 8 agreements are held.			44	---	---	Press advised (with publicity data).		
15	T. 7	R.A.X. 6	To Superintending Engineer. 8 Agreements are held.			45	---	R.A.X. 16	To C/C all details of R.A.X. and opening date.		
16	---	---	To Superintending Engineer. Send reminder <i>re</i> site on ---/193			46	---	R.A.X. 17	To H.P.M. Advice of opening and enclosing Opg. and fault procedure, instructions for dealing with tickets, Subs. alphabetical list, Daily Test schedules, Card SS 508, "Withdrawal and restoration of service" instruction H.P.M. to prepare subs.' numerical cards T. 68, Dialling tops, state of Exchange Record.		
17	T. 8	---	From Superintending Engineer. <i>Re</i> possession of site with 3 tracings of location.			47	---	R.A.X. 18	To H.P.M. card T. 309 to complete and return.		
18	---	---	To Sectional Engineer. (January and July) for probable opening date (to cover directory entries).			48	---	R.A.X. 19	To Sectional Engineer. (Request for name of any sub. or C/O which will not be ready by opening date.)		
19	---	R.A.X. 7	To "S" (T/G) Section. Request for code and index figs. with tracing of site.			49	---	---	To C.M. for cancellations ...		
20	---	---	From C.M. for 2 copies of 15-mile charge list enclosing 1 tracing.			50	---	---	To subscribers. Letter <i>re</i> opening and subs.' alphabetical list.		
21	---	R.A.X. 8	To (T.B.) Surveyor to agree "Appointed" Office.			51	---	---	T.E. A.T.S. to speak to Insp. in charge of work <i>re</i> O/S C/O's, &c.		
22	---	---	Issue Advice Notes for Exchange, Junctions, Engineers, Test Line.			52	---	R.A.X. 20	To A.T.S. Test schedule and alphabetical list of subs. (with service code markings).		
23	---	R.A.X. 9	To C.M. for list of transfer subs. and Kiosk position.			53	---	R.A.X. 21	To Sectional Engineer Cards for Call Offices. T. 305, 309, 408, 439.		
24	---	---	Subs. numerical list prepared.			54	---	---	To Secretary. Advice that R.A.X. has been opened this day.		
25	---	---	Preliminary letter to transfer subs.			55	---	---	Service Telegram received from Officer attending opening.		
26	---	---	From Superintending Engineer. Advice that Building commenced.			56	---	---	Dockets, R.W.R., and Guide corrections from H.P.M.		
27	---	Special Letter.	To Sectional Engineer. Terminations of junctions, dialling out numbers where applicable, Line Equipment Card No. 226G, and distribution lists (junctions and subscribers, where more than one unit), coding of I/C and O/G transfer cts. Spare dial and R.A.X. Jns. to operate pilot signal. Slipped bank facility.			57	---	---	To Surveyor, Guide corrections (certified).		
28	---	R.A.X. 10	To Sectional Engineer. If parent Exchange or other outlet is C.B.S. or Magneto and without other R.A.X.'s to fit Coin Box for instruction of Operators.			58	---	---	P.O. Circular checked for details of opening.		
29	---	R.A.X. 11	To TSR. To give instructions in Coin Box Working. (See item 28.)								
30	---	---	Circuits Duty decides Routing arrangements.								
31	---	---	From Superintending Engineer advising Building completed.								
32	---	---	From Superintending Engineer advising Installation commenced.								
33	---	R.A.X. 12	Call Office Cards T. 305 prepared by D/O (C/O duty). Traffic W/A other cards (See item 53).								
34	---	---	C.M.'s memo. to A.N. Duty <i>re</i> Exchange Kiosk (including whether Sub-P.M. or S.E. responsible for cleaning) dealt with.								

Mr. H. H. HARRISON, *M.Eng.*

In recognition of his contributions to the art of Machine Telegraphy, the Senate of Liverpool University are conferring upon Mr. H. H. Harrison, M.I.E.E., the degree of M.Eng. The ceremony will take place on July 2 prox.

Mr. Harrison is Assistant Chief Engineer to Automatic Electric Co., Ltd., formerly Automatic Telephone Manufacturing Co., Ltd., Strowger Works, Liverpool, and is well known for his past activities in the field of telegraphy.

He is the Author of "Printing Telegraph Systems and Mechanisms" (Longmans), and has contributed numerous papers on this and other allied subjects to the Institution of Electrical Engineers and other learned societies.

REVIEWS.

"Die Elektrische Fernüberwachung und Fernbedienung für Starkstromanlagen und Kraftbetriebe." By Dr. -Ing. Manfred Schleicher. Published by Julius Springer, Berlin. pp. v + 238. Price R.M. 19.50, paper cover; R.M. 21 bound.

This is a very complete account of present-day practice in the control room from a central point of electric supply systems.

With the increase in size of such systems the need has been felt of methods by which the control of the whole system can be performed from a central point. Indicating apparatus to show the current and voltage at any point of the system, meters for measuring the output to the various sections, and switching devices for controlling the supply, are concentrated at the central office, so that unified control can be carried out.

The technique which has been developed to enable this to be done is fully described, and the book should prove of great use to engineers who meet with such problems in the course of their work. It is very fully illustrated with line diagrams and photographs, which are well reproduced, and concludes with a nine-page bibliography in which references to the subject matter of each chapter are given.

OPENING OF IMPORTANT NEW PRIVATE BRANCH EXCHANGE.

ON Saturday, April 30, there was brought into use for Messrs. Selfridge & Co., Ltd., Oxford Street, W.1, a new private branch exchange switchboard of the No. 10 C.B. type consisting of 22 positions.

Messrs. Selfridge & Co., Ltd. have always been very large telephone users. In 1914 their installation consisted of a 6-position switchboard with 40 exchange lines and some 200 extensions. To-day Messrs. Selfridge & Co., Ltd., have 134 exchange lines and 620 extensions, together with a large number of private lines to their associated businesses, &c.

Mr. E. T. Campbell, M.P., for Bromley, Kent (Parliamentary Private Secretary to the Postmaster-General) and Mr. W. H. U. Napier, C.B.E., Controller, London Telephone Service, were present and met Mr. Gordon Selfridge, Junr. and Messrs. H. J. Clarke, A. H. Williams and A. Youngman, Directors of Messrs. Selfridge & Co. Ltd., who entertained them to lunch and showed them some of the special features of the Selfridge Store.

Mr. E. T. Campbell then formally opened the new private branch exchange and addressed those present, outlining the growth in Messrs. Selfridge's telephone arrangements and expressing the hope that the Company would go on increasing its telephone facilities.

By the courtesy of Messrs. Selfridge, the London Telephone Service has at present a Contract Officer stationed in the Store to give callers information regarding telephone service and to accept orders.

OBITUARY.

MR. A. W. EDWARDS.

THE announcement of the death of Mr. A. W. Edwards, O.B.E., ex-Deputy Controller of the Central Telegraph Office, which occurred on May 16 after a brief illness, was received with deep regret by his many friends in the Post Office service. Mr. Edwards was exceptionally popular in his own office and in other Departments of the Post Office, and the secret of his popularity lay, perhaps, not so much in his outstanding personality and in his high spirits as in his extraordinary gift of friendship with other men, irrespective of their official rank. He did not permit his retirement, which occurred in 1926, to interfere with the friendships which he had formed while in the service, and he continued to be a familiar

figure at social functions and sports meetings. Whatever he did he threw all his abounding energy into. Golf or bowls was never a mere passing occupation but a game from which he extracted every particle of enjoyment. His energies, however, were not exhausted with his work and his recreations. He took his share of civic duties and at the time of his death he was Chairman of his local District Council and a Justice of the Peace. He was a Life Governor and a member of the House Committee of St. Bartholomew's Hospital.

His normal appearance of robust health gave every promise of long life and his death has come with tragic suddenness, but he has left a lasting memory.

BIRMINGHAM NOTES.

THE number of subscribers transferred to the Director Automatic System at Birmingham, increased from 5,500 at the beginning of April to 10,000 by the first week in May. The transfers of Calthorpe, Smethwick, Solihull, Kings Norton, Great Barr, Selly Oak and Woodgate Exchanges were highly successful and the whole of the exchanges are working very satisfactorily. Preparations are now being made for the autumn conversions.

Sport.—The Civil Service Ladies' Hockey Club has completed its most successful season since the Club was inaugurated.

The District Manager's Office Cricket Club.—It was very unfortunate that the weather was so unkind at the time that our friends from Nottingham were to have visited Birmingham, and the day of the match was so cheerless that the decision to postpone the game, which was very much regretted, was inevitable. We do hope that the District Office team of the North Midland District will be able to visit Birmingham before the termination of this season.

Retirement of Miss E. M. Hodges, Assistant Supervisor, Birmingham.—We have to record with regret the retirement of Miss E. M. Hodges, Assistant Supervisor, Class II, Midland Exchange. Miss Hodges (or Hodgy as she is affectionately known amongst her colleagues) is the first Assistant Supervisor to retire in Birmingham under the age limit, and has had twenty-six years of service.

Miss Hodges' telephone career started with the late National Telephone Company on the Night Staff at Central Exchange. At that time certain selected staff did night duty for one week with alternating day duty the following week. After the transfer of the Telephone System, for once the



MISS E. M. HODGES.

ladies had to give way to the men, and the night duty for female staff was abolished. Miss Hodges held for a short period the position of Night Supervisor in charge of Central.

In January, 1912, Miss Hodges was appointed Assistant Supervisor, Class II, at the Central and was subsequently transferred to the Midland Exchange, where she remained until the date of her retirement.

Miss Hodges' placid and equal temperament, combined with a keen sense of humour, has endeared her to all members of the staff. Evidence of this was shown by the number of married ladies (ex-telephonists) present on the evening of her send off.

Miss Hodges confesses without shame that she has no hobbies, but it is known that she has spent many happy hours on her bicycle in the days that have gone.

Miss Hodges was the recipient of many presents, too numerous to mention, from present and past staff.



WHAT IS ALL THIS? (THE TELEPHONE PLAY.)

[Photo by Central Photographic Service.]

WHAT IS ALL THIS?

MISS McMILLAN'S annual telephone play, presented on May 10 and 11 with the same applause and success as its predecessors, was cryptically entitled "What is all This?" And what was it all? For one thing, it was true to type, containing an animated scene in a switchroom, and a variegated closing scene at the Lido, where telephonists, supervisors, traffic officers and others alike unbend, and the voice of the turtle, who has not been exactly mute even from the opening scene, is heard with a certain insistence. The three scenes had the happy sub-titles "Lucky Numbers," "Wrong Numbers" and "Right Numbers," and containing topical allusions to the prevailing sweepstake fever, to the "demand" service and to what we gathered was the abolition of "casual reliefs," and other questions of internal exchange politics, the ventilation of which was much appreciated by the preponderatingly telephonist element in the audience.

The following are some verses from the Traffic Officer's song, sung to the tune "He Played His Ukulele as the Ship Went Down":—

Staff Officer: Come listen now to me,
I'll tell you a comical story
About a Traffic Officer
Who covered himself in glory.
Of his doughty deeds my song shall be,
So listen now to me.

I'll tell the tale of a raving sub.
Who made a fierce complaint from his Club;
And what did our Traffic Officer do?

All: Why, he played his ukelele as the sub. came through.

Staff Officer: Then because he liked the tune,
He practised all the afternoon,
And he danced about, and said, said he,

All: Oh, I love the ukelele in a minor key.

Traffic Officer: Now, boys and girls, I pray you cease,
For I'm the villain of this piece,
And here's some sound advice for you—
Always play your ukelele—it will pull you through.
When Snowden asks for super-tax
And Treasury Chiefs bring down their axe,
Just consign them where they don't need harps,
And play your ukelele, using two nice sharps.

We have not space to quote all the good lyrics in the book, but we give two verses from the song by Mother and Auntie (two ex-telephonists):—

When first I went to work,
I was young and foolish.
A sub. remarked "I like your voice,
Come and ride in my Rolls Royce."
So I met him later on—
No chance I meant to shirk.
But first of all the lights went out,
The engine baulked and jumped about,
And soon I hadn't the slightest doubt
So back I walked to work.

(Chorus) Cheerily, cheerily, sing it to us.
Kensington, Holborn, Terminus.
Cheerily, cheerily, tell us all
Monument, Tandem, London Wall.

When first we went to work,
We were young and foolish.
The Chief did not approve of us,
So she made a fearful fuss.
To the Manager she went,
Our joy she meant to burke;
He said he'd take it up and then,
He showed us into his private den,
And he talked to us till the clock struck ten—
Then back we went to work.

Silvia, the winner of the sweepstake, is awarded the magnificent prize of a newly-equipped automatic exchange and proceeds to

take charge of it with all her friends and family, but by some complicated jugglery with telegrams the prize is changed for one comprising a holiday at the Lido, and we thus find ourselves in the last act facing the animated scene and the bizarre beach costumes which the occasion demands. Mr. Hemsley, who doubled the parts of Grandpa and Colin Clifford, was the life and soul of all the scenes in which he was present, and Miss Peggy Murray (Silvia)—good as ever—shared chief honours with him. Miss Lawless, as Brenda, displayed a fine voice and excellent style, and is an acquisition to the cast. Three old favourites, Messrs. Peter Cruff, Hugh Williams and John Whiffen were in good form and contributed much to the success of the comedy. Miss Norah Cheason must be specially mentioned as Frances, and Miss Pfeiffer and Miss Phillips as Mother and Aunt respectively. Needless to say, Miss Ada Price filled the part of a supervisor, and in her inimitable style, besides appearing as an uncompromising sort of grandma in the first scene. Mr. Durrant was good, both as a Grand-Uncle and a Staff Officer. Miss Christine Edwards provided some excellent dancing, and Miss Garvey and Mr. Vincent rendered invaluable service at the piano. Special thanks are due to the producer, Mr. Theodore Oldham, and to Messrs. Dean, Pêche, Craft, Payne, Bearley and Thorogood, who provided skilfully designed scenery and effects. Sir Warren Fisher, of the Treasury, and Mr. Knox (his private secretary) visited the performance on Tuesday, and Mr. Graham White (Asst. Postmaster-General) and Mr. E. T. Campbell (Parliamentary Secretary) on Wednesday. At the close of the second performance Mr. Graham White made a charming and appreciative speech from the stage, and there followed so long a procession of flowers and boxes of chocolates for Miss McMillan and the artistes as threatened to jeopardise the catching of last trains.

hinges. Maybe they were too stout to pass through the gateway in comfort, or maybe the thought of metal in agony distressed their kindly soul. If you were as idle a fellow as I am at the moment you would investigate matters, unless you were actually as idle a fellow as I am, in which case you would continue to laze in the cottage porch and speculate.

The gateway is like an arrowhead, the barbs of which are fixed and the gate is the shaft which swings to and fro in the V. It is the entrance to a pathway. If you stand at the gate you can see the path going up for a short distance under a hedge, there bearing off across a strip of field till it meets a wood, into which it disappears. After that you know that it emerges into a church-yard, and so on to a road. Under the hedge, if you look, you may find primroses and violets, and in the hedge you may find honeysuckle or rose. Above the hedge the crab-apple flowers and fruits. As the path mounts the slope and turns into the field you may see a maze of bluebells. Once in the wood—but if you would know about the pathway you must follow it yourself and leave me to laze and listen to the squeaking gate.

The thing fascinates me, but I am content to listen. I am afraid that if I went to look at the gate and examined its rusty hinges illusion would be dispelled. And anyhow, I am quite comfortable here in the porch. Each squeak seems to tell a different tale. On Sunday morning the squeaks commence with the church bell which sounds from the other side of the wood, but they cease before the bell. You can almost tell when the bell is about to stop, because the squeaks increase in frequency. They are shorter and sharper, and the gate bangs oftener than at other times. Sometimes I have heard a squeak after the bell has stopped, and then I have listened for and heard hurrying footsteps. At dusk on any fine evening the squeaks are slower and softer and they come in pairs. You could almost imagine why if you stopped to speculate in idleness as I have done. Sometimes the second squeak is delayed for a space and I wonder then who received the kiss that doubtless passed over the gate. But the gate is most discreet and would merely answer with a decisive squeak if I were to put the question—which I shan't. Once I heard a short sharp venomous squeak the gate banged and the hinge groaned on the rebound. In a few minutes there came a gentler slower squeak as if the gate were saying "There there, let him go and cool his temper." And the tear that dropped on the gate is kept as a secret between them.

Regarded musically the squeaks leave much to be desired but they are more melodious than the clang of a lift gate the whine of a dynamo, the scream of wheels against rails, the screech of brakes, the moan of the factory syren, the harsh cough of a motor horn, the clatter of iron tyres on granite setts, the shattering stutter of a road drill, the sudden stab of a buzzer and the multitude of other noises which accompany man in his march of progress through the world. So if I see someone with an oilcan approaching that gate I shall hasten from my comfortable seat in the cottage porch and endeavour to stay his hand; for a silent gate is the one which leads to the church-yard.

PERCY FLAGE.

L.T.S. Horticultural Society, Brixton.

It is a long time since Bacon saw daylight, and when he first saw it he saw the Strand. Brixton was far from the Strand, and he may never have seen it. He may have got as far as Vauxhall Gardens, and may have tarried at Lambeth. No doubt he saw the ridge of hills surrounding the basin south of the Thames on which Brixton now stands.

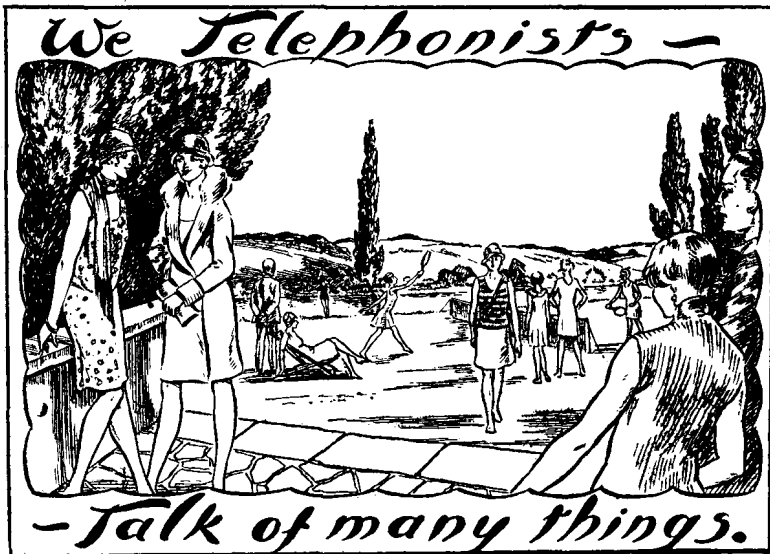
Bacon, however, in his mind's eye, looked ahead, and Brixton to-day realises what he saw. The great buildings of to-day had not been built, but he dreamed of them, and of gardens in the midst with fair alleys on both sides.

Hidden in the heart of Brixton is an old church which, having fallen into disuse, has now become a home for the greatest scientific achievement of this age. Alas; a religious building falls to a telephone exchange! High on this building, hidden from public view, is a garden. Yes; on the roof of this old church, a garden tended by the beautiful Eves of this Eden, such as would delight the heart of Bacon. There are the alleys on both sides, but above all the delight produced by this "purest of human pleasures," a garden in which flowers are not born to blush unseen.

One Eve has prophesied a blooming future for this garden, and we who belong to Brixton hope to enjoy the pleasures and delights of another Kew Gardens.

A. W.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.



The Squeaking Gate.

How it squeaks! Most squeaks are irritating, whether emitted by persons or things. But this is not one of those irritating squeaks, and it is not monotonous. You can never be quite sure whether the next squeak will be the same sort of squeak as the last. Sometimes it is a long squeak, and at others a short, sharp, decisive squeak. Often the squeak will end in a low groan as though the gate yearned to be left at rest. You can never be quite sure, either, of the intervals between the squeaks. Sometimes they will occur in rapid succession, and at other times the repetition is so long delayed that you begin to be anxious as to whether the last squeak you heard was really the last. You feel that you must go and see why the gate is no longer vocal. Perhaps someone with a sensitive ear and an oil-can has stilled its voice for ever. Or possibly someone has lifted the gate off its

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

During the month of April there was a net increase of 2,504 stations.

Messrs. Bentalls Store at Kingston has recently been considerably enlarged and an order for 10 additional exchange lines and 76 Internal Extensions has been obtained increasing their installation to 30 Exchange lines and 170 Extensions. It is expected that the telephone requirements at these premises will be considerably augmented during the next few years.

Messrs. Sainsbury Ltd., the Provision Merchants, have signed an order for a P.A.B.N. in connexion with an extension of their Headquarter premises, consisting of 20 Exchange lines and 82 Extensions.

The results of the staff salesmanship scheme to date are as below:—

	Total No. ordered.	Orders received for month ended May 13, 1932.
Exchange lines	619	69
Extensions	591	61
Private lines	9	—
Plugs and sockets	106	19
Hand-Microphones	2,783	370
Extension bells	223	31
Miscellaneous	305	35

Sales incidents must be numerous and varied with so many people interested in extending the use of the telephone.

Here are some recent ones:—

A garage proprietor was found to have at his garage an extension only, fitted from the main instrument fixed at another office some distance away. It was gathered that the garage was open day and night, and when the convenience, particularly at night, of an exchange line to the garage was pointed out, he decided to have one installed.

A call was made on a subscriber. The Staff Salesman noticed that the telephone was fixed some distance from his office on another floor. The opportunity for an order was too good to be missed. Result an extension.

Officers who are required to interview subscribers on all kinds of telephone business have exceptional opportunities for introducing the telephone question. Recently a Development Officer interviewed a large company in connexion with a block wiring scheme. The inadequacy of the existing telephone facilities was admitted, and ultimately, on the suggestion of the Development Officer, permission was granted to explore the firms premises and offer suggestions for additional telephones. In the end an order was obtained for eight additional extensions.

League of Nations Union.

London Telephone Service Branch.—The Conference Room at Cornwall House was well filled on Monday, April 12, when Mr. Alec Wilson of the League of Nations Union gave an address on the Sino-Japanese question.

Mr. Corner in the Chair, in introducing Mr. Wilson spoke of the overshadowing in the newspapers of matters of real importance by more sensational items of news (instancing the case of the Lindbergh baby). He said Mr. Wilson would give us information which could not be gathered from newspapers on this question, which had lately been so much before the public.

Mr. Wilson began by speaking of the constructive, helpful, useful work for which the League was responsible—things which did not get into the newspapers and he mentioned the assistance given to Young China when it called to Geneva for help and advice on such questions as public health, transport, administration, finance. The League had helped to bring China up to date.

Mr. Wilson, after touching on Japan's rapidly growing population, on the history of Manchuria, and on Japanese aggression, explained the complexities of the whole question, and expressed the view that China had not a clear conscience in the matter. He touched on the appointment of the Lytton Commission and also on the methods of enforcing the League's instructions. One weapon the League had not chosen to use was the economic embargo, a weapon which in the speaker's opinion might possibly recoil on the user. The League was now to face its biggest test. Its task is not to apportion blame, but to ensure that violation of the Covenant is not rewarded with the fruits of victory, and that a just and fair settlement is finally offered to both parties.

At the close of the address, which was listened to with the keenest of interest, Mr. Wilson answered numerous questions.

The audience seconded in very hearty fashion the vote of thanks to Mr. Wilson proposed by Miss Mahlendoff.

E. M. N.

L.T.S. Football.

The final tie for the Civil Service League Challenge Shield was decided on the Chiswick ground on Wednesday, May 4, when the L.T.S. met and defeated the Ministry of Health by 6 goals to nil.

Futerman led off the scoring with an early goal and scored a second from a corner kick. Casey got a third and at half time the score was 3—nil. In the second half Fitzgerald two and Merrick one completed the scoring.

Much of the credit for the victory was due to the fine display of the winners half backs. At the close of the game, Mr. W. S. Bourne, Chairman of the League, presented the Shield to the winners and complimented both teams on a fine sporting game. Mr. M. C. Pink, Deputy Controller, L.T.S., replied for the winners and wished the Ministry of Health good luck in their future endeavours to win the competition. The L.T.S. in addition headed the League, 1st Division, for the second successive year with the following record.

Played.	Won.	Lost.	Drawn.	Goals		Points.
				For.	Against.	
22	20	1	1	95	21	41

In the last three seasons in the league competition the team have played 62 games and lost only 3. This remarkable record is largely due to the inspiring work of Tommy Culley, the Secretary.

Stamford Dramatic Society.

"Hay Fever," Noel Coward's light comedy, was presented by the Stamford Dramatic Society to a delightfully appreciative audience at the National Sanatorium, Benenden, Kent, on Saturday, April 30 last.

The fifth Annual General Meeting of the Society is to be held in the Conference Room, on Tuesday, June 28, 1932, at 6.30 p.m.

National Sanatorium : L.T.S. Section.

Bournemouth.—Saturday, April 30, will be long remembered by the patients of the Hahnemann Home and the Royal National Sanatorium, by reason of an excellent concert, organised by the staff of the London Telephone Service.

The Concert Party included Miss Nellie Beare, Miss Eileen Braid, Miss Madge Harwood, Miss Margaret Worth, Mr. Bob Douglas, Mr. Charles Phillips and Mr. Hugh Williams, with Mr. Edward Fletcher at the piano, and was under the direction of Miss Margaret Worth. The Head Postmaster of Bournemouth, Mr. R. W. Scott, Mrs. Scott, the Chief Superintendent Bournemouth, Mr. J. Robins and Mrs. Robins attended the Concert at the invitation of Miss Worth.

The popularity of the artistes was evident by the numerous encores demanded by the patients, and the versatility of the artistes was demonstrated to the fullest extent in meeting the demand. During the concert, sweets and cigarettes provided by the London Telephone Staff were distributed and enjoyed by the patients.

At the close of the concerts the matron at the Hahnemann Home, and Dr. Hutchinson, the resident Medical Officer at the Royal National Sanatorium, in well chosen words, conveyed the thanks of the patients and staff to Miss Margaret Worth and the London Telephone Staff for their kindness in providing the entertainment, and expressed the hope to be favoured with another visit by the Concert Party at a no distant date.

N.B.—These concerts can only be carried on by a generous response to the annual collection made amongst the Staff. The artistes give their services gratuitously and the more money available for expenses incurred the greater numbers of concerts can be given. If the staff only realised the amount of pleasure such entertainments give the patients, they would appreciate that their contributions were a real asset to the cause.

Gratefulness is the accepted term wherever the concerts are given.

The Annual Lunch of the Night Telephonists' Branch of the U.P.W. was held in the Stanley Restaurant, Clapham on Mar. 12.

The chair was taken by Mr. R. I. Young, the genial Secretary of the Branch.

Various speeches were made, including those of Mr. Bowen and Mr. Dive.

The Lunch was followed by a very enjoyable social gathering.

The Night Telephonists are to be congratulated on arranging a very enjoyable function.

London Telephone Service Sports' Association.

The Third Annual Sports Meeting will be held at the Civil Service Sports Ground on Wednesday, June 8, 1932, at 5 p.m. In addition to the usual events the 880 yards Civil Service Ladies' Championship will be run on that occasion and there will also be a Ladies' invitation relay race.

Full particulars have been circulated and programmes at 6d. each will be available shortly. Mrs. M. C. Pink has kindly consented to present the prizes. A dance will be held after the distribution of trophies. It only needs a good attendance of supporters, and in this connexion a special appeal is made to the Staff and their friends, to score another successful gathering.

Netball.—The annual knock-out Tournament and Finals for the "Liddiard" shield were played at Chiswick on Saturday, May 7. In the former Toll "A" and Gerrard were the finalists and resulted in Toll winning 10-9, a very close tussle and a game that proved most interesting to the crowd of spectators.

The final for the "Liddiard" shield was played by the Controller's Office Team and Royal Exchange. Although the C.O. won by 16-3, Royal put up quite a good fight, and the writer thinks that with a little more accuracy in netting the losers would have put up a better score. It is pleasing to record that Miss Liddiard was present, looking no worse for her retirement from the London Telephone Service, also Miss Mahlendorff, her successor, as Lady Superintendent of the Accounts Branch.

Personalia.

Resignations on Account of Marriages.

Assistant Supervisor, Class II.

Miss L. Cameron, of Trunk Exchange.

Telephonists.

- | | |
|---------------------------------|-----------------------------------|
| Miss M. E. Margetts, of Sutton. | Miss M. Uden, of Welbeck. |
| " M. E. Edwards, of City. | " M. R. Allen, of National. |
| " M. E. Sparrow, of City. | " G. M. Webb, of Sydenham. |
| " E. Gould, of City. | " G. L. Wharton, of Mayfair. |
| " D. E. Smithers, of City. | " F. V. Small, of North. |
| " S. M. Beacham, of Rodney. | " E. M. Callard, of Trunk. |
| " E. Kirby, of Rodney. | " A. A. M. Smith, of Trunk. |
| " E. M. Wooster, of Tottenham. | " M. J. West, of Avenue. |
| " M. G. Battig, of Tudor. | " G. Smeaton, of Museum. |
| " E. J. Stephenson, of Brixton. | " L. C. Carney, of Temple Bar. |
| " F. G. Page, of Brixton. | " F. F. Smith, of Park. |
| " K. Harvey, of Brixton. | " M. A. E. Pelton, of Bermondsey. |
| " N. L. Hodder, of Paddington. | " J. S. W. Pipe, of Regent. |
| " M. Carroll, of Grangewood. | " D. Gillespie, of Regent. |
| " M. Butt, of Holborn. | " G. Henry, of Whitehall. |

GLASGOW DISTRICT NOTES.

Promotion of Mr. R. F. Gilchrist.—Prior to leaving the Glasgow district to take up the position of Chief Clerk at Belfast, Mr. R. F. Gilchrist, Higher Clerical Officer, was presented with a Wireless Set at a gathering in the Athenæum on May 3. Over 100 attended, amongst them being old colleagues now in other Districts and others who had since left the service. Mr. Hugh Murray, who presided, and the District Manager, Mr. Coombs, who made the presentation, spoke in the highest terms of Mr. Gilchrist and voiced the congratulations and good wishes of the company.

After remarks had been added by Messrs. Law, Lucas, Harvey, and Morton, Mr. Gilchrist made suitable acknowledgment in the course of which he expressed regret at parting from so many old friends. A visit to a local theatre nicely rounded off the evening's proceedings, and the Committee responsible for the arrangements had every reason to feel satisfied with the result of their work.

"Bright Spots" in the Office Routine (No. 2).—Amongst a number of applications for a post of Girl Probationer, the following "gem" was received:—

"Dear Sir,—I hereby apply for Probationary Service in the G.P.O. for telephonist. I am 14½ years of age and 15½ feet in height. Trusting this will meet with your kind approval.—Yours faithfully,

Owing to building restrictions, the lady was not employed, although it was difficult to withhold our kind approval, as she would have been handy as a scheme of night concentration—or for "stretching points."

On Writing.—There is a power over and behind us, and we are the channels of its communications. We seek to write thus and so, and over our head some spirit sits which contradicts what we write. The universal nature, too strong for the petty nature of the bard, sits on his neck and writes through his hand; so that when he seems to vent a mere caprice and wild romance, the issue is an exact allegory. Hence Plato said that poets utter great and wise things which they do not themselves understand.—(Emerson).

When at the first I took my pen in hand,
Thus for to write, I did not understand
That I at all should make a little book
In such a mode; nay, I had undertook
To make another; which, when almost done,
Before I was aware I this begun.—(Bunyan).

Tables do tip

In the oddest way of themselves, and pens, good Lord,
Who knows if you drive them or they drive you?

I am persuaded that half the literature of the world was written by men who intended to write something entirely different when they took pen in hand. I am perpetually haunted by the things that refuse to be said. To-day I have spent an hour trying to say a comparatively simple thing in a letter to H., and I have said a dozen other things, and entirely failed to say that particular thing. The moment I think I am going to overtake it, it flies off at a tangent and utterly eludes me, or something else crosses the scent, and I am away after that, before I have time to think where I am going. Or else I have a perfectly clear image in my mind for which I can find no words that even approximately express its form and shape. I start out to describe it, and I describe something which may be quite definite and intelligible, but something which is quite different from my thought. Much writing is in this way a changeling which the pen has foisted between the author and his thought. This is, I suppose, the reason why writers can seldom bear to read over what they have just written. They put it away for a week, and, having forgotten their thought, complacently accept the changeling in its stead.—(Bagshot).

I have said many things in this letter which I never intended saying, and omitted much which I had hoped to be able to say.—(Dr. John Brown).

Do not the several parts of his discourse appear to have been thrown together at random? Or do you see some necessity for the second sentence occupying the second place, or any other sentence appearing in the position he has assigned it? For my part, I must confess that he seems to me, in my ignorance, to have put down on paper, with a gentlemanly independence, whatever came first into his head; but you, perhaps, are aware of some law of composition which guided his sentences into that particular order.—(Socrates.)

You should answer letters just as you answer men—promptly, courteously, and decisively. When I go into a fellow's office and see his desk buried in letters with the dust on them, I know that there are cobwebs in his head. Foresight is the quality that makes a great merchant, but a man who has his desk littered with yesterday's business has no time to plan for tomorrow's. The only letters that can wait are those which provoke a hot answer. A good hot letter is always foolish, and you should never write a foolish thing if you can say it to the man instead, and never say it if you can forget it. The wisest man may make an ass of himself to-day, over to-day's provocation, but he won't to-morrow. Before being used, warm words should be run into the cooling-room until the animal heat is out of them.—(Old Gorgon Graham).

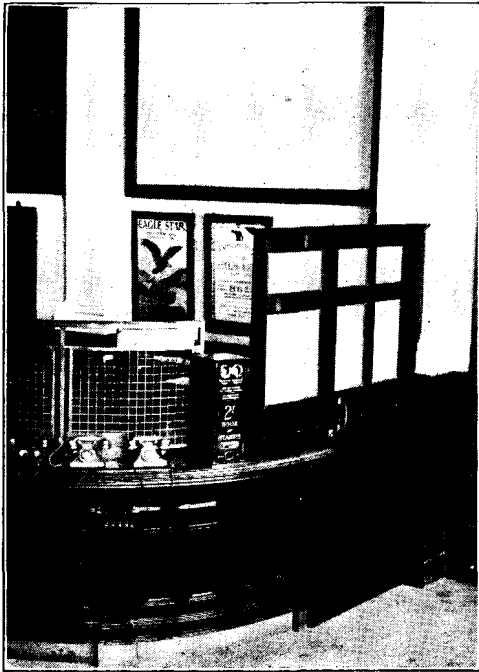
My pen,—it governs me,—I govern not it. . . . In all nice and ticklish discussions where I find I cannot take a step without the danger of having either their worships or their reverences upon my back—I write one-half full,—and t'other fasting; or write it all full, and correct it fasting; or write it fasting and correct it full. Now, when I write full, I write as if I was never to write fasting again as long as I live; that is, I write free from the cares as well as the terrors of the world. I count not the number of my scars, nor does my fancy go forth into dark entries and bye-corners to antedate my stabs. In a word, my pen takes its course; and I write on as much from the fulness of my heart as my stomach. But when, an' please your honours, I indite fasting, 'tis a different history. I pay the world all possible attention and respect, and have as great a share (whilst it lasts) of that understrapping virtue of discretion as the best of you. So that, betwixt both, I write a careless kind of a civil, nonsensical, good-humoured Shandean book, which will do all your hearts good—and all your heads, too—provided you understand it.—(Sterne).

LEEDS DISTRICT NOTES.

It is axiomatic in commercial life that if business is to be encouraged the way of the customer must be made smooth, and it was with this in mind that an interesting departure from the hitherto accepted order of things was made at Leeds Head Post Office in November last. This consisted in the establishment of a Telephone Information Bureau at the end of the section of the public counter where telegrams are handed in. Although the District Manager's office is only about 300 yards away from the Head Post Office in City Square, it was found that a caller at the Post Office, interested enough in the service to make enquiry regarding the telephone rates, did not always take the trouble on being referred to the District Manager's Office to traverse even that short distance, and so it was felt that potential customers were being allowed to slip out of our hands. The average Post Office counter is not, however, very well adapted for a discussion of the somewhat intimate nature involved in the negotiation of an agreement for telephone service, and the cubicle provided by the Postmaster-Surveyor

gives suitable privacy without in any way detracting from the appearance of the public counter.

The photos show exterior and interior views of the Bureau, and in the former can be seen the coloured Hand Micro Telephones fixed to the counter which served to direct the attention of purchasers of stamps and senders of telegrams to another important branch of the Post Office activities.

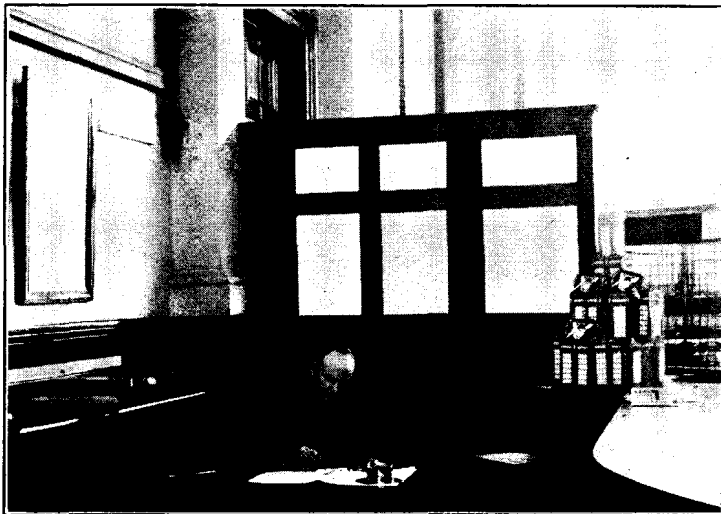


EXTERIOR OF TELEPHONE INFORMATION BUREAU.

After a somewhat slow start the number of enquiries increased considerably, and a couple of months saw the Bureau well established as part of the machinery for increasing the number of telephone stations. During the six months since it was opened agreements have been signed for

89 exchange lines,
4 extensions,
58 H.M.T.'s.

During a selected day in February, 2 boy messengers were stationed at the exits to the Head Post Office and handed to each caller as he or she left the Post Office, one of the cardboard kiosks in which was enclosed a cardboard H.M.T. model and a reply post card addressed to the District



INTERIOR OF TELEPHONE INFORMATION BUREAU.

Manager, but bearing also a reference to the Telephone Information Bureau at the Post Office. To minimise the possibility of the literature being thrown away, each set was enclosed in an elastic band, and although over 5,000 were given away, only 2 were found outside in the street. Orders for 21 exchange

lines, 4 extensions and 14 H.M.T.'s taken at the Bureau during February reflect the success of the distribution, and it is proposed to undertake another distribution of literature at an early date.

The telephone enquiries are handled by the S.C. & T.'s who staff the Telegraph section of the counter; a rota of 6 officers being given a short course of instruction on the subject by the District Manager's staff. Should it be necessary during the treatment of an enquiry for one of these officers to get skilled advice from the Contract Department, a telephone is available at the rear of the counter to enable this to be done without delay.

A BRIEF CHRONOLOGY FOR STUDENTS OF TELEGRAPHS, TELEPHONES AND POSTS.

BY HARRY G. SELLARS.

(Continued from page 114.)

- 1926, Oct. 1 ... Marconi Wireless Telegraph Company took control of Bolivian postal, telegraph and wireless services.
- 1926, Oct. 24 London—Montreal short-wave Beam Wireless Telegraph service opened, superseding the wireless service between London and Louisberg (Nova Scotia).
- 1926, Oct. 27 Telegram handed in by Dr. Mansfield Robinson, addressed to the planet Mars, emitted from London via Rugby wireless aerial.
- Dr. Alexanderson devised an apparatus called a "telephote" for the transmission of views, &c.
- Wireless Baudot telegraph installed between Bordeaux and Madagascar on a wavelength of 17,000 metres.
- 1926, Nov. 1 ... System of extending calls by one minute introduced in Anglo-Continental services.
- Comité Consultatif international des Communications Télégraphiques met in Berlin.
- 1926, Nov. 14 New schedule of wireless wavelengths, drawn up by the International Wireless Union, came into operation.
- 1926, Nov. 27 Duplicated sections of British Pacific Cable opened for traffic.
- Licences for wireless working issued to "Television Limited," owners of the "Televisor" invented by J. L. Baird.
- 1926, Dec. 15 Anglo-Portuguese wireless telegraph service opened.
- Wireless telegraph services opened between Lisbon and Madeira and the Azores.
- 1926, Dec. 17 Lars Magnus Ericsson died at Tumba, Sweden.
- 1926, Dec. 24 Christmas greetings exchanged between London and New York by means of wireless telephony, the messages being confirmed by "Teletype."
- S.S. *Carinthia* in Australian waters communicated by wireless with the New Brunswick wireless station.
- Edouard Belin, addressing the French Photographic Society, elucidated the principles and the essential parts of his apparatus for seeing things from a distance by means of wireless communication.
- A. Korn, of Munich, and H. Petersen, of Denmark, devised methods of transmitting pictures and photographs electrically.
- New telegraph cables laid between Bay Roberts (Newfoundland) and Plymouth (England); between Borkum (Germany) and the Azores; between Bamfield (British Columbia) and Fiji; and between the Cocos Islands and Australia.
- 1926, Dec. 31 Number of foreign telegrams passing through Cable Room, General Post Office, London, during the year—over Continental cables, 8,460,000; to and from cable companies; 2,324,000; over London—Halifax (N.S.) cables, 582,500; and by wireless, 562,500. Total, 11,929,000.
- 36,500,000 telegrams passed through the Central Telegraph Office.
- 1,072,000,000 telephone calls were dealt with.
- Trunk calls in United Kingdom reached 92,659,895. Calls to and from the Continent 561,464—representing 902,500 three-minute conversations.

Telephone calls in the London area numbered 499,473,766—an increase of 4.9% over 1925.

The operating staff consisted of 9,400 telephonists and supervisors. 4,686 public call offices and 418 street kiosks were in use. There were 15,400 private wires connecting subscribers and not connected to the public exchange system. 480 lines connected exchanges with the Phonogram Exchange at the Central Telegraph Office and 1,616,784 "phonograms" were dealt with.

8,540,000 two-shilling and 10,860,000 three-shilling books of stamps sold.

42,455,000 registered and 127,880,000 unregistered packets posted in United Kingdom.

Number of telephones in use: Europe, 8,020,000; Asia, 963,000; Africa, 168,500; North America, 19,120,000; South America, 427,700; Australasia, 578,500. 29,278,000 telephones in service in the world. 1,511,585 in Great Britain.

1927, Jan. 1 ... British Broadcasting Corporation took the place of the British Broadcasting Company, Limited.

Over 20,000 "greeting" telegrams passed over Imperial Wireless and Cable Services to Canada, West Indies, Australia and New Zealand.

1927, Jan. 3 ... Telephonic communication available between England and all places in Germany.

1927, Jan. 4 ... Vienna-Nuremberg telephone line opened connecting Austria with the telephone systems of Western Europe.

Signals exchanged between London and Melbourne by Beam wireless telegraphy at 250 words a minute.

Wireless telephonic conversation took place in the Arctic Circle between ships 1,100 miles apart.

1927, Jan. 7 ... Anglo-American telephone service inaugurated at 1.45 p.m. Greetings exchanged between Sir Evelyn Murray (Secretary, British General Post Office) and Mr. W. S. Gifford (President of the American Telephone and Telegraph Company).

1927, Jan. 19 ... Direct telegraph working inaugurated between London and Capetown at 42 words a minute by means of "Regenerator" relays at Porthcurnow, Fayal, St. Vincent, Ascension and St. Helena.

King Alfonso, of Spain, addressed 16 stations in circuit on a telephone line 3,800 kilometres long, made up of lines extending to every corner of Spain and to Ceuta, in Morocco.

Commercial short-wave radio-telegraphic service opened between Germany and the Philippine Islands. Successful telephony experiments carried out with Argentine and Mexico. Short-wave directional aeriels tested successfully. Pictures transmitted by wireless on wavelengths of 25 and 40 metres to Rio de Janeiro.

1927, Feb. 8 ... Liverpool-London-Antwerp section of the Liverpool-London-Antwerp-Havre-Bordeaux Baudot installation brought into operation.

1927, Feb. 19 ... Telephonic communication took place between London and San Francisco.

1927, Feb. 26 ... Transatlantic telephone system extended to Washington, Oregon, California, Nevada and Arizona.

1927, Mar. 1 ... Eastern Telegraph Company's direct London-Paris line opened.

1927, Mar. 4 ... Emden-New York (via Azores) telegraph communication re-opened after having been interrupted during the European War.

1927, Mar. 7 ... League of Nations proposed the erection of a special wireless station at Geneva.

1927, Mar. 11 ... Wireless telegraph service opened between London and Cape Verde.

Anglo-Cuban telephone service inaugurated. (Wireless across the Atlantic and landlines beyond.)

1927, Mar. 16 ... J. W. Legg, with his high-speed moving camera, observed that an electric discharge travelled spirally.

Eindhoven wireless station, using wavelength of 30 metres communicated with the Dutch East Indies.

Wireless signals exchanged between England and a whaler 250 miles within the Antarctic circle.

"White" Act passed in U.S.A. forbidding the purchase of a wireless company by a cable company, and vice versa.

1927, Mar. 31 ... Post Office surplus for previous year £5,787,000. Paid in salaries £38,524,000 (including bonus). £13,754,997 spent on telephone and telegraph construction.

1927, April 1 ... Reply coupons for prepaying replies to letters within the British Empire issued.

"Absent subscribers' telephone service" introduced, experimentally, whereby a subscriber, before leaving his premises, may inform the operator how long he will be absent and where he may be found, so that callers may be advised. Fees: period of interception not exceeding four hours, 6d.; exceeding four hours, 1s. One penny also charged for each call intercepted.

1927, April 2 ... Eastern Telegraph Company obtained a concession to provide telegraphic communication with Turkey for 30 years.

Baird Television Development Company registered.

Bell system of television demonstrated between New York and Washington—250 miles.

1927, April 5 ... Telephone service inaugurated between Spain and Gibraltar.

1927, April 8 ... Beam wireless telegraph service opened between London and Melbourne (aeriels situated at Skegness and Tetney).

Concert broadcast by wireless from Eindhoven on a wavelength of 30.2 metres heard in Melbourne.

Wireless trials took place between Brussels and North and South America, and the Congo on a long wavelength.

1927, April 29 ... Direct wireless telegraph communication between France and French Equatorial Africa officially inaugurated.

1927, April 30 ... Short-wave wireless telegraph services opened between Lisbon and Cape Verde, Angola and Mozambique.

1927, May 1 ... Bolivian telegraph and postal services taken over by Marconi Wireless Telegraph Company Limited.

Majorana, of Bologna, claimed to have discovered a system of wireless telephony utilising invisible ultra-violet rays with a long wavelength.

1927, May 3 ... Telephonic conversation held between Berlin (Germany) and Denison, Iowa (U.S.A.)

1927, May 5 ... First through telephone circuit between England and Switzerland provided.

1927, May 7 ... New Anglo-Belgian telephone cable brought into use.

1927, May 10 ... Direct cable communication opened between London and Boston, U.S.A.

1927, May 15 ... Anglo-Belgian telephone charges reduced (London-Brussels 7s. 3d.) and zone system and night rates introduced.

1927, May 23 ... Transatlantic Telephone Service available from 11.30 a.m. (Greenwich) to 10 p.m. (Greenwich).

1927, May 28 ... Volta Centenary Exhibition opened at Villa Olma, Como. Creed Direct (Start-stop) Printer exhibited for the first time in public at the Birmingham Section of the British Industries Fair.

1927, May 30 ... Direct cable communication established between Paris and New York.

1927, June 4 ... First wireless signals from India heard in England.

1927, June 5 ... Bulgarian Government signed contract for installation of wireless communication between Bulgaria and England, Austria and other European countries.

French Government erected a bust to Emile Baudot, the inventor of the well-known multiplex printing telegraph system.

1927, June 17 ... Official beam wireless trials commenced between London (Cable Room) and Capetown.

1927, June 22 ... Anglo-Swedish telephone service inaugurated.

1927, June 27 ... Agreement with the Eastern Telegraph Company ratified by the Turkish Parliament under which the company has been granted cable facilities for 30 years.

Odessa-Constantinople cable about to be restored.

1927, June 29 ... Anglo-Danzig telephone service opened.

1927, July 1 ... Parcels between 11 lb. and 22 lb. accepted for transmission to the U.S.A. at offices authorised to accept heavy parcels. Postal rate 7s. 6d.

Speeches in connexion with the Diamond Jubilee of the Dominion of Canada transmitted by landline from Ottawa to Drummondville and broadcast by "beam" wireless, thence on a wavelength of 26.18 metres. The transmission was received at Keston, relayed by landline to London and re-broadcast from all stations of the British Broadcasting Corporation.

1927, July 5 ... Anglo-South African beam wireless telegraph service opened for public traffic. Rates a word to the Union of South Africa fixed at 1s. 4d. for ordinary telegrams, 8d. for deferred telegrams, and 4d. (with a minimum of 20 words) for Daily Letter telegrams.

- 1927, July 11 ... Maximum amount which may be withdrawn from the Post Office Savings Bank on demand at any post office raised from £1 to £2.
- 1927, July 15 ... Anglo-Danish telephone service opened (18s. 6d. for three minutes).
- 1927, July 17 ... French Government experimented with a system of delivering telegrams to passengers on trains running between Paris and Marseilles.
- Postmaster-General set up a committee, composed of Sir Hardman Lever (Chairman), Lord Ashfield and Sir Harry MacGowan, "to examine the possibility of effecting substantial economies in the working by the State of the Inland Telegraph Service."
- "Televisor" tried successfully on London-Glasgow lines.
- Italian Post Office issued stamps commemorating centenary of the death of Volta, Mar. 5, 1827.
- 1927, Aug. 5 ... Beam wireless telegraph services opened between Great Britain and the Argentine and Brazil.
- Radio-telegraphic service opened between Berlin and the Philippines.
- 1927, Aug. 9 ... One-day strike of telegraphists in Paris.
- Denes von Mihaly, of Hungary, invented a method of transmitting scenes by wireless.
- "Tandem" telephone exchange opened for establishing calls between exchanges which are not in direct communication.
- Two moving armoured cars communicated with each other by wireless telephony at Moulsoford, Berkshire.
- 1927, Sept. 1 ... "Noctovision" demonstrated over a telephone circuit between London and Leeds.
- 1927, Sept. 6 ... London—Bombay short-wave beam wireless communication opened.
- 1927, Sept. 7 ... British Television Society formed. President, Lord Haldane of Cloan.
- 1927, Sept. 12 ... International Congress of Electrical Science, marking the centenary of the death of Volta opened at Como.
- 1927, Sept. 29 ... Telephone service inaugurated between United States and Mexico.
- Statue erected in Vienna to Dr. Emanuel Hermann, the inventor of the post-card.
- Postal orders reduced to about three-quarters of the size then in use.
- 1927, Oct. 1 ... Anglo-Norwegian telephone service inaugurated (22s. 6d. for three minutes).
- 1927, Oct. 3 ... Anglo-Canadian telephone service inaugurated (£15 for three minutes).
- 1927, Oct. 10 ... International Radio-telegraph Conference opened at Washington.
- 1927, Oct. 13 ... Electric apparatus, called an "Automatic Man," responding to certain pitches of the voice, exhibited by the Westinghouse Electric and Manufacturing Company in New York.
- 1927, Oct. 28 ... Anglo-American beam wireless telegraph service opened.
- Tablet to the memory of Michael Faraday unveiled at the Central Library, Southwark, by Sir Oliver Lodge.
- 1927, Nov. ... Marconi Wireless Telegraph Company capital reduced from £4,000,000 to £2,374,954.
- Australian Government formed committee to investigate the influence of the beam wireless traffic upon the finances of cable companies.
- Washington International Radio Conference adopted a distress call for use in radio-telephony. The call to be telephoned being "Mayday" (phonetic form of "M'aidez"). The conference also provided for compulsory arbitration in radio disputes and for the creation of an international and technical advisory committee.
- 1927, Nov. 14 ... Underground telephonic communication between Paris and Prague inaugurated.
- 1927, Nov. 18 ... Fingerprints of a man arrested in London transmitted to Chicago by wireless and identified.
- 1927, Dec. 1 ... Anglo-Austrian telephone service opened.
- Karolus system of picture telegraphy instituted between Berlin and Vienna.
- Capt. Fulton demonstrated at Geneva an apparatus for wireless broadcasting of pictures, drawings, &c.
- Handwritten greetings accepted by the Marconi Wireless Telegraph Company for transmission by their photo-radiogram service, at the rate of £8 4s. 6d. for a photo-radiogram 5 inches by 4. Extra copies could be sent at a cost of 4s. 2d. each.
- Wireless telegraph service opened between Vienna and Constantinople.
- Anglo-Egyptian wireless service transferred from the Post Office to the Marconi Company.
- Statue of Emile Baudot unveiled at the General Post Office, Paris.
- 1927, Dec. 8 ... Laying of the first section of the Le Havre—Newfoundland—New York cables commenced.
- British Government invited the Indian and the Dominion Governments to nominate representatives to meet with them in conference on the question of cable and wireless communications.
- Time signals broadcast from Greenwich at 10 a.m. and 6 a.m. daily. Wavelength 18,740 metres.
- Radio Research Board test room and laboratories at Ditton Park, Slough, wrecked by fire, and mast 210 feet high collapsed.
- 1927, Dec. 15 ... Christmas and New Year greetings telegrams at reduced rates accepted for transmission by beam wireless to Canada, South Africa, Australia, India and countries served by those communications.
- Leo Theremin produced musical sounds and melodies by moving his hands in the path of sound waves produced by means of an alternating current of varying frequency. He also projected light rays, the colour of which varied with the notes produced.
- 1927, Dec. 31 ... United States telegraph statistics for previous twelve months. 18 telegraph companies with 27,530 stations. 2,139,259 miles of line on 254,720 miles of pole-line. Number of telegrams handled, 215,595,494. Total income 159,682,419 dollars, expenditure 131,320,555 dollars. Total number of employees, 74,903.
- Total number of telephones in use in the world, expressed in thousands:—Europe, 8,541; Asia, 1,103; Africa, 187; North America, 19,979; South America, 463; Australasia and Oceania, 630. Total, 30,904. Total in Great Britain, 1,633,802.
- 34,000 Christmas greetings telegrams transmitted by the beam wireless systems in use between London and Canada, South Africa, Australia and India.
- 99,978,429 trunk calls made during the year. 665,000 Anglo-Continental telephone calls.
- 11,850 Postmen employed in London and suburbs.
- Total number of staff employed by the Post Office, 229,000.
- 10,270,000 two-shilling and 11,530,000 three-shilling books of stamps sold.
- 43,707,000 registered and 139,201,000 unregistered packets posted in United Kingdom.
- Cash on delivery items dealt with during year—1,520,000.
- £1,925,501 paid by Post Office to British railways for parcel conveyance.
- £284,649,940 deposited in P.O. Savings Bank.
- 1928, Jan. 1 ... Anglo-Hungarian and Anglo-Czecho-Slovakian telephone services opened.
- London—Constantinople wireless telegraph service opened.
- Commercial Cable Company took over Sayville Wireless Station, Long Island, for international telegraph working.
- 1928, Jan. 3 ... Money Order service with Bolivia resumed.
- Henri Lucien Boulanger, of Grenoble, appointed Deputy Director of the International Office of the Telegraphic Union.
- 1928, Jan. 12 ... Wireless telegraphic communication opened between Madrid and Buenos Aires.
- 1928, Jan. 15 ... Anglo-Egyptian beam wireless telegraph service opened.
- Imperial Wireless and Cable Conference held in London.
- 1928, Jan. 19 ... Transatlantic wireless telephone service extended to Belgium.
- First cable to land in Palestine laid between Larnaka (Cyprus) and Haifa.
- 1928, Jan. 21 ... Representatives of Governments of North America (including Cuba) met at Ottawa to consider the control and allotment of radio short wavelengths.

(To be continued.)

THE Telegraph and Telephone Journal.

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All correspondence relating to advertisements should be addressed to MESSRS. SELLS, LTD., 168, Fleet Street, London, E.C.4.

TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XCIX.

MR. WM. THYNE.

MR. WILLIAM THYNE entered the Telephone Service in 1892 as a Junior Clerk at Glasgow, and has vivid recollections of his first important duty which was by way of recording calls at the Central Exchange, for special returns were taken even in those far-off days! In 1897 Mr. Thyne was placed temporarily in charge of the Dumbarton District, and in 1898 he was promoted to the Chief Clerkship of the Sheffield District. During his tenure of office at Sheffield he was responsible for the functioning of various War Emergency arrangements, including the Air Raid Warning Scheme, in connexion with which latter he was specially complimented by "G.H.Q.," an honour of which he is justly proud. Here, also, the Telephone section, under his stimulus and guidance, occupied first place on the list of War Savings Associations for the District.

In 1922 Mr. Thyne was promoted to Higher Executive Rank, and in 1925 was transferred to the Glasgow District as Staff Officer in the Office where he had started as a Junior 33 years before! In 1927 further deserved advancement came along by way of promotion to the District



(Photograph by B. & W. Fisk-Moore, Canterbury.)

Managership of Canterbury, and in 1930 Mr. Thyne came back to his native land as District Manager, Scotland West, a position which he at present occupies with credit to the Department and to himself and with the complete confidence and trust of all those whom he serves and who serve him.

Born at Uddingston, Lanarkshire, Mr. Thyne is a true son of Caledonia with a well developed sense of humour. He has a number of hobbies. No, Sir, not Golf! In his spare time—one wonders whence he gets this—he writes excellent plays in the original vernacular of his native land. He has, moreover, a liking for photography, with a particular flair for enlargements in oils; he is also very partial to music and is never happier than when conducting a choir or choirs. During his special spare time—but tell this not in Gath—"W.T." loves a good screen drama.

If there is an outstanding feature amongst a number of commendable virtues possessed by Mr. Thyne, the writer would call it Tact. It comes naturally to him and, combined with it—or complementary to it—is that rare faculty of being able to think twice before speaking

The Telegraph and Telephone Journal.

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NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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REACTIONS TO PERSUASIVENESS.

AN administration supplying a public service, in its endeavours to further its business by modern methods has often to contend with various manifestations of a certain old-English spirit which strongly dislikes being advised or persuaded. You may, if you are fortunate, cajole the embodiment of this spirit by pictures and jingles displayed on hoardings or by paragraphs and pictures in the press, at neither of which he need look unless he chooses to; but anything in the nature of a personal approach is resented as an impertinence. At the same time service administrations are continually exhorted to follow modern business procedure and chidden because their methods are not sufficiently up to date. The Post Office, for example, is told that if it wishes to obtain expansion of its telephone system on an American scale it must canvas clients and potential clients intensively by all the legitimate means devised by publicity agents. Truth to tell, attempts in this direction find favour with the public on the whole and are justified in their results. But there are exceptions.

A recent incident shows how different types of mind react to attempts at gentle persuasion. The London Telephone Service recently adopted the practice, on receiving a notice to cease, of sending a polite letter of regret to the subscriber asking him to reconsider the benefits of which he was depriving himself by discontinuing the service. It was further requested that he should consent to receive a representative of the Post Office in order to discuss the matter fully before coming to a final decision. While one subscriber (who replied that he was giving up his extension for the excellent reason that the person who made use of it now had an installation of his own) expressed his opinion that the letter

addressed to him on the subject was the most courteous communication he had received from a Government Department in the course of 35 years' experience, another objected to it strongly as an impertinent suggestion that he did not understand his own business. This subscriber's point of view, of course, would preclude him from accepting any suggestion for the furtherance of his business or any labour-saving scheme which he did not himself propose. He might equally resent receiving a circular or brochure from a railway company suggesting that he should spend his holidays at Blackpool when, perchance, he had decided on Brighton. The only lessons, we think, to be learned from these incidents are the variability of human reaction to the suggestions of other parties, and the necessity of employing the greatest tact in the wording and presentation of all invitations to the public to become or remain telephone-minded.

HIC ET UBIQUE.

WE offer our heartiest congratulations to two Post Office recipients of Birthday Honours. One is Mr. J. Stuart Jones, C.B.E., the Controller of the Central Telegraph Office, and the Chairman of the Editing Committee of this Journal, and the other, Mr. A. B. Hart, Assistant Engineer-in-Chief, O.B.E.

We hear that the telephone system of Persia has recently been transferred from the private company which installed it to the State. All the principal towns in Persia have a telephone exchange, Tehran having 2,121 subscribers, Isfahan 398, Hamadan 328 and Shiraz 373, the State system having 4,793 in all. In addition, there are exchanges at Resht, Tabriz and Meshed, with about 800 subscribers between them. There is also the system of the Anglo-Persian Oil Co. in Khuzistan. Altogether there should be some 6,000 subscribers' lines in Persia.

Mr. Shackleton draws our attention to a chronological error in our short account of his career. He was appointed Superintending Engineer in 1926 (not 1925), and was, moreover, graded as Assistant Superintending Engineer on his transfer to the Post Office service. Mr. Shackleton modestly deprecates the suggestion that he possesses a *marvellous* combination of theoretical and practical knowledge, and he protests that "motoring" cannot be considered as an outdoor sport. He prefers walking—and states that he hasn't done any shooting for years.

We gladly make these sacrifices of editorial *amour-propre* in the interests of unswerving truth and exactitude.

An important extension of the Overseas telephone system was the opening of a public radiotelephone service between this country and Egypt on June 22. It is in operation daily from 8 a.m. to 12 noon and from 5 p.m. to 7 p.m. Communication will be available to and from all parts of Great Britain and Northern Ireland, but the service in Egypt will be restricted at the outset to Cairo and Alexandria.

The charge for a call from any place in England, Scotland or Wales to Cairo or Alexandria will be £1 4s. 0d. a minute, with a minimum of £3 12s. 0d. for three minutes.

Two letters of appreciation from telephone subscribers received recently by the District Manager, Southampton, are thought to be interesting enough to reproduce.

1.

"I should like to add a word of praise for the way in which the Post Office Telephone Service is worked in ——. It is admirably 'run' and the telephone operators are both excellent and well trained.

"As I have had experience of telephone arrangements and 'Exchanges' all over America and for 10 years in New Zealand, as well as in various parts of the United Kingdom, and in France and Italy, perhaps my praise will be the more valuable, for I have never experienced an exchange which was better managed."

2.

"We are very much obliged for the prompt arrangements you made for the training of our switchboard operator, and should like to express our appreciation of the courtesy she received from Miss --- and Miss --- and the staff at the local exchange.

"Our operator states that she spent a most interesting and profitable day and we feel sure that we shall enjoy a better service as a result."

We much regret to record the death of Mr. E. H. Taylor, the head of the firm of Messrs. A. P. Blundell, Taylor & Co., the well-known printers of 171/3, Upper Thames Street, who have had charge of the printing of this *Journal* since its inception in 1914, and before that were the printers of the *National Telephone Journal* (with which most of our readers are familiar) from 1906 to 1912. Mr. Taylor took a personal interest in the production of the *Journal*, which was much appreciated by the Committee, and we offer our sincerest sympathy to his widow and son.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office System at May 31, 1932, was 2,065,282, representing a net increase of 5,531 on the total at the end of the previous month.

The growth for the month of May is summarised below :—

Telephone Stations—	London.	Provinces.
Total at May 31, 1932	772,954	1,292,328
Net increase	1,167	4,364
Residence Rate Stations—		
Total	247,639	322,545
Net increase	730	1,573
Call Office Stations (including Kiosks)—		
Total	8,340	29,374
Net increase	73	101
Kiosks—		
Total	3,150	10,063
Net increase	48	141
Rural Railway Stations connected with Exchange System—		
Total	51	2,003

The total number of inland trunk calls during the year ended Mar. 31, 1932, was 124,461,620, representing an increase of 2,792,022, or 2.3%, over the total for the previous twelve months. Outgoing international calls for the year numbered 592,108, and incoming international calls 625,558, compared with 545,037 and 585,172 respectively for the year 1930/31.

Further progress was made during the month of May with the development of the local exchange system. New exchanges opened included the following :—

LONDON—Ashtead.

PROVINCES—Automatic exchanges: Selly Oak, Woodgate (Birmingham); and the following rural automatic exchanges: Abbey Town (Carlisle), Auldhouse Cross (East Kilbride), Bozeat (Wellingborough), Bilsthorpe (Mansfield), Bradfield (Sheffield), Comberton (Cambridge), Curdworth (Birmingham), Earlston (Edinburgh), Gaerwen (Anglesey), Hickling (Norwich), Hilton-in-Cleveland (Middlesbrough), Leedstown (Hayle), Lustleigh (Newton Abbot), Little Hulton (Bolton), Langbank (Glasgow), Llangorse (Brecon), Owersby Moor (Market

Rasen), Ravensworth (Penrith), Swimbridge (Barnstaple), Thistleton (Oakham), Week St. Mary (Bude), Wix (Colchester), Waterbeach (Cambridge), Winwick (Oundle), Wichford (Worcester);

and among the more important Provincial exchanges extended were :—

Slough, Wisbech.

During the month 75 new overhead trunk circuits were completed, and 82 additional circuits were provided by means of spare wires in underground cables.

BYRON EXCHANGE OPENING.

ONE of the most rapidly growing areas of the suburbs of London is the district of Harrow, in the north-west. To meet the growing needs of this district it has been found necessary to open two automatic exchanges, which are named after two of our most national poets, "Byron" and "Wordsworth" ("Arnold" being given to the exchange to be established in an immediately adjacent district).

The Byron telephone district covers an area of five square miles. The new exchange equipment has immediate capacity for over 2,000 lines and the building as it stands is capable of accommodating 5,000 lines. The exchange scheme has been designed to provide for an ultimate extension to 9,400 lines, and will cater for the needs of the Byron area for an indefinite term of years.

At the opening of "Byron," which took place on June 2, a company of more than a hundred assembled. Amongst those present were Dr. Cyril Norwood, Headmaster of Harrow, and Mrs. Cyril Norwood, Mr. E. T. Campbell, M.P., Parliamentary Secretary to the Postmaster-General, Mr. L. Simon, Director of Telephones and Telegraphs, Mr. F. H. S. Grant, and other representatives of the Secretary's Office; Mr. W. H. U. Napier, and the Deputy and Assistant Controllers; Col. Lee, Mr. Anson, and other representatives of the Engineer-in-Chief's Office; Mr. Gomersall and staff of Assistant Superintending Engineers; and Mr. Brake, representing the Standard Telephone Company, contractors for the equipment; and there were also present a number of councillors, press representatives, &c.

Mr. Campbell gave a short resumé of the history of automatic exchange progress, and then unveiled the commemorative tablet which had been placed on the wall of the switchroom, and which reads :—

THIS TELEPHONE EXCHANGE NAMED AFTER THE POET BYRON
IS THE ONE THOUSANDTH AUTOMATIC EXCHANGE
INSTALLED BY THE BRITISH POST OFFICE.
OPENED 2ND JUNE, 1932.

Dr. Norwood, who inaugurated the service at the new exchange by making a call to Sir Kingsley Wood, in his address paid a tribute to the General Post Office, and all its operations, to which he said that less than justice was often done. He said they had heard that the exchange, although commencing with 930 lines, could be extended to 9,400; but he hoped that there were many in the room who would see it so develop that the telephone would be installed in every house in Harrow. With regard to the name chosen, Dr. Norwood said that so far as Harrow School was concerned, the choice of "Byron" was regarded as a great compliment. He added that he felt sure that Byron himself would have been glad, and that he would have liked it had he known that his name would be called so many times a day in future years.

Mr. Dive proposed a vote of thanks to Dr. Norwood; and Councillor Bruce, who seconded, paid tribute to the great interest Dr. Norwood took in all matters concerning the town.

WHAT SWISS TELEPHONISTS THINK OF THEIR PROFESSION.

To obtain enlightenment in recruiting the best qualified and most capable telephonists, the Swiss administration recently issued a questionnaire to every supervisor and every telephonist with 2 years' service, in order to ascertain what, in their opinion, were the particular qualities, characters and special capacities indispensable to satisfy the exigencies of their profession. They were free to answer the questionnaire or not, and were given the assurance that the information obtained would be treated objectively. The answers seem to us both interesting and instructive, and as it is thought they will be equally so to readers of the *Journal*, a translation (slightly abridged) has been made of an article by Mr. J. Hufschmid, of Bern, published in the Swiss *Technische Mitteilungen* last year, which gives these answers in full, together with some comments on them. Our readers, especially in the exchanges, will find that some of them apply only (or chiefly) to Swiss conditions. Some of the replies have been omitted, either as being redundant or of too local an interest, but the majority of the replies are given fairly fully, and it will be easy for our readers to appreciate how far the favourable and unfavourable aspects of their profession as expressed in the following answers apply to the telephonist at large, and how far to Swiss or Continental conditions only.

1,298 forms were distributed, 137 to supervisors and 1,161 to telephonists. The supervisors filled up 70% of their forms, and the telephonists 36% of theirs.

The small number of replies is considered by Mr. Hufschmid unsatisfactory, but sufficient, nevertheless to furnish a true picture. It shows, he thinks, that a great portion of the female staff do not take a lively interest in professional questions. The replies from the small centres were more numerous proportionately than from the greater ones, possibly because *esprit de corps* in the former is more developed and possibly because the distractions and interests in large towns do not leave time to consider and reply to the questions.

The following 10 questions were asked:—

A.—BOTH SUPERVISORS AND TELEPHONISTS.

1. Do you love your Profession?

This may appear an audacious question if one considers that generally the profession passes for an irksome one and depressing for the nerves. Already the schools put their pupils on their guard against the choice of this profession. Even to-day a great number of masters and mistresses counsel young girls not to engage in it. We therefore expected a large number of negative replies. We were altogether deceived. Out of 512 replies which we received, 467, or roughly 91%, said "Yes." 43 telephonists, indeed, thought it necessary to reinforce their affirmation with "Very much"; "With all my heart"; "I adore my work"; "I love the service"; "I shall think with pleasure of the happy moments I have spent at my work"; "If I had to choose again, despite certain inconveniences, I should choose the work of a telephonist," (after 21 years!), and, finally: "Yes, I have often compared my profession with other feminine professions and I have found few with which I would exchange it."

Other telephonists, on the contrary, like their work but express their sentiments in a reserved manner. "The work is not estimated at its proper value." "The manner in which our superiors treat us is not always correct." "Too much importance is attached to service observations." "I like it for the work but not its effect on my health." "The rules are too strict," &c., &c. Only 26, or 5% of the 512 answering, replied "No"!

2. If you like your profession, what attracts you most, and in what does it most correspond to your aptitudes?

Unfortunately, a certain number have not responded clearly to this question. This has influenced unsatisfactorily the result of our enquiry. However, 119 telephonists find their profession *very* interesting; 102 like it because it is varied, full of surprises and enlarges their knowledge. 99 telephonists—almost all in exchanges situated in watchmaking areas, or those of the textile industry, subject regularly to commercial crises—appreciate their profession because it guarantees a permanent job, and permits them to enjoy in their old age a pension, however modest. 58 like especially being in connexion with the public; 40 are pleased to be able

to make use of their geographical knowledge, 37 like the mental alertness their work requires. The same number appreciates the politeness of the public. 29 experience a certain pleasure in being able to use their polyglot talents in the international traffic and with their colleagues in other countries. 26 like the irregular hours which allow them more liberty during the day. 24 are proud of fulfilling a responsible public function and, finally, 21 see in their work independence and freedom.

Amongst the replies received were the following:—

"I like taking prompt decisions and rapid action."

"The changes and continual inventions in technical progress, and the social position which our profession gives us make me love it. The order and punctuality which it requires and the consideration attaching to it respond to my aspirations."

"My profession places me in the full stream of life. I seem to participate in all movements of society."

(Several of the replies are variations of this.)

Finally, a telephonist, who is apparently not a feminist, replies: "In our profession we have at least the feeling that we have not taken the place of a man."

3. Do you like your profession? If not, why not?

26 telephonists think too much importance is attached to "observation," and consider this service *tricky and pedantic*. They do not appreciate exactly the value of "observation" and do not understand the purpose for which they are made.

Every conscientious manufacturer examines by all means at his disposal the articles which he produces. He wants to be convinced that what he has to sell to his clients will satisfy them from all points of view. The administration wants to know if the merchandise it produces (i.e., the telephone service) is what the subscribers have a right to expect. . . . If one considers the telephone traffic figures and the importance of modern telephone exchanges and the numerous staff they contain, one will understand that without observation it is hardly possible to develop rational methods of working, nor to educate the staff to attain the desired end. If, also, one considers that the administration only prescribes 2 hours of observation per 100 hours of work, and that for various reasons this minimum cannot always be applied, it will be admitted that "observation" can hardly be regarded as a practice which alarms and enervates the operators. Owing to its rarity it cannot be considered as a system of espionage. Telephonists who work conscientiously have nothing to fear from it. . . . Further, the judgments arising from it are not always unfavourable to the telephonist but often result in the quality of her work being noticed.

We should here like to recommend specially to the supervising staff never to fail in tact towards the telephonists. Complaint should not be made in a wounding manner, and should never degenerate into petty niggling. Sensitive people suffer already from the fact that they have committed a fault. . . . Those who conscientiously and seriously utilise the influence they have over others in a good manner, may do an enormous amount of good.

19 complain of unjust treatment by their superiors, not only by the supervisors but by some of the chiefs of the management side; 13 find the work too mechanical; 11 suffer from nerves; 9 complain of late work which they find too irksome; 7 of over-work; 7 dislike irregular shifts; 6 find the work too monotonous; 3 complain of too few holidays; 2 of too little pay; and finally, 2 do not like Sunday work.

To quote some of their remarks: "A little more independence is desired"; "Impatient subscribers complicate our job"; "The administration requires the utmost of us"; "Our profession deprives us of all initiative in life every day."

4. Which appeared the most difficult when you were in training—to acquire manual skill or to make the required mental effort?

Many did not reply, perhaps because they did not remember their troubles during this period, perhaps because they had forgotten them altogether. 167 telephonists declared that they learned the work without too much difficulty. 142 found that manual dexterity was not acquired without trouble. 82 found that the mental effort required gave them headaches.

The following comments were made: "The fear of my superiors hindered my rapid professional development"; "The accomplishment of our work requires an extraordinary memory"; "I had much trouble in serving simultaneously and rapidly several kinds of apparatus, watching my position, serving the groups on right and left, and making the necessary records"; "It is not easy to keep your attention on all sides at once"; "Wearing the headgear tired me much"; "Difficult to understand and carry out rapidly the different wishes of subscribers"; "Painful to sit without moving for 8 hours, to get used to my surroundings and submit to discipline"; "Not easy to concentrate amid the noise of the exchange."

A certain number thought the period of training should be increased from 3 to 4 months.

It would appear that manual dexterity once acquired (which takes about 12 to 15 months of practice), the work requires nothing more than a mental alertness which permits our work to qualify as an intellectual profession.

5. *What omissions did you notice in your professional training?*

Most of the telephonists, 132 in all, replied that the principal omission they had noted was their lack of knowledge of foreign languages, several of which were absolutely indispensable for the work at the large exchanges, and in international traffic or at tourist centres. 22 telephonists deplored the insufficiency of their geographical knowledge. 108 telephonists regretted having no instruction on the technical side.

There could be no question of giving a technical course to all telephonists, but the administration might perhaps do something in this direction in giving some elementary explanations of technical questions, at least to the supervisors. 92 telephonists confessed no omissions in their technical training.

The girls made (*inter alia*) the following observations:—

“My professional knowledge would be more extensive if I had been transferred temporarily to another exchange.”

(Transfer to another exchange with a view to perfecting themselves professionally is desired by several telephonists.)

“I could dispense with answering the fifth question. Everyone knows that she has not learned everything.”

“A good map of Switzerland is wanting in the exchanges.”

“More thorough instruction during training, which ought to be extended from 3 to 4 months.”

“Instructive conferences from time to time on the innovations introduced.”

“More precise information on the organisation of the districts.”

“I should have liked to know more on questions of salary and hours of work.”

“Telephonists ought to be well up in geography because when the international work is heavy they have neither the time nor the possibility of consulting an atlas.”

“Amongst the conditions of engagement the knowledge of three languages ought to be required instead of two.”

“A course of training as teacher (pedagogy) would be of great value to the supervisors.”

[In commenting on the foregoing, Mr. Hufschmid points out that the Swiss telephone system has been in a state of transition for some years, aerial routes being largely replaced by cables, and gives some explanation of the necessity for the correct routing of calls.]

One answer has a certain maliciousness. “I leave to the administration the trouble of discovering these omissions.”

6. *Describe the telephonist as she should be. Her character and her special aptitudes.*

This question aroused the greatest interest. It is understood, of course, that the telephonist should have only good qualities and good aptitudes. If she has not already the good fortune to possess these treasures on entering the service, she will have much to learn and much to contend with. It is interesting to learn, from the point of view of the staff, the qualities which should be possessed to practise our profession.

1,700 views which have been expressed may be divided up as follows:—

- (1) 14.9% patience, calmness.
- 11.3% tact, politeness and good education.
- 6.2% affability.
- 6.2% foresight, serviceableness.
- 5.9% amiability, good humour and brightness.

i.e., 44.5% qualities which have a good influence on relations with the public, with superiors and colleagues.

- (2) 12.0% intelligence, rapid discernment and prompt decision.
- 11.0% dexterity.
- 4.2% faculty of adaptation.
- 2.1% good memory.
- 1.3% precision and energy.
- 0.6% truth.

i.e., 31.2% qualities which require rapid and attentive execution of work.

- (3) 8.6% uprightness, fidelity to duty.
- 3.8% punctuality, exactness.

i.e., 12.4% qualities which guarantee conscientious work.

- (4) 4.0% self control.
- 3.5% discretion.

i.e., 7.5% qualities of capital importance for avoiding difficulties with subscribers.

- (5) 4.4% good health and strong nerves.

It goes without saying that, seeing the character of our profession, only young girls with good health and nerves can be engaged. The expenditure of mental energy which our work constantly requires and the sense of responsibility which it awakens, makes young girls develop more rapidly

than in most other professions. They are therefore obliged to adapt themselves to a regular life, a condition essential to good health. Those whose nerves are weak do well to follow a regular regime, with fresh air, plenty of movement, good night's rest and substantial nourishment. One is surprised to learn that in 1930, for example, only 16 telephonists with more than 5 years' service have had to retire for reasons of health certified by a doctor.

The table published above shows that the possession of a good character plays a chief part in actual practice. Intelligence and rapidity of work take the second place. No means of communication can be called modern without the idea of quickness being impressed on the mind. This is especially the case in the telephone service, where one does not reckon by minutes but by seconds. The third place is taken by conscientiousness and character. We may quote some of the more interesting remarks:—

“A telephonist requires the patience of an angel, patience without limit.”

“She requires strong nerves, in fact, nerves of iron or steel: in a word, to be completely insensitive.”

“She needs to be a philosopher and know how to take things from time to time in good part.”

“She wants a well-balanced personality, with a good education and a gift for elocution and commercial sense.”

“She needs to be enduring, but not at all curious.”

“Finally, she needs to be soft as a dove, wise as a serpent, and mute as the tomb.”

7. *Is the profession of telephonist appreciated in your family and in your circle of acquaintances? If not, why?*

380 telephonists responded “Yes,” 200 “Yes” with reserves and 93 “No.”

The replies show that our profession is much appreciated by parents; above all, for the security it gives us. On the other hand, the general public does not generally know what this profession is, or what it requires and in what manner it is practised. Many form a completely false idea and think, for example, that the telephonists are *too well paid and reach a brilliant position* without it being necessary for them to have any special knowledge or instruction. Others, on the contrary, pity them as martyrs in a tedious and frightfully enervating profession. They are both wrong. The telephonist needs to know many things and much is required of her. On the other hand, the influence of the work on the nerves of normal persons is not so disastrous that telephonists need to be considered as martyrs. These are some of the remarks made by telephonists:—

“My profession is appreciated in my family and practised by several of its members.”

“I like my profession because it does not leave me to the arbitrary power of a ‘boss.’ (Patron.)”

“My father has a great respect for my profession. It gives me joy and places me in a financial situation which allow me to fulfil my duty as a daughter and soften the last years of one that I love.”

“Yes, my profession is esteemed, but it is thought to put health to a rough test and that it cannot be advised for all young girls.”

“Yes, it is appreciated, but much more in the country than in the town.”

“They esteem us as State employees, but not so much as telephonists, who are often considered as knowing everything. (This omniscience, of course, does not apply to our learning, but rather to the ‘secrets’ which the staff is supposed to be in possession of.)”

“Generally speaking, our work is not appreciated and has the reputation of being exhausting and unhealthy. This erroneous opinion ought to be energetically contested by telephonists. If we examine a little the joys and sorrows of the employees of a copyist's office in private industry, we shall see that some of them work in good conditions and others, on the contrary, in a deplorable state. I know young girls who take home at night a quantity of work to finish at home. They do it because they have no protection from the caprice of their chief. If it does not suit them, they can go—there are plenty more who need their places. We have the possibility at least of obtaining justice and in case of necessity appealing to superior authority. Our work has its dull side, but, in spite of all, it is a good profession. If we take interest in it and employ all our faculties, the work will brighten a good number of dull days.”

“Strangers place us in the same category as Custom House officers and policemen, i.e., officials who are submitted to the most severe discipline.”

“Our profession is not liked in families and in pensions because of the irregularity of our meals, which, as everyone knows, makes the cost of living dearer.”

“My profession is not liked among my friends and family because the irregular hours do not allow me to take much part in family life and hinder me from being an active member of any society whatsoever.”

Finally, this cry of despair comes to us from a large exchange: “Our profession is not rated very high. The proof is that no one marries telephonists.” Happily, the facts prove the contrary. The great majority have up to the present found, without difficulty, the road to the matrimonial paradise. Let us hope it will be the same in future!

8. *Do you know why telephonists leave the service to take a situation in private industry?*

275 girls think that the reason may be found in the desire of these young ladies to enjoy the Sundays, Saturday afternoon and free evenings which private companies accord.

168 observe that private industry pays higher salaries than the administration and that it has also instituted pension funds. (The allegations about higher salaries have not been checked, but they cannot be accepted at face value.)

100 others say that in private enterprise the staff are better off for holidays.

94 insist that greater liberty and less severe discipline reigns in private firms. 90 believe that the departures take place entirely for reasons of health. (No night service, regular meals.)

These are some of the opinions expressed:

"Some reasons which I have known are that telephonists find in their private life things do not go as they desire and they want to try something else; another left the service because she was offered a place as better-paid secretary." "I know a case where the strained relations between the supervisors and telephonists were the cause of leaving." "That which attracts in private industry is the higher pay, regular hours of work and longer holidays."

Finally, some declare that telephonists have more chance of reaching marriage in occupying a situation in private employ rather than at the telephone exchange. They come more in contact with their male colleagues than in the service, where, so to speak, no man works with them.

9. *What subjects of most interest to you do you consider ought to be dealt with in the "Bulletin"?*

Only 228 replies were received. A great number of telephonists had not even seen the *Bulletin Technique*. Others, on the contrary, have no interest in a journal which publishes so many technical articles more or less incomprehensible to the lay reader. A great part, in reply to this question, wish that the *Bulletin* would publish articles suitable to all and treating on the following points:—

- (1) Development and technical innovations in telephony.
- (2) Development of the subscribers' stations. (Statistics, presumably.)
- (3) Direct calling in the trunk service.
- (4) A short description of repeaters.
- (5) Wireless telephony.
- (6) Fundamental principles of electricity.
- (7) Professional articles.
- (8) Descriptions of foreign exchanges.
- (9) Load of trunk lines, and their earning power.
- (10) Publications of results of observations in different exchanges.
- (11) Construction of the international system.
- (12) Letter box. (Correspondence column?)

It would be certainly impossible to answer, at least in part, the wishes expressed. One cannot believe that the lay readers find absolutely nothing in the *Bulletin* which would interest them and that they are incapable of understanding it in a certain measure. The editors do not limit themselves to publish technical articles. They willingly open their columns to all those who will furnish articles on "less dry" subjects, treating, e.g., of the life of a telephonist, chats of events and recollections if they have some connexion with telephony. It is still too little known that the staff may subscribe to the *Bulletin* at any postal office by paying a small sum. The telephonist could profit by this advantage to a much greater measure. Every section of the A.S.F.T.T. ought to have a copy in the luncheon room, and one ought not to be lacking in the telephonists' library.

[Similar complaints and similar rejoinders have been made on more than one occasion in the case of the *Telegraph and Telephone Journal*.]

10. *In your opinion, could improvements be introduced in the actual manner of serving the public? What?*

This interested 256 telephonists. Mr. Hufschmid observes with pleasure that the great number of them think that the subscriber is not only well served but that he is even "spoiled." Naturally they propose no change. On the other hand, certain proposals for improvement have been suggested which we cannot discuss here. Owing to their special character they will be considered in their proper place. A good many telephonists consider that the number of public call offices at the disposal of the inhabitants of small districts is insufficient. They desire above all that coin box call offices should be installed, accessible to the public day and night. Further, the telephonists desire that the private exchanges of important subscribers should be better served. Insufficiently-instructed or over-worked private telephonists naturally complicate the flow of traffic from the main exchange. The public being in general very exigent, the administration has already taken strict measures in the recruiting of its staff and requires a good general education. It spares neither money nor pains to maintain the staff at a high standard. These circumstances have urged it to undertake itself the instruction of private branch telephonists.

Some telephonists think that certain of their colleagues have not adapted themselves to their profession, that they still lack politeness and self-control. A gracious "thank you" at the right moment works marvels. One telephonist

writes with reason, "It would be magnificent if everyone could be served by a telephonist full of tact and sense. It would be no doubt the best of all propaganda."

In this connexion we hope that every telephonist will strive to become a valuable collaborator in our propaganda service, not only in the interests of the administration but in her own interest, for the best forces which a human being has in him are only awakened and maintained by constant individual effort.

[We do not give the suggestions offered in detail, as they refer mainly to Swiss conditions.]

B.—SUPERVISORS.

(a) *What ought to be taken into consideration for the instruction of acting supervisors? What is, in your opinion, the best procedure?*

The replies we have received contain valuable communications which will be used for the formation of this class, and later will be published as an instruction programme. Here are some of them:

"Acting-supervisors ought to receive a thorough theoretical instruction and practical indications as to the manner in which they ought to comport themselves towards the public and the staff."

"The new acting-supervisor ought, for 3 weeks, to make the same tour of the service as a qualified and experienced supervisor. One ought to give her an opportunity of familiarising herself with all branches of the service, and, to complete her instruction, she ought to be sent finally to a larger exchange."

The transfers arranged for perfecting the professional and linguistic knowledge of these substitutes have been generally well received. We regret that foreign administrations have been so little interested in this question, which would have permitted exchanges of staff with foreign countries.

"An excellent means of encouraging the supervising staff (including acting-supervisors) would be to arrange small conferences or to furnish them with communications on the organisation and future development of the telephone. They ought to be instructed in detail in all anticipated improvements before their introduction into an exchange."

"The weekly conferences of supervisors introduced in some exchanges are much appreciated."

"A thorough knowledge of the service is not sufficient in itself to make the telephonist a good supervisor. She ought to be able to act on her own initiative and to have a strong sense of duty and responsibility, the gift of observation and judgment."

"The acting-supervisors ought to be treated with intelligence to strengthen their confidence in themselves. They should be given the opportunity of expressing their point of view in order that it may be rectified."

"If the supervisor submits herself to the most severe discipline, she will acquire the consideration of the staff, but she ought to be able to maintain discipline without taking from the telephonists all pleasure in their work. If it is found that the telephonists require a better technical instruction, how much more is this necessary for a supervisor or an acting-supervisor? They ought to be kept in touch in a simple and comprehensive manner with automatic installations, trunk exchanges, relay stations, &c. They ought to be able to give information concerning hours of work and conditions of subscription for simple installations. It would also be an advantage if they understood better the organisation of the administration. Finally, they ought to have instruction as to the best manner of dealing with annoyed or complaining subscribers."

(b) *Describe the supervisor as she ought to be. Aptitudes and special possibilities.*

One cannot, perhaps, here speak at length of the qualities which a supervisor ought to possess. However, in order to assist the education of future candidates for the function of supervisor, we nevertheless reproduce some of the replies which we have received as to the qualities which are particularly appreciated in a supervisor.

"She ought to be impartial; a good education is insufficient if she has not a good heart."

"She ought to be severe but just and know how to maintain discipline."

"She ought to be patient and full of tact and serve as an example to the other telephonists."

"She ought to be rather an educator than a school-master and leave pedantry aside."

"She should possess a lively spirit and calm and agreeable manners," &c., &c.

RÉSUMÉ.

Some hundreds of women, in replying to these questions, have given their experiences accumulated during the course of their career, and acquired often at the price of much pain and trouble. These experiences have an immense value for us and we have sought to make a résumé of them as complete and conscientious as possible. It only remains to us to wish that this glance thrown over the most interesting of feminine activities will contribute to help the future professional development of all telephonists.

It may be considered that some of the above replies were dictated by a desire to give a favourable impression and some by a desire to turn a phrase or show a kind of literary aptitude. But there is no doubt that most of them are honestly suggestive and indicative of a will to understand the telephonists' profession and to improve the service, while many of them are frankly critical.

The Swiss administration deserve great credit for circulating the questionnaire, which can only be productive of good. Telephonists in this country will read the replies with profit, for as we enlarge our understanding of the conditions under which others live placed in analogous positions to ourselves so we broaden our outlook on the problem of living and performing our daily task.

W. H. G.

REVIEWS.

"Practical Mathematics." By Louis Toft, M.Sc. and A. D. D. McKay, M.A. Published by Sir Isaac Pitman & Son. v. + 594 pp. Price 16s. net.

This is a further volume in the "Engineering Degree Series" which Messrs. Pitman are bringing out.

The subject is treated on practical lines, and the authors have endeavoured to give the reader a working knowledge of the subject as far as it is required for the final Examination in Mathematics for the London University degree in Engineering, rather than a strictly logical development of each of its branches.

The book commences with the theory of determinants and their application to the solution of equations, the limiting values of functions, convergency and divergency of series, binomial and exponential series, hyperbolic functions and complex numbers. Then follow five chapters dealing with the differential and integral calculus and its applications. Conics, graphs, analytical solid geometry, lengths, areas and volume of curves and solids of revolution, centroids and moments of inertia are then considered. After a chapter on roulettes and glissettes follow four chapters dealing with double and triple integrals, periodic functions and harmonic analysis, and first and second order differential equations. The final chapter is concerned with spherical trigonometry.

The treatment of the subject is very clear, and over nine hundred exercises with their answers are given, which should prove of great assistance to the student who is working through the book without the aid of a teacher.

The book is well printed on good paper, and the diagrams are very clear. We can recommend it to anyone who is interested in the application of mathematics to practical problems.

"Braunsche Kathodenstrahlröhren und ihre Anwendung." By Dr. Phil. E. Alberti. Published by Julius Springer, Berlin. vii + 214 pp. Price, paper covers R.M. 21; bound R.M. 22.20.

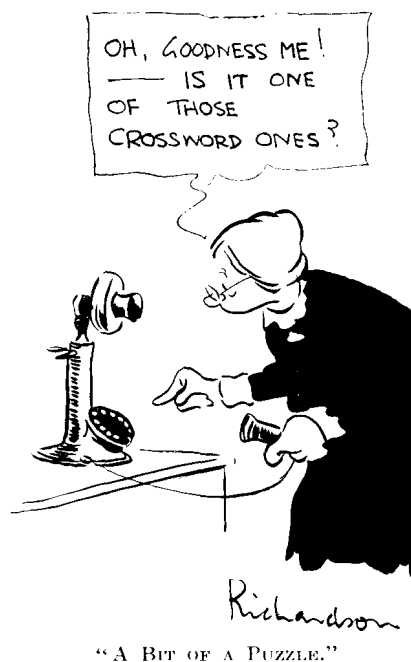
The Braun cathode ray tube has during recent years taken a very important place as a device for investigating rapidly varying electrical effects. The present book deals in a comprehensive manner with the whole subject of these instruments, the theory of their action, their construction, methods for rendering visible or for recording the movements of the stream of electrons from the cathode, methods of causing the electron stream to trace suitable curves on the indicating or recording screen, methods of connecting a tube to the electrical system in which the actions taking place are to be investigated, and finally an account of the various fields of research in which the tubes can be used.

The subject matter of each section is very fully covered, while the book concludes with a bibliography containing nearly three hundred references to publications where further information can be obtained.

The book is well got up and is fully illustrated with clear diagrams of apparatus and circuits, and with reproductions of photographs of curves obtained with the tubes.

LEEDS DISTRICT NOTES.

By the time these notes appear new automatic exchanges will have been opened at Adel, Horsforth, and Hunslet in the Leeds automatic area, and only about 900 subscribers of the 15,000 in the unit fee area will be left working on a manual basis.



It is to be hoped that the above amusing cartoon by "Richardson," which is reproduced by permission of the *Yorkshire Evening Post*, represents the subscriber before the instructional visit by the Service Inspector, and not after.

In these days, when the majority of new telephones are fitted the day after they are ordered, the morning post-bag frequently contains evidence of the interest and appreciation exhibited by subscribers regarding this rapid workmanship. There was, however, a special pleasure in reading the following editorial comment which appeared in the *South Bradford Weekly News* of June 10:—

"Credit where credit is due! This is a story of slickness, and it concerns the Post Office Telephone Department. We wanted a new telephone in our St. John's Chambers Office, so we put through the usual application on Wednesday of last week. Anticipating that it would be some time during the present week before the instrument was installed, we went to press last week bearing our old telephone number. But almost before you got your copy of the *Weekly News* last week the new 'phone had been installed. In less than 48 hours from the time of the application for the telephone, we were actually using it. And this despite the fact that the Post Office Telephones Engineering Department was handicapped by having many of its staff working away in the flooded areas. The Post Office gets many kicks, but it deserves this little compliment."

The Summer Meeting of the Leeds Civil Service Golfing Society was favoured with real summer weather for the first time in 3 years, when 13 teams of 4 players representing the various Civil Service Departments, did battle on the Sand Moor Golf Course for the Championship Shield on June 10. The greens were fast and tricky and, under the conditions, the aggregate of 309 which won the shield for the Ministry of Labour was a very fine performance. The scores of the winning team were: H. Walsh (8), 74; H. Boys (9), 75; G. Cooper (15), 79; S. Price (14), 81.

The Post Office Engineering Department (Messrs. Varley, Lally, Attrill and Gregson) were second with 319 and the Post Office Telephones (Messrs. Lowe, Murray, Blanchard and Garnett) third with 326.

The Championship Cup for the best gross score was won by R. S. Moon (Ministry of Transport) with 79, the runner-up being S. Walsh (Ministry of Labour) with 82. The best net score prize went to S. G. Watson (Leeds Post Office) with 71, who was closely followed by J. Lally (Post Office Engineers) with 72.

An enjoyable day was brought to a fitting close by a smoking concert in the Club House.



TRAINING SCHOOL FOR TESTING AND MAINTENANCE OFFICERS, C.T.O., LONDON: FIRST GROUP OF STUDENTS.

Back Row, Left to Right:—F. J. Miller, C.T.O.; H. W. Elder, G.W.; J. E. Trott, C.T.O.; G. S. Sanders, C.T.O.; H. Parkinson, C.T.O.; S. T. Doel, C.T.O.; A. L. M. Akker, C.T.O.; D. J. Charlton, C.T.O.; L. V. Clinch, C.T.O.; T. S. English, C.T.O.; D. McNeill, G.W.

Centre Row:—E. J. Nice, C.T.O.; J. W. Gilkes, C.T.O.; A. W. C. Blakesley, C.T.O.; W. C. Giles, C.T.O.; F. C. Chidley, C.T.O.; H. Nichol, L.V.; C. R. Callaway, C.T.O.; H. A. Rowlinson, C.T.O.; C. Young, C.T.O.; H. E. J. Moon, L.V.; W. H. Baxter, C.T.O.; D. G. Collins, C.T.O.; C. J. Geddes, C.T.O.

Seated:—D. H. Smith, C.T.O.; Miss D. E. O'Regan, C.T.O.; H. T. Bliss, Mechanic; E. Missen, Asst. Engineer; A. O. Gibbon, Engineer-in-Charge; R. P. Smith, Asstant Engineer; F. A. J. Coster, Mechanic; Miss A. C. Booker, C.T.O.; W. H. Ridley, C.T.O.

Seated on Ground:—H. A. Hale, C.T.O.; H. E. Green, C.T.O.

THE NEW TESTING AND MAINTENANCE SCHEME AT TELEGRAPH OFFICES.

BY A. O. GIBBON, M.I.E.E.

THE introduction of this scheme has been responsible for a considerable amount of interest in telegraph circles, indeed, it is true to say that there has been an extraordinary display of "liveliness" in technology in the Instrument Rooms of our important offices during the past few months; a state of affairs which brings to mind the halcyon days of the telegraph service, when direct promotion from the Telegraphs to the Post Office Engineering Department was the reward open to men with special qualifications in electrical subjects. There has been an unprecedented demand for the latest edition of Herberts "Telegraphy"; the distribution of the new Technical Instruction on the Teleprinter among members of the staff has been widespread, despite the fact that the cost of this Instruction "complete with diagrams" is not so reasonable as the charge formerly made by the Stationery Office for such official handbooks. It is also the case that, in some respects, the demands for information have been in advance of the printed textbooks, so insistent have students been to know something concerning such subjects as Double Phantoms, Compositing circuits, Voice Frequency arrangements, Filters, and the like. Telegraph technique is nowadays concerned mainly with mechanical devices, and the mysteries of the Teleprinter, with its cam sleeves, trip bars, latches, and jockey rollers, are more engrossing to some minds than golf or gardening.

Revolutionary changes are being made in the maintenance arrangements in our Instrument Rooms, based upon the recommendations of the American Commission for the re-organisation of the Inland Telegraph service, popularly known as the "Simon" report. The report made certain important recommendations under the heading of "Maintenance" and it may be of interest to readers of the *Telegraph and Telephone Journal* to recapitulate the terms of these recommendations, and also to refer to the agreements

reached as a result of a series of conferences between the Staff Organisations and the Department. The recommendations and agreements are shown in detail below:—

(c) MAINTENANCE.

Recommendations.

(13) Responsibility for the efficient working of circuits and for the control, adjustment and day-to-day maintenance of apparatus should be definitely vested in the traffic officers in charge of Instrument Rooms.

(14) All testing, regulating and maintenance work in the larger Instrument Rooms should be allotted to officers selected from the operating staff, who must possess the necessary technical knowledge and skill, and should receive an appropriate special allowance. The departmental technical examination, suitably revised, should serve as a qualifying test for these officers, and a scheme of training should be drawn up for those who qualify. The selected officers should normally be relieved of operating duties, but should be liable to be called on to perform them in case of need.

(15) The technical allowance, the additional increment granted to holders of the present departmental technical certificate, and the allowance to Dirigeurs (who would disappear under recommendation (14)), should be abolished (subject in the case of the two former to the rights of existing holders).

(16) At the smaller offices the day-to-day maintenance should be carried out by the operators subject to periodical inspection by engineering staff.

Agreed Statement on Recommendations.

(13), (14), (15) and (16)—(a) Following the consideration of these recommendations the scheme set out in Appendix III has been agreed.

(b) The selection and training of officers for the new testing and maintenance duties will be put in hand forthwith. Owing to the necessary limitations on the numbers who can be trained at any one time, the introduction of the scheme at the different offices concerned cannot take place on a common date, but every effort will be made to complete its carrying-out within the next twelve months at all those offices where sufficient eligible officers are available.

APPENDIX III.

TECHNICAL ALLOWANCES, TESTING AND MAINTENANCE SCHEME.

The present technical allowance of 4s. a week, payable at any office to any officer employed for a certain proportion of his or her time on telegraph work, and the departmental technical increment of 3s. a week, payable after a year at the maximum of the ordinary scale to any male officer on the telegraph side of a divided office, will be replaced by two technical allowances, each of 3s. a week, obtainable, subject to the conditions shown below, by any rank and file officer, male or female, who is a qualified teleprinter operator and is employed on the telegraph side at the offices shown in the following list:—

Central Telegraph Office (Inland Section).

Aberdeen	Great Yarmouth	Nottingham
Barnstaple	Grimsby	Oxford
Belfast	Harrogate	Penzance
Birmingham	Hastings	Peterborough
Blackpool	Huddersfield	Plymouth
Bournemouth	Hull	Portsmouth
Bradford	Inverness	Preston
Brighton	Ipswich	Reading
Bristol	Leeds	Ryde
Cambridge	Leicester	Salisbury
Cardiff	Lincoln	Scarborough
Carlisle	Liverpool	Sheffield
Cheltenham	Llandudno	Shrewsbury
Chester	Lowestoft	Southampton
Coventry	Manchester	Southend-on-Sea
Darlington	Margate	Stoke-on-Trent (Hanley)
Derby	Middlesbrough	Sunderland
Dundee	Milford Haven	Swansea
Eastbourne	Newcastle-on-Tyne	Torquay
Edinburgh	Newmarket	Tunbridge Wells
Exeter	Newport (Mon.)	Weymouth
Folkestone	Northampton	Wolverhampton
Glasgow	Norwich	York
Gloucester		

N.B.—It is expected that all the offices in this list, which are at present amalgamated, will ultimately be divided. So long, however, as a particular office remains amalgamated the expression "employed on the telegraph side" will be interpreted to mean "employed for at least 400 hours in the calendar year on instrument-room work under some regularly recurring scheme of rotation (Sunday work excluded)."

FIRST TECHNICAL ALLOWANCE.

The first technical allowance of 3s. a week will be payable to all telegraphists, men and women, who are qualified teleprinter operators, in the inland galleries of the Central Telegraph Office and all Sorting Clerks and Telegraphists, men and women, employed on the telegraph side of the provincial offices specified in the foregoing list, who are qualified teleprinter operators, provided that they are not below the age of 21 and have obtained the following certificates.

Certificates required for the First Technical Allowance.

(a) A First-Class, Final Grade, Certificate in Telegraphy, or a First-Class, Grade II Certificate in Telephony, in the City and Guilds Institute's Examinations;

or

(b) (i) A First-Class Certificate in the Special Examination in Magnetism and Electricity for Post Office employees held by the City and Guilds of London Institute; and

(ii) A First-Class, Grade I, Certificate in either Telegraphy or Telephony, or a Second-Class Certificate in the Final Grade in Telegraphy, or a Second-Class, Grade II, Certificate in Telephony in the City and Guilds Institute's Examinations.

These certificates may be obtained at any time either before or after the age of 21.

The allowance will carry bonus, will be personal, payable during absence on annual or sick leave, reckonable for Sunday and extra duty pay and for pension, and will be taken into account for the purpose of fixing starting pay on promotion or transfer to another class in the interests of the service. It will be liable to be withdrawn if the officer transfers voluntarily or is transferred for disciplinary reasons to a post where the allowance could not normally be obtained.

SECOND TECHNICAL ALLOWANCE.

The second technical allowance of 3s. a week will be payable to all Telegraphists, men and women, in the inland galleries of the Central Telegraph Office and all Sorting Clerks and Telegraphists, men and women, employed on the telegraph side of the provincial offices specified above, who have obtained the first technical allowance and have passed the examination, provided that they have completed 10 years' established service.

The examination may be taken at any time after the officer has completed nine years' established service, but not before.

The allowance will carry bonus, will be personal, payable during absence on annual or sick leave, reckonable for Sunday and extra duty pay and for pension, and will be taken into account for the purpose of fixing starting pay on promotion or transfer to another class in the interests of the service. It will be liable to be withdrawn if the officer transfers voluntarily or is transferred for disciplinary reasons to a post where the allowance could not normally be obtained.

EXISTING TECHNICAL ALLOWANCES.

Officers who already hold the existing technical allowance and/or departmental technical increment on the date of the introduction of the new technical allowances, will be allowed to retain them subject to existing conditions.

Existing members of the staff who are eligible under present conditions to obtain the present technical allowance and/or the departmental technical increment will remain so eligible up to 1st July, 1935.

Officers at the selected offices, i.e., the Central Telegraph Office and the provincial offices indicated in the list above, will also have the option before 1st July, 1935, of passing at once to the new conditions provided that the new conditions are accepted as a whole, e.g., the new second technical allowance cannot be held in conjunction with the present technical allowance.

Officers not employed at the selected offices will not be entitled to any option between the old and new allowances. They can retain the old allowances, or obtain them before 1st July, 1935, only on the old conditions.

After that date no right to obtain the old allowances will be recognised, and the only allowances obtainable after this time will be on the new conditions, and the adjustment of an old allowance already held may be involved.

TESTING AND MAINTENANCE SCHEME.

Scope of Scheme.—It is intended that the operating staff should be placed in full control of the apparatus while it remains in the Instrument Room and that all adjustments, maintenance and repairs which can be performed without removing the faulty instrument to the workshop, i.e., cleaning, oiling, regulating and minor repair work, shall be performed by operating staff. In the C.T.O. (Inland Galleries) and at the selected provincial offices, the work will be assigned to a special staff, selected from Telegraphists or Sorting Clerks and Telegraphists, who will also perform testing and repeater work as well as the dirigeur work on any Baudot instruments which remain at the above offices.

The number of officers who will be required for the testing and maintenance work at any particular office must be determined in the light of local circumstances. So far as the apparatus maintenance work is concerned, it is estimated that the time occupied weekly for each working channel according to the type of apparatus will be as follows:—

Type of Apparatus.	Estimated time, per working channel, occupied weekly in maintenance.
Teleprinter	6 hours.
Manual Multiplex	6 "
Auto Multiplex	9 "
Morse (and Concentrator)	½ hour.
Wheatstone	1 "
Creed	2 hours.
Gell and Kleinschmidt	1 hour.

Testing and repeater work is at present divided between supervising and rank and file officers. No general change in the allocation of this work is proposed, but the general supervision of the testing, repeater and maintenance work as a whole will be allotted to the supervising force in question and any relief from testing and repeater work which it may be necessary to afford them for this purpose will be given by rank and file officers on the testing and maintenance staff.

Allowance.—Officers employed on the special testing and maintenance staff will be paid an allowance of 4s. a week (full time) or *pro rata* for part-time duties. This allowance will carry bonus, will be personal, payable during absence on annual and sick leave and reckonable for pension, extra duty and Sunday pay and will be taken into account in fixing starting pay on promotion or transfer in the interests of the service to another class. It will be withdrawn if the officer transfers voluntarily or is transferred for disciplinary reasons to a post where the allowance could not normally be obtained.

Eligibility.—Eligibility for the testing and maintenance staff will be confined to qualified teleprinter operators, who may be either men or women, at the selected offices who have qualified for both the first and second technical allowances (or the technical allowance and the departmental technical certificate under the old conditions), except that existing officers who are over 40 years of age at the date of introduction of the scheme, or who have at any time been on a Dirigeur rota for at least six months, will be regarded as eligible for consideration if they possess either the technical allowance or the departmental technical certificate under the old conditions or the first technical allowance under the new conditions.

Rotation.—The testing and maintenance duties will form a self-contained group which will be excluded from the general rotation.

Reserves.—A reserve staff will be provided for the testing and maintenance duties, to replace officers on the regular testing and maintenance staff during

absence on leave, withdrawal for other duties, &c. Reserve officers when employed on the testing and maintenance work will be eligible to receive the allowance under the ordinary substitution rules.

The numbers on the reserve should normally be from one-third to one-half of the number of regular posts according to local conditions, except at the smaller offices, where a higher proportion of reserves may be required.

Selection of Staff.—Applications will be invited from eligible officers for vacancies on the regular and/or reserve staff existing or anticipated during the next 12 months. Subject to a certificate of efficiency and good conduct applicants will be called up in order of seniority to undergo the pre-training test until a sufficient number of fully qualified candidates has been obtained.

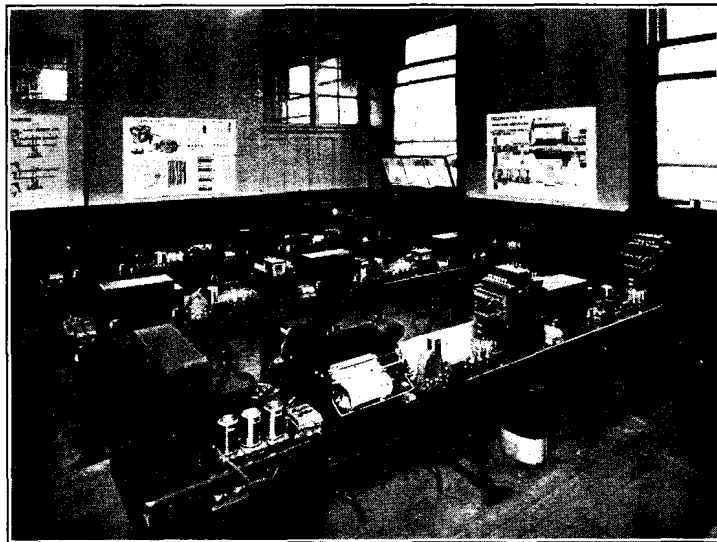


FIG. 1. VIEW OF TELEPRINTER ROOM.

Pre-training Test.—This test will be oral and practical and its object will be to ascertain whether the candidate has an up-to-date knowledge of the functions and working of the apparatus and instruments in use at his office, whether he can apply that knowledge under working conditions and whether he possesses aptitude for practical testing and maintenance work. The test will be conducted by an Engineering Officer. Candidates who satisfy the Examiner that they possess the requisite aptitude will be informed that they are regarded as suitable for training in testing and maintenance duties and that they will be called up for training as and when required. No promise of appointment can, however, be given at this stage. If the candidates are not actually called up for training within three years after this test, they may be called upon to undergo the test again.

Training. Candidates successful in the pre-training test will be called up in order of seniority as and when vacancies in the Testing and Maintenance or reserve staff occur. The syllabus of the training, which is estimated to take about 5 weeks, is given on page 213.

After training there will be a practical test and subject to a satisfactory report on this test the officer will be appointed either to the reserve staff or directly to the regular Testing and Maintenance staff. Normally vacancies on the regular staff will be filled by the appointment of the senior officer on the reserve.

Probation.—Officers on the reserve staff will be regarded as on probation during their service on the reserve staff, and officers appointed to the regular testing and maintenance staff either direct or through the reserve staff will be on probation for three months. Thereafter they will hold their appointments subject to an annual certificate of efficiency.

Introduction of Scheme.—In the Central Telegraph Office and at Provincial Offices where this course is in accordance with the wishes of the staff concerned, existing officers who are employed on teleprinter maintenance duties or have been trained specifically for such work will be regarded as having a prior claim to consideration for the Testing and Maintenance staff and for this purpose will be treated as senior to all other applicants. At other offices no claim to special consideration on the part of existing Maintenance Officers will be recognised, and all appointments to the Testing and Maintenance staff will be made according to the procedure laid down.

The introduction of the scheme will involve special training and can only be carried out gradually. It is proposed to start with the larger offices first. If at any office there are not sufficient officers eligible for appointment to the testing and maintenance staff on the conditions set out above it may be necessary to leave the maintenance work in the hands of Engineering Officers and defer the creation of a special testing and maintenance staff at that office, until sufficient eligible officers are forthcoming.

Officers over 40 years of age or ex-Dirigeurs, who are appointed to the testing and maintenance staff without possessing the second technical allowance or both the present technical allowance and the departmental technical increment will receive the testing and maintenance allowance and the appropriate allowance for the qualifications they possess, but will not receive any other allowance until they qualify first in the usual way.

Officers retaining the present technical allowance, viz., 4s. a week, and/or the departmental technical increment under the old conditions will, if appointed to the testing and maintenance staff, receive in addition the appropriate testing and maintenance allowance in full.

Central Telegraph Office, Cable Room.—The foregoing arrangements do not apply to the Cable Room of the Central Telegraph Office, which will be considered separately later.

* * * *

The arrangements in the modern telegraph instrument room will be very different from the old standards. When it is borne in mind that all the different types of telegraph apparatus, such as Wheatstone, Baudot, Hughes and Morse are being replaced by one standard instrument, the Teleprinter, it will be realised that a profound change is being made in telegraph technique. These changes in technique are inevitable. Standardisation and uniformity will lead to greater efficiency. It speaks very highly for the skilled telegraphist, who is a craftsman with a pride in his calling, that he has been able to adapt himself to the new order of things and has become highly skilled in the operation of a purely mechanical device like the telegraph typewriter. The Teleprinter possesses great flexibility in relation to traffic loads. During busy periods of the day one operator has little difficulty in dealing with considerably more than 100 messages in an hour.

The greatest change that would be noticeable by a visitor to the latest model of Instrument Room, such for example as Leeds, would be the absence of adjusting and balancing apparatus on the tables. In future at the large offices it will be the rule to have only the Teleprinter, its associated switches and milliamperemeters on the operating table, concentrating all relays, resistance coils, &c., on to panels. There has also been an important change in connexion with the type of table used for operating purposes. New double tables are being installed and the operators sit on opposite sides of the table. A recess is made between the two halves of the double table, where a conveyor band is fitted, and this band carries the incoming traffic on its way to the circulation table. The floors of the instrument room, in most cases, are being fitted with cork carpet and this provision, joined to the facts that the Vee-conveyor dispenses with the need for the girl probationers as collectors of incoming telegrams, and also that the operating of the Teleprinter is not nearly so noisy as the older forms of apparatus, makes the Instrument Room a more comfortable place to work in. The floor

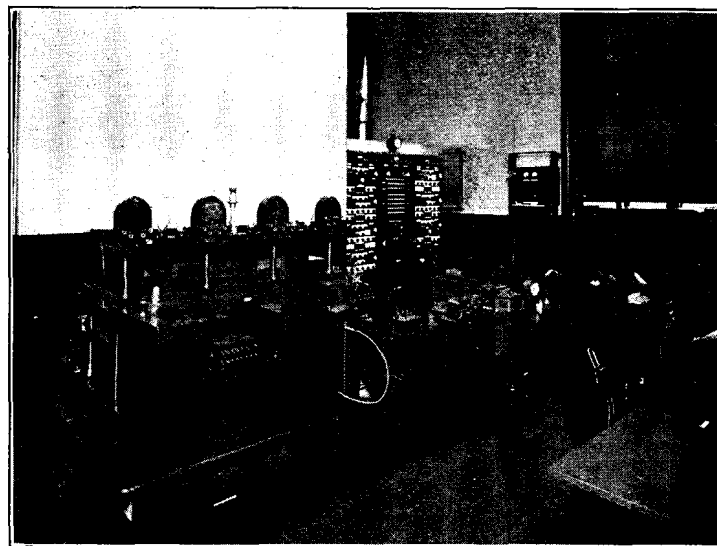


FIG. 2. VIEW OF TEST ROOM, SHOWING RACK-MOUNTED TELEGRAPH APPARATUS.

area of the new instrument room fitted with panels and double tables, is much less than that required to meet the old conditions. A first view of such an instrument room as Leeds gives a sense of dignity and efficiency. Improvements on the Leeds model are being made at other large offices, which will embody the results of experience already gained and the developments in design which have taken place, since the pioneer panel mounted office was established 2 years ago.

The recommendations of the American Commission outlined a scheme under which the day-to-day maintenance of telegraph apparatus should be definitely vested in the traffic officers in charge of instrument rooms. Up to the present it has been the standard practice to divide the work at the

larger offices between engineering and traffic force, each section being responsible for certain portions of the work. Although this arrangement has worked reasonably well in the past, there are objections in practice to a form of dual responsibility, and the "Simon" Commission strongly urged that the staff engaged on testing and maintenance work should be borne on one establishment.

As a result, the day-to-day maintenance of telegraph apparatus at our large offices is being transferred to a specially trained staff of telegraphists, who will be known as "Testing and Maintenance Officers." The new scheme will be concerned with the apparatus in instrument rooms functionally associated with the actual transmission and reception of a telegram, including

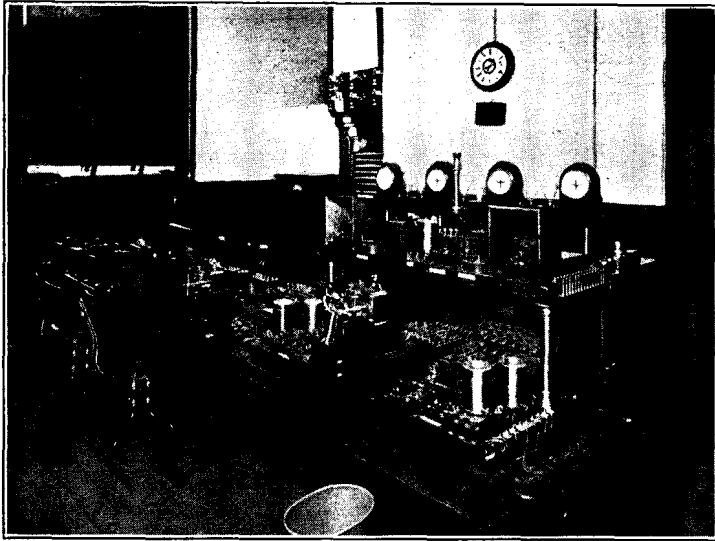


FIG. 3. SECOND VIEW OF TEST ROOM, SHOWING TELEGRAPH REPEATER, TEST BOARD, &C.

the day-to-day maintenance of Teleprinters; also with Baudot, Wheatstone, and Morse apparatus where, and so long as these types of instruments still remain; together with the testing of lines and the maintenance of telegraph repeaters. The T. and M. staff will undertake the daily cleaning, oiling, adjusting, and balancing of apparatus in the Instrument Room, whilst they will also be responsible for the replacement of certain simple Teleprinter parts, such as springs.

Reference to the agreements reached between the Department and the Staff Associations on page 212 of this article, serves to show that the officers selected for the new posts have to possess certain definite qualifications before they are allowed to take over the new duties. They must have gained certain technical certificates; be qualified as Teleprinter operators, and be given a certificate of efficiency and good conduct by their local Postmaster. The officers have next to be interviewed at their own office by the Examiner, an officer on the Headquarters staff of the Engineer-in-Chief's Department, who has to satisfy himself by oral and practical tests that the candidate is of the right calibre for the position: in other words, whether he is the right type of officer for the job and has an up-to-date knowledge of the apparatus involved; that he can apply such knowledge under working conditions and possesses aptitude for testing and maintenance work.

It is of interest to record that there was a great rush of qualified candidates from the Central Telegraph Office and the more important provincial centres, who desired to present themselves before the Examiner for the pre-training tests, indeed, the duties of examination and selection of officers at short notice, at centres as widely separated as Edinburgh and Bristol, introduced some interesting features in train journeys and examination programmes. It should be stated that the selection of candidates was not a "walk-over," and the Examiner had always to keep in mind that the success or failure of the new scheme will depend upon the officers who are selected for the T. and M. duties. It is gratifying to state that a satisfactory standard of excellence was reached by many of the candidates who entered for the pre-training test.

The Training School has been established on the fourth floor of the G.P.O. (West); certain floor space originally used in the Metropolitan Galleries of the Central Telegraph Office having been set apart for this purpose. The school consists of three apparatus rooms and an office, whilst for lecture purposes, joint use is made of a separate room in Roman Bath Street. The training arrangements are organised and staffed by officers of the Telegraph Section of the Engineer-in-Chief's Office and the school has been in practically continuous session since the beginning of February of this year. Accommodation is available for 30 candidates during each course of training, which lasts for approximately 5 weeks.

A synopsis of the training scheme is given below and it will be seen that a great deal of ground is covered in the time available.

Section 1.

- (a) Test boards, testing operations, power supply.
- (b) Morse and Wheatstone systems (including Creed receiver and printer).
- (c) Duplex balancing, repeaters, speed trials.
- (d) Typewriter adjustments.
- (e) Gunning equipment.

Section 2. Teleprinters.

- (a) Mechanism.
- (b) Connexions.
- (c) Adjustments.
- (d) Faults.

Section 3.

- (a) Superposing methods.
- (b) Compositing circuits.
- (c) Voice frequency circuits.

Section 4.—Baudot Multiplex Working.

- (a) Cleaning and adjustment.
- (b) Morning overhaul.
- (c) Tests of governors, moderators, perforators, transmitters, receivers, distributors.
- (d) Three-station working, re-transmitters.

Every effort is being made to ensure that the candidates will receive expert and up-to-date tuition in all branches of telegraph testing and maintenance work. It is of interest to note that provision has been made in the scheme for the training of both men and women on these duties. A special feature of the course is the amount of practical, individual work given. The candidates enter the training period with a certain amount of theoretical knowledge of telegraphy: they are in possession of the requisite technological certificates in support of this; a number of the candidates have gained "Final" or "Honours" certificates in Telegraphy, &c., as part of their theoretical equipment. In addition, many of the students have qualified as Dirigeurs and have also been employed as test clerks. These factors indicate that the Examiner has had good material to work upon during the pre-training tests, and it is only fair to add that the candidates were in most instances quite ready to undergo a necessary but painful ordeal. It is to be hoped that, like a visit to the dentist, the anticipation was the worst part of the operation!

During the course of training much time is devoted to the practical side of the work. Each student is given a full kit of tools at the outset of his training. He has first to know what the tools are called, and they have also to be called by their official names, and not by the names we like—for



FIG. 4. VIEW OF BAUDOT ROOM.

example, a Tommy, is a Spike, Capstan! Next, there is the correct method of using tools. This comes easy to some people—they have good hands, but this is not a universal gift and most people have to be taught the right way to do things. One of the best ways of finding out how to use a kit of tools is to dismantle a Teleprinter and put it together again. This exacting experience is usually accomplished successfully at an early stage of the training course.

Students are taught where to look for the cause of faults in apparatus; how to deal systematically and with intelligence in tracing and removing both the simple and the elusive species. Line faults are also given special consideration and students are allowed full opportunities of displaying their knowledge of the Varley loop tests under practical conditions for the distance of an Earth or a contact.

It has to be recognised by the student from the outset of his training that he will be called upon later to take up a responsible post as a Testing and Maintenance Officer. Every effort is made during the course to bring out the candidate's powers of initiative and resource, and to encourage him to develop a sense of responsibility. Students have not been slow to evince these characteristics; in most cases with satisfactory results, but one or two accidents have occurred, due to zeal not unmingled with ignorance, but the results have not been serious either to the student or to the apparatus.

The Teleprinter is, of course, the most important thing that matters in the telegraph world at the present time, and it is only right that a great deal of attention should be devoted to it. The efficient maintenance of this instrument has been brought to a high level of excellence, and it is worthy of note that students quickly grasp the underlying principles and the actions of all the working parts and are able to deal with faults and the simple replacement of parts within a very short time.

All the different circuit arrangements of Teleprinters are set up in the school, the plan being to reproduce working conditions at each end. As a result, panel mounting apparatus is installed to represent the latest conditions at an important office, working to other offices where the regulating, balancing, and adjusting sections, are fitted on the instrument tables. In this way the student is able to visualise the conditions at each end of the line.

A number of photographs have been taken of the Training School and are reproduced in illustration of this article.

Fig. 1 is a view of the Teleprinter apparatus room. This room contains the most important standard arrangements of Teleprinter circuits. In addition, a Teleprinter No. 7A is installed, because this instrument is being introduced in connexion with Private Wire and "Telex" circuits and the 7A will probably be installed at important telegraph offices on hand-over circuits. Special reference should be made to the series of excellent coloured diagrams of Teleprinter mechanism which have been posted on the walls of this room. These diagrams were specially drawn by Mr. F. P. Martin of the Glasgow H.P.O. and through his kindness, and also by the courtesy of the Glasgow Branch of the Union of Post Office Workers, the diagrams have been loaned for use in the school.

Fig. 2 is a view of the Test Room showing, in addition to other items, the section of panel mounting apparatus. This panel is of the latest type and includes certain improvements which have been introduced as a result of experience gained with the Leeds model.

Fig. 3 is another view of the Test Room showing the Test Board, Battery fuse cabinet, Simplex-Duplex repeater, &c.

Fig. 4 shows the Baudot apparatus room. This is perhaps the room that will be most subject to change, for whilst it is true that Baudot apparatus will continue to be used for cross-channel and other services for some time to come, its days are numbered, and the room will probably be put to other service in the near future.

At the head of the article is a photograph of the training staff and the first class of 30 students. The picture will probably be regarded as one of special interest in that it is the initial section of students to be trained under the new scheme. It is also "first class" in another sense, inasmuch as the whole of the 30 students were successful in the passing-out or final examination, a record which will be difficult to beat. It will also be noted that there are two lady members in the class, a reminder that the new posts for Testing and Maintenance Officers are open to both sexes. It may be wondered, in referring to the names and offices, why 26 out of the 30 students were drawn from the C.T.O. The reason for this is that there was a special urgency in training officers for work in the C.T.O., because for certain reasons it was necessary to introduce the Testing and Maintenance scheme there early in April.

It may be of interest to give some particulars of the procedure at the Training School. The candidates are formed into two groups of 15. This arrangement has been found to give good results, in that individual attention may be given to students and also that the accommodation can be utilised to the best advantage. Fifteen days are spent in the Teleprinter section and the students next proceed to the sections provided with panel mounted apparatus, power distribution boards, test boards and testing instruments, telegraph repeater, and Baudot apparatus of the manual and automatic types. One group of students start with the Teleprinter course and the second group with panel work and a change-over is effected at the end of 15 days. In this way the full syllabus is covered. Lecture notes are taken by the students, who also make a record of all experiments, demonstrations, and inspections carried out during the course. All notes are made by the student himself; there is no dictation. By this means the student enters up his notes and impressions in his own words. These notes are checked daily, and regular indications obtained by the teaching staff of the work done by the students. Complete sets of diagrams are provided dealing with the work of the course and, in the case of certain recent developments in Telegraphy which are not described in published text books, arrangements have been made to supply the students with technical pamphlets specially prepared for class purposes.

Although it is true that in the first course, 26 out of 30 students were drawn from the C.T.O., this arrangement is not being followed in succeeding courses. A liberal sprinkling of candidates from different offices in the country is being arranged and this is calculated to yield good results. There is always a feeling of good fellowship between telegraphists from different offices, the nature of the work engenders this feeling and, when students drawn from such places as London, Glasgow, Belfast, and Cardiff are brought

together as members of a training scheme, they are able to see the other man's point of view and, on returning to their own office, still closer co-operation and understanding will result.

Various tests are carried out during the course of training to ascertain the students' progress and at the end of the course a passing-out examination is held. Postmasters are advised of the final examination results and, when the schemes are introduced at their offices the successful candidates will be placed on probation for three months as Testing and Maintenance Officers. If, after the probationary period, a satisfactory report is given by the Postmaster, the officers will be placed on a regular rota and are subject to an annual efficiency review.

The writer has had the honour of organising the technical side of the new training scheme and he has also been responsible for the selection of a large number of candidates for the courses from London and the most important provincial centres. He has also been brought into close contact during the past few years with the telegraph staff throughout the country as the examiner for the Departmental Technical Certificate.

There is no doubt in his mind that the new Testing and Maintenance Scheme will be a pronounced success, because of the high standard of ability and the practical aptitude of those who are being selected to take their share in the work. There is in addition a splendid body of officers, fully equipped with technical and other qualifications, who are only too anxious to prove their worth and to undertake duties calling for initiative and resource. These officers will form an excellent reserve and will be worthy successors to their colleagues when the time arrives. It is to be hoped that the call will not be long delayed!

TELEGRAPHIC MEMORABILIA.

ONE notes from time to time the gradual nationalisation, or at least the control of the State over broadcasting and radio-transmission, throughout the world. During the Republican Convention in Chicago recently, it was observed that "networks of wireless had been arranged to keep the American public in hourly touch with every speech and development." A correspondent of one of our leading London dailies present at this gathering, however, described the difficulty of satisfactory broadcasts in the uncontrolled conditions in that country, "because of the inevitable pandemonium which reduced all voices to one metallic roar"!

Obituaries.—From South African sources it is announced that Mr. T. Pearson, Divisional Engineer Telegraph and Telephones in the Transvaal, has recently died. He entered the British Post Office, Newcastle-on-Tyne, in 1898, and was transferred to the Cape Service in 1901. The *Electrical Review* adds the interesting item that the recent conversion of the Johannesburg telephones "was completed under his supervision."

Also is reported the demise of Mr. Ewart Gregson, Engineer-in-Chief of the Posts and Telegraphs of Tanganyika Territory, which took place on May 17, on board the *Durham Castle* from which vessel he was buried at sea.

It is also with regret that one records the death at his home in Southend-on-Sea of Mr. Thomas Cobbe, A.M.I.E., Sectional Engineer, of the Post Office Engineering Department of that town.

Birthday Honours.—Among the knighthoods conferred are Dr. R. L. Mond, President of the Faraday Society, and also Vice-Admiral C. D. Carpendale, C.B. (retired), controller of the B.B.C. In the Colonial Office List of C.B.E.'s this honour has been conferred upon the following Civil Officers who have rendered excellent service in the cause of telegraphy and kindred sciences:—Mr. George McNamara, Secretary of the New Zealand Posts and Telegraph Department; also upon Mr. Douglas William Gumbley, O.B.E., I.S.O., I.-G., Posts and Telegraphs, and Director Civil Aviation, Minister of Economics and Communications, Irak.

Though not a "birthday" honour, the sincerest congratulations are tendered to Mrs. W. W. Padfield on being made a J.P. at Bath (Somerset). This lady, formerly Miss P. S. Le Croisette, for 18 years saw service at T.S., and her appointment to the Magisterial Bench is said to be the first of its kind to be bestowed on any lady who commenced service at the C.T.O. and from which she retired in 1917.

Personal.—It is a long time since the departure of one of the Cable Room staff C.T.O. London, to take up a higher position in the service, has caused so sincere, and yet what some might

term, so peculiarly a mixed reception by his colleagues as that of Mr. S. W. Goldsmith upon his appointment to the Postmastership of Melksham. On the one hand there is the deepest regret at losing so straightforward and worthy a friend and colleague, and on the other extreme pleasure at the Department's recognition of one who, to quote, "deserves every bit of the success that has now come his way."

Countries.—**CANADA.**—The Bill for the nationalisation of radio broadcasting passed both Houses of the Dominion Parliament and duly became law by the assent of the Acting Governor-General on May 26 last. By this law the appointment of a Commission of three members is authorised, the Chairman to receive a salary of \$10,000 and the other two \$8,000 each. Nine assistant commissioners are to represent the different provinces. The Commission is to have complete control of the broadcasting system with expropriating powers. The public generally appear satisfied with the arrangement.

CEYLON.—Radio-telephone-telegraph. According to Indian intelligencies the Impl. & International Communications Ltd. have proposed to the Government the formation of a Ceylonese Company, capital 10,000,000 rupees, for developing the Ceylon telephone system under Government control. Sir Wm. Barton (Eastern Co.) and the Communications Co., it is affirmed, recently made an offer to the Executive Committee of Works and Communications, and it is believed the latter postponed consideration, "to enable Sir William to make a fresh proposal as the offer appeared to be inadequate." This at least is the inference drawn from perusing *Indian Engineering*. *The Electrical Review* adds that, "it is also understood that Sir William made a proposal in connexion with the Ceylon Government's radio-telephone-telegraph programme." If the writer may add a personal opinion it would be to the effect that he would not be surprised if nothing more were heard of the proposals during this present year of Grace 1932!

GERMANY.—It is reported from Berlin that the German Telegraph Administration has arranged that, "Telegrams in Chinese characters may now be despatched from any Berlin post office. Each character is represented by a four-figure numeral." In the first case the information as received above would appear to imply that such a service is to be confined to the one city mentioned, and to that city only. The method of telegraphing Chinese characters by substituting definite groups of figures for what is the equivalent of each letter of the odd few thousand which constitute Chinese writing is by no means new. Obviously the coding and decoding involved in such a system necessitates huge volumes of cyphers at both receiving and sending termini. Picture-telegraphy would settle the difficulty if every Berlin office were so equipped. The number of Chinese merchants in the German capital, however, would certainly not justify either system, from one's personal knowledge, and therefore, until further information is forthcoming, with all respects to the usually reliable source of the information it is only possible to add that the statement needs considerable amplification. *Wiring from trains.*—Reuter's Agency reports that the experiments of last year of telegraphing to and from railway trains in Germany while travelling at express speeds, have proved so successful that the facility is now in process of inauguration in all passenger trains travelling above a certain rate. All that the passenger has to do is to hand the telegram to the guard with the necessary cash. For the present, at any rate, the number of words is restricted to fourteen.

GREAT BRITAIN.—*Radio Re-diffusion.*—It was almost inevitable that with the many concessions made by so many local authorities in the provinces, and in districts just outside the London area itself, that "Wired Wireless," "Re-diffusion," or any similar system for facilitating listening-in, should one day be conceded to the public of the metropolis. British Relay Wireless Ltd. has been granted a concession in South London (the area between Southwark and Camberwell Road to be more precise) by the General Post Office, the necessary wayleaves having been obtained from the London County Council. Undoubtedly the system of simplifying listening-in to the point where all that the tired man or woman need do is to plug-in and settle down to a relaxing program and

without the fag of adjustment of any description whatever—meeting the need of a section of the public whose interest lies quite outside the technicalities of wireless itself.

Coastal Wireless Services.—According to the *Electrical Review* arrangements are being made for the chain of wireless stations round the coasts of the British Isles to be fitted with radio-telephone apparatus in order to test the commercial possibilities of such a service for ships in home waters. It is also understood that the new apparatus is to be supplied by the Marconi I.M.C. Co. Ltd., and that it will be installed in the existing coastal wireless stations which are now used for telegraph communication with ships. Messages transmitted by *telephone* from ships to these coast stations will be conveyed by *telegraph* to their destination on land, while *telegrams* sent to ships equipped for this service will be *telephoned* from the coast stations to the ships.

HOLLAND.—Passengers travelling in aeroplanes of the Amsterdam—Paris service are now able to send telegrams while in flight. Such telegrams are handed to the aeroplane's wireless operator and sent by him to the nearest ground station. From that point they are retransmitted to their respective destinations.

INDIA.—*The Broadcasting Position.*—Ten thousand radio sets, says Reuter's Bombay agency, are now in use, an average of one per 30,000 persons, almost all of them being in the Presidency cities of Bombay, Madras, and Calcutta. Mr. Sethna, Station Director of the Indian State Broadcasting Service, says that a high-power station is needed at the centre, with other short-wave transmitting stations in one or two places, so that people can listen to all sorts of programmes on crystal sets. At present there were many obstacles which had to be surmounted, but he was confident that the negotiations which were in progress between the Indian State Broadcasting Corporation would be carried to a successful issue.

India's Communication Progress.—The Post and Telegraphs Department of India's report for the past year shows that the telegraph and telephone mileage increased by over 2,000 miles of line and 13,000 miles of wire. At the end of the year there was altogether 105,386 miles of line carrying 490,000 miles of wire and 1,159 miles of cable containing 82,500 miles of conductors maintained by the Department. At Calcutta, Bombay, Cawnpore, Agra, Akyab, and Vizagapatam, one notes with something of satisfaction that "additional Baudot apparatus was installed to improve traffic handling." Also that steps had in addition been taken to introduce the "teletype" system on busy lines of moderate length. It is now in use between Delhi and Agra, between Calcutta and Patna, and is also used locally in the city of Calcutta itself.

Engineers co-opt Telegraphy and Telephony in India.—As is now well-known in telegraph engineering circles in this country, long-distance telephony has been wonderfully developed between the great business and political centres of that huge peninsula, for example Calcutta and Bombay, &c., and quite recently Simla and Bombay, the latter circuit being now the longest direct trunk communication in that country. What is not so well known, however, is that side by side with telephonic development in this great Dependency, there has been very definite and successful progress in the facilities for telegraphic developments. Thus on this very Calcutta—Bombay telephone circuit, "the completion of the installation of the new high-frequency carrier system is shortly due," and provision is made in the present plans, for four telegraph channels in each direction in addition to the ordinary telephone circuit on the same pair of wires. The full capacity is ten channels.

ITALY.—*A Radio Census and—a Lottery!*—A census of radio apparatus is being held in Italy—probably completed by this time—by which all owners of sets are compelled to obtain a special form at a post office and to send in particulars of their set or sets. It is announced officially that the sole motive behind this edict is to furnish useful data to manufacturers. The maximum penalty for not reporting a set, whether in use or not, seems rather a "stiff" one, as it is fixed at £14. Over 200,000 subscribers pay about £1 per annum. The *Daily Telegraph* informs us that the licences

issued at the beginning of the present year entitled each holder to a lottery ticket with a motor-car as first prize!

NORWAY.—Up to the present the country's broadcasting stations have been run by certain joint stock companies, such as the Broadcasting Company of Oslo. The Norwegian Government has, however, now submitted a Bill to the Storting under the provisions of which broadcasting will be reorganised as a Government service from July 1, 1933. "The Government is to receive 200,000 kroner (£10,000) from the service," says Reuters Oslo representative, "any surplus being utilised for the extension and improvement of the system." The Ministers of Education and Ecclesiastical Affairs will have control over the programmes through an institution which will be specially established for this purpose. This controlling body, continues our informant, is expected to exercise considerable independence in its functioning. At the moment there are something over one hundred thousand listeners in Norway.

RHODESIA.—The new Beam wireless Telegraph Service which was recently opened between Great Britain and Northern and Southern Rhodesia and Nyassaland, communicates with the Beam wireless station erected by I. and I. Communications Ltd. at Salisbury, Rhodesia.

SWITZERLAND.—The League of Nations radio transmitting station, which it will be recalled was opened by Sir Eric Drummond, Secretary-General of the League, at midnight on Feb. 16 and 17 last, should, by the time these lines meet our readers eyes if needs be, have afforded some solid proof of its great utility in crises.

International Broadcasting statistics.—The I.B. Bureau of Geneva estimates that there are no less than 34,000,000 broadcast radio receivers in use throughout the world. The Bureau's estimate of four listeners per set indicates that 136,000,000 people make use of broadcasting. The number of sets used in the U.S.A. is estimated at between eleven and fourteen millions. Great Britain shows that the number of licences issued is 4,686,000 or 100 per thousand of the population.

U.S.A.—The seventy-sixth annual report of the Western Union Telegraph Company to stockholders was read by President Newcomb Carlton and gave among other interesting items regarding the year 1931, the following:—"The capacity of the plant being ample to meet all present requirements, new construction was restricted, but approximately 23,000 miles of copper wire were strung, principally to replace iron wire."

"Material and supplies were reduced to present requirements. Accounts receivable were less than the previous twelve months by \$1,100,000. Current liabilities decreased \$4,800,000, reflecting curtailment of expenses, reduction of dividend and discharge of liability incident to completion of employees payments for capital stock."

"While it was impracticable to reduce expenses to equal the decline in revenues, the hours of employees have been shortened and the work divided among the greatest number. After conference with employees' representatives, wages were reduced 10% on Nov. 1, 1931. In January, 1932, the time of supervisory officers and their staffs was reduced to a five-day week." (This reduction of working days, it is understood, involves a further reduction of wages of one-sixth). The report also records an appreciation of "the fine temper with which the employees accepted these reductions."

The President also made the following interesting remarks:—"Experience leads to the belief that in normal times, radio, air mail, and telephone create an increasing demand for telegraph service."

On the other hand, it is recorded in the same report that, "The Western Union & Postal Telegraph Companies combined to introduce a new form of service adapted to lengthy messages, at rates graduated according to distance and based on time of transmission, rather than number of words. . . . This *Timed Wire* service was made available to over 8,000 patrons. . . . The demand for this new service, however, has been limited, and the

aggregate business of all companies offering it, or an equivalent, has been negligible."

Between 40 and 50 years' service is the record of 438 W. Union employees. Each of 42 still on active service has given fifty years' service. Retirement is compulsory at 70!

As a postscript to the above the following few words which almost followed on the heels of the foregoing information from New York was as follows:—"The taxation of telephone, telegraph, and wireless messages has been approved by the United States Senate, but *newspapers* and *Press Associations* are exempt!"

VENEZUELA.—Reuter's trade service from Caracas states that new regulations have been issued by the Government of Venezuela. The provisions forbids concessionaires to obstruct messages from other countries: programmes must be mainly artistic and cultural, any commercial propaganda being used sparingly; persons carrying on business in receiving sets are to notify monthly the number of sets sold, rented, or transferred, with the mark, factory number and address of owners of the sets. Owners must themselves notify the name of the concern originally selling the set and the number of the apparatus. Receiving licences will continue to cost 5 bolivars (4s. at par) a month, the proceeds going to support broadcasting. Over 2,500 sets are already installed. British sets are becoming increasingly popular although in keen competition with the United States and Dutch manufacturers. A.C. receivers are preferred to battery types. Central service station service at Caracas is 190-v., 25- and 50-cycle a.c., but elsewhere 110-v., 60-cycle a.c. is general.

Thoughts on Books.—To mind the inside of a book is to entertain one's self with the forced product of another man's brain. A man of quality and breeding may be much amused with the natural sprouts of his own!—Lord Foppington in "The Relapse."
J. J. T.

MISTAKEN IDENTITY.

RECENTLY, towards the end of a day's canvass (unfortunately without obtaining a single bite) I rang the bell of a stately house. I announced myself. "I'm from the London Telephone Service—." Before I could get any further the maid cried, "Come in." I entered quickly with visions of a deal at last. She led the way into the drawing-room and pointing to the instrument across the room, said: "There it is! Haven't you been quick! You haven't brought your tools with you, have you? Still I can lend you a pair of pincers and a hammer."

Fortunately after this outburst she had to stop for breath and I stepped in quickly to explain that I wasn't the engineer.

It transpired her mistress had just gone out intending to report her line "dis." via a call office.

I may mention that getting out, even with a pass-card, was not quite so easy as getting in. The maid went one better and decided if I wasn't the P.O. Engineer I must be a burglar.

"ROOKY."

SHEFFIELD DISTRICT NOTES.

MR. D. C. H. ABBOT, Assistant Traffic Supt., has been seconded as Assistant Surveyor, Class II, and left Sheffield on May 28 to take up duty at Preston. He carries with him the very best wishes of his colleagues, partly expressed in the tangible form of a golf bag and rolls razor.

To Mr. S. H. Croft, Assistant Traffic Supt., late of St. Albans, a very cordial welcome is given.

Miss C. A. Woodcock, Clerical Officer, resigned on May 31 in view of her approaching marriage, fixed for June 14, 1932.

Miss H. Wardle, Clerical Officer, has resigned the Service, and was married on June 9, 1932.

Both officers received beautiful presents as a practical expression of the staff's good wishes.

TELEGRAPH AND TELEPHONE EXHIBITION AT HULL.

THANKS to the kindness of Messrs. Thornton Varleys in offering window space and a generous area within their store, Hull was enabled to hold its own Telegraph and Telephone Exhibition during the week May 30—June 4.

Some idea of the success of the show can be gained by the fact that huge crowds gathered round the magnificent window display, and by the fact that one continual stream of visitors flowed into the demonstration room inside the store. Several onlookers were heard to say that it was by far Hull's most interesting Exhibition.

In the window were several exhibits chief among which was a full-size Kiosk with lay figure inside provided by the Hull Corporation Company, and a small model of a Post Office Kiosk.

The Telegraph section of the Exhibition was demonstrated by male and female operators. Two Teleprinters were in direct communication at opposite ends of the stand, and visitors were fascinated when they saw how rapidly the messages were flashed from one instrument to the other, and how deftly the receiving operator completed the telegram. The public were invited to write their own telegrams and were quite surprised at the neat copy which they saw prepared at the distant instrument. Many technical questions were ably answered by the expert in attendance and it was really gratifying to find so many interested in the intricacies of the machine.

On another stand a Wheatstone Transmitter and Receiver were connected together, and very great interest was shown as the various steps in the formation, transmission and reception of slip was explained.



TELEPHONE AND TELEGRAPH EXHIBITION, HULL. THE TELEPRINTER.

The A.B.C. caused considerable amusement, as many of the visitors found out that they could operate this instrument, and so much fame and glory was forthcoming to this good old servant of the State.

No Telegraph Exhibition would be complete without its Morse key and sounder and a set was installed on the stand. This proved quite an attractive exhibit, as many ships' operators attended who were very interested in our methods of Morse operating.

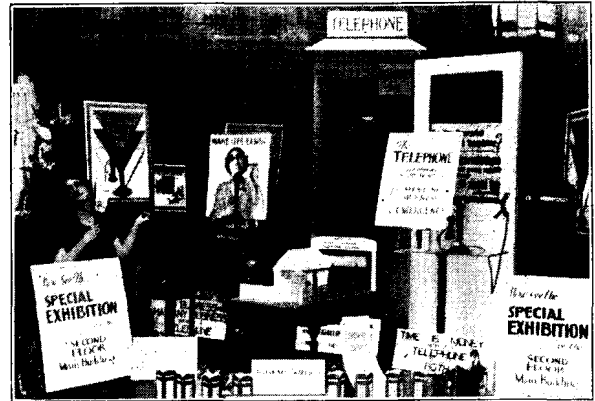
The Telephone section was provided by the P.O. Engineering Department, the Hull Corporation Telephones, and a 25-line, 2-digit Private Auto Exchange was installed by the A.T.M. Company of Liverpool.

The Post Office exhibited several types of ancient transmitters and receivers including: (1) Cup and Ball transmitter of 1883, (2) Transmitter Telephone D'Arsonval, (3) Telephone-Ader, (4)

Edison Telephone wall lamp black transmitter with electro-chemical chalk receiver, (5) De Jogh Pencil transmitter and (6) Gower-Bell Telephone. As a comparison the foregoing were shown alongside the most modern types of Telephones, finished in old gold, oxidised silver and walnut.

Another interesting exhibit was a telephone installation, a magneto switchboard, and two magneto instruments in ivory and gold, formally installed in Lord Rothchild's House in Mayfair.

Throughout the week one of the Hull P.O. Engineering Staff demonstrated an Auto Exchange. It was a 4-figure Exchange having line switches, 1st and 2nd groups and final selectors with



TELEPHONE AND TELEGRAPH EXHIBITION, HULL. TELEPHONE SECTION.

ringing and the tones connected. A great deal of interest was shown by the public as they saw how the switches were worked under the control of the dial on the subscribers instrument, and how the switches stepped towards the completion of the full number, finally sending out the ringing current to ring the called subscribers bell.

A 1,000-mile length separated two telephones placed upon tables situated at either side of the room, and the public were able to speak to one another and test the transmission under "Repeater" conditions.

The Hull Corporation Telephones installed two small floor boards, and had operators demonstrating calling and clearing, &c.; also connected as extensions of the switchboard were instruments from which the public were invited to make free local calls. An exhibit of Private Branch Exchange Switchboards and modern telephones were also shown by the Corporation.

The A.T.M. Private Auto Exchange was complete with Auto Units, several telephones connected thereto, and 2 sets of secondary cells and mains charging plant. This was demonstrated on behalf of the company by a Corporation operator.

From many points of view it can be said that the Exhibition was a tremendous success.

R. C. P.

SCOTLAND WEST DISTRICT.

Departure at Scotland West District.—A pleasant little function was held at the Scotland West District Office to mark the occasion of the transfer of Mr. R. Thomson, Clerical Officer, to the Customs and Excise Department. In the absence of the District Manager, the proceedings were opened by the Staff Officer, Mr. Dunn, who, on paying eloquent tribute to the worth of Mr. Thomson, presented him on behalf of the staff with a gold watch, a gift which would, as he passed on his daily pilgrimage to his new activities, remind him of his Scotland West associations.

Following upon this, other members of the staff delivered appreciations of Mr. Thomson's fellowship, and to the many well wishes Mr. Thomson reciprocated with grateful feeling. Thus another link in the Scotland West chain of association was broken.

THE SPIRIT OF SERVICE.

BY F. J. LANE.

THE commercial success—indeed the success without the adjective—of any business enterprise depends entirely upon the ability to sell its products or services.

I once made this statement to an officer of the Service who rather politely agreed and then said "But you've got to admit that when you've sold it somebody's got to look after it and keep it in good order."

Of course, he was quite right. No doubt my bald statement was too brief and therefore easily misunderstood. Yet I meant what I said; sell your goods and continue to sell them and nothing else matters: even the maintenance of supply is really only part of the same problem.

Naturally, looking after the service is a very important matter, but isn't it really part of the selling organisation and a very important part, too? Could a Contract Officer secure his weekly quota of orders in a month if the system were clearly in a state of hopeless disorganisation? It goes deeper than that, however; if the Accounts Department suddenly decided to send out a series of tactless letters, there is no doubt that the first figures on the Contract Officers' income tax returns would soon begin to look smaller!

All that is pretty obvious, of course, but hardly, I think, in the "not-worth-mentioning" class, for it seems to me that there is a vast difference between a number of sections or "duties" behaving just rationally and their knowing that all their actions—outward appearances notwithstanding—have an end in common with those of all other sections—one which (because I cannot think of anything more dignified) I call selling the telephone.

Can it be denied that in all large concerns (including ourselves) there has been more than a tendency to regard selling as a business to be looked after by a number of people whose concern it is—and perhaps not too "respectable" a business either? Recently it is true, the respectability of the selling art has become acknowledged. Force of dull circumstance has compelled all people to turn their attention to it and for some time salesmen have been basking in the sunshine of the patronage of the "great ones." This is a decided improvement, but it does not go far enough. It would not be of great value to create an aristocracy of salesmanship (though this would be better than others which have been tried). We want good salesmen, but they must be backed up. Backed up, I mean, not just by "organisation" but by a real spirit and feeling that the aims of the salesman and those behind him are one and the same.

Reading a book some time ago on the subject of selling, I was struck by one or two statements of the author which seemed highly significant. "It is amazing," he wrote, "to what lengths some officials of a company will go to throw away business." He then went on to give some examples of this, one of which, in brief, was a case in which the company's accountant (looking after his business in the "sectionalised" way) had quite unnecessarily annoyed a most valuable customer. The president of the company (the book was of American origin) took it upon himself to try and put matters right by apologising for the error made by some minor official of the accounts department. "That doesn't concern me in the least," said the annoyed customer. "The rawest junior on your staff writing to me on the firm's notepaper is 'the company' to me."

I do not for a moment wish to tilt at any section of the Service, but it is quite easy to see that those quotations have a special significance to us. The Post Office Telephone Service is an organisation more than ordinarily exposed to criticism. If our officials

go to any lengths to throw business away, other people, besides the customers actually concerned, are quickly informed of it. Every "outside" officer, at any rate, finds out that what the president of that company was told is only what everybody thinks. Inside it may be easy to repudiate this or that: the variety of officers, from the Secretary downwards, may seem easy targets for blame, or at other times seem very important; but outside the office doors only the "Service" is known and only the "Service" gets the blame. Obviously it cannot be otherwise, and really no one should wish it to be. Would it not be a far finer thing to present a "united front"—everyone recognising that he or she is the "Service" (and proud of it!)? A good spirit of service creates a more comfortable feeling than ineffective attempts to blame the Engineers, Contracts, Traffic or the Chief Clerk!

The Commissioners who investigated methods of dealing with long distance telephone traffic in the United States appear to think something of the spirit of service, for a most significant passage in their report reads: "Much has been heard in this country of the spirit of service with which the staff of the larger American public utility corporations are said to be imbued. Any scepticism which may have been harboured on this point is speedily dispelled by association with the staff and operations of the A.T. & T. Co. . . . Although the degree in which these two qualities (keenness and efficiency) are exhibited no doubt materially affects the prospects of individuals, it is obvious that this is not the sole incentive. There would seem to be among the staff generally a sense of satisfaction arising out of their recognition of the fact that they are engaged on work which constitutes an important factor in promoting the commercial and social welfare of the community. This outlook is undoubtedly carefully fostered by the Company."

From these words it is easy to gather that the Commissioners think this spirit of service very desirable—which obviously it is—and what is very important, that it does not exist to the extent one could hope it might in the public utility corporations in this country. If there were no contrast to arrest the attention of the observers the paragraph quoted would hardly have been written.

I do not believe for a moment that the Department really wants a "robot army." Human robots are always a nuisance, anyway. They alternate between the human and the robotesque and are usually one or the other at the wrong time: intelligent people, too, are irked by trying to be mechanical: anybody but a fool finds it intolerable to be a "cog in a machine." Nevertheless, I think it would not be out of place to make it definite and clear that a premium is put on intelligence and that stupidity, however "efficient-looking," is not thought much of.

I suppose everyone knows that the safe navigation of ships at sea is not left to chance but is governed by a "Rule of the Road." Since a ship can only approach another so as to involve risk of collision in four ways, it would appear quite simple to make the necessary rules and judge everyone's actions by them. Yet this is not done: a final rule makes it quite clear that mere obedience to the rule does not exonerate anyone from blame in case of any accident.

The telephone service is a much more complicated thing to cover with a set of rules. We know—as I could guess the framers of the rules want us to know—that the Service Instructions can only be a framework. But would it be a good thing if this were made clear: if a definite and over-riding rule were *printed* to the effect that everyone must use judgment and good sense in every situation. One should not be automatically excused by the pleas of obedience to the printed instructions, and equally a degree of disobedience to the *letter* of the law should not be necessarily blameworthy. Of course, there would be "difficulties," but my opinion of these difficulties is that they're a bogey-man with no more substance than smoke when one gets near them.

Imbued with the spirit which such an "instruction" or open declaration would do much to help create, the service would go

on faster from success to success. Numerous silly arguments would be blown away by the breath of common sense. I've heard of the most ridiculous proceedings being maintained for the sake of such abstract considerations as "uniformity of office practice," whatever that is or whatever good it is when you've got it! The trouble with the rule-ridden mind is that it begins to make the rule more complicated and obstructive—loves, in fact, to make itself more ridiculous and debase the intellect as the slave of the rule—a weird sort of rule-book masochism!

Shouldn't an attempt be made to create a full spirit of co-operation so that every officer can think of himself as part of the "service," out to improve that service, ready to answer for it, with his or her eye on the "selling index" all the time.

Couldn't we do with—say—a little less of the passive voice in letter-writing; do without some sonorous but rather meaningless expression and substitute the more intimate personal and possessive pronouns, for such abstracts as the Post Office or the Department's? One would think that we're ashamed of our associations!

It is impossible even to suggest exactly how the spirit of service should be cultivated. The Commission say that hope of reward (promotion), is not the only incentive. Perhaps not; but it looks as though it is the very important foundation stone. It is very likely that this matter has received more attention in the Post Office service than in outside industries; but that doesn't necessarily mean that it has received enough. Isn't too much fear felt that personal appraisal will be condemned as a system of favouritism and that examination fails because of the "temperament" of examinees? Couldn't both systems be carefully overhauled and both used, and thus obtain a useful "cross-bearing"? This, I think, is an interesting theme, but I confess to some doubts as to whether these pages are the proper place in which to pursue it.

If we are satisfied on the "reward" question I think the next most important thing is to cultivate a greater degree of intimacy between the administrative staff and the lower grades. Many—too many—junior officers are, in thought, completely detached from the higher executive regarding it only as a shadowy personality referred to as the "Secretary."

The telephone conquest of Great Britain is almost within our grasp. Isn't it worth an effort, a risk sometimes, perhaps a sacrifice here and there, to extend our reach? Without the essential spirit of service, it will always elude our grasp.

BIRMINGHAM NOTES.

The District Manager's Office Cricket Club.—We are not having the best of luck in our matches so far this season, but nevertheless we are still hoping and every game has been thoroughly enjoyed.

Three matches were played recently, but one hesitates to say too much about them.

On June 7 we played the Labour Exchange Club, who knocked up 84 runs against us. Our reply was 46, but we hate to think of what it would have been without the very useful 27 scored by Mr. Vallance.

On the following day we met the Stores, and the result was even more dire. Against 110 knocked up by our opponents we scored 35, 25 of which were again due to an excellent effort on the part of Vallance. We commiserate with the eight enthusiastic gentlemen who scored round figures and trust that fortune will favour them next time.

Our last game was against our old friends at Water Orton, where we made 64 against their 120. We hope we shall meet them again, for their ground is excellently placed for tired and thirsty men.

We have several more matches to play, however, and are hoping to show some really good form before the end of the season.

LONDON ENGINEERING DISTRICT NOTES.

Byron Automatic Exchange.

THIS exchange, which serves the South Harrow area is the thousandth automatic telephone exchange to be opened by the British Post Office and was brought into service on Thursday, June 2, 1932, at 1.30 p.m. Dr. Norwood the Headmaster of Harrow School, was present at the cut-over and also spoke after a brass plaque commemorating the event had been unveiled in the switchroom.

The number of lines transferred to the new exchange was approximately 950, all of which were previously connected to the old Harrow Exchange. The equipment at the Byron Exchange, which was installed by Messrs. Standard Telephones & Cables Co. Ltd., has an initial capacity of 2,060 lines, while the building is capable of extension to provide for 10,000 lines.

Pinner Manual Exchange.

This exchange was opened on Wednesday, June 8, at 1.30 p.m., when 1,421 lines were transferred from the old exchange. The equipment at the new exchange, which was installed by the Standard Telephone & Cables Co., Limited, has an initial capacity of 3,340 lines, and an extension to provide ultimately for 9,500 subscribers' lines is contemplated.

L.E.D. Amateur Sports Association.

Association Football.—The L.E.D. have been elected to the London League. At the election of clubs the L.E.D. topped the poll. Four clubs applied for 3 vacancies and in addition to the L.E.D., Shepherd's Bush and Tillings Athletic were successful.

In addition to the London League the club has entered the F.A. Cup, the Amateur Cup, Surrey Senior Cup, and the London Senior Cup.

Matches will be played during the course of the season on grounds situate in all parts of London, and members are asked to give their support to the team when they play near to their home district.

Admission to home matches (excluding cup-ties) will be free to members.

Applications from players (all positions) who desire to be considered for inclusion in the league team should be addressed to the Hon. Sec.

Athletics.—*Great Performance by the L.E.D.*—At the meeting of the Inland Revenue Sports Association the L.E.D. team were successful in winning the Invitation Team Race from an entry which included the strongest teams in the Civil Service.

C. E. Cheyney (I.N.W.) ran first string, doing 880 yds. and giving L.E.D. a lead of 8 yds.

R. C. W. Walker (I.C.T.) took over for 220 yds. and sent W. Codling (X.C.T.) away with about the same lead. Codling ran stronger for the second 220, and sent F. O. Smith (X.C.Y.) away with a good lead for the 440 yds.

Smith held on to win by 2 yds. from the Customs, with the Inland Section (G.P.O.) 3rd. The time was 3 mins. 53½ secs.

Cricket.—The match against the India Office was played on Monday, May 30, and resulted in a drawn game.

The India Office have a very fine side, including Malik, late of Sussex, and now assisting the Indian Touring Side.

India Office won the toss and batted 2 hrs. 20 mins. for 186. Tea was taken at the conclusion of the innings and play restarted at 5.55 p.m., leaving L.E.D. 2 hrs. and 5 mins. in which to score 187, an impossible task.

L.E.D. started disastrously losing Webdale and Giddings with only 6 runs on the board. Punchard, however, helped Lane to put on 39 before another wicket fell. Playing to instructions after the 4th wicket fell at 7.15 p.m., when 94 runs had been scored, L.E.D. played out time and forced a draw. Lane had played well for 42, hitting 5 boundaries, and with Whiting rattled up 49 in very quick time. This pair were well set when Whiting foolishly ran himself out—Lane was out in the next over. Townsend defended stubbornly for half an hour for 13, including a grand 6 off Malik.

The L.E.D. met the India Office for the second time on June 8 at Osterley and the result was again a draw.

The India Office won the toss and decided to let the London Engineering District bat first. The result proved that this was an error of judgment, as our batsmen displayed fine form and put up the useful score of 184 for 7 wickets declared. Giddings batted for two hours for 58, giving no chance, and with Whiting put on 65 for the first wicket.

The India Office left with 2 hours and 10 minutes to beat the L.E.D. total, started badly, and until Khan and Ewins got together the game looked distinctly favourable for the L.E.D. When the score was 138 for 7 the India Office appealed against the light and stumps were drawn at 8.45 p.m.

GLASGOW DISTRICT NOTES.

New Phonogram Equipment.

On June 6 the old phonogram equipment in the Trunk Exchange was replaced by new equipment (panel type) installed in a specially partitioned section of the Telegraph Instrument Room. The transfer was carried through without a hitch, and the new equipment is giving complete satisfaction both to the operating staff and the subscribers.

Resignations on Account of Marriage.

Miss F. Taylor, Douglas Exchange. Miss G. H. McArthur, Central Exchange.
 „ E. L. Pollock, Central Exchange. Exchange.
 „ J. White, Douglas Exchange. „ E. P. Falconer, Trunk Exchange.

Appointment.

A most hearty welcome is offered to Mr. W. F. S. Brock, one of our Training Reserve, who has been appointed to this District.

On Criticism and As Others See Us.

The true aim of criticism is to justly discriminate, fairly establish, and honestly award (*Telegraph and Telephone Journal*).

Aye, free aff han' your story tell,
 When wi' a bosom crony;
 But still keep something to yoursel'
 Ye scarcely tell to ony.
 Conceal yoursel' as weel's ye can,
 Frae critical dissection;
 But keek through every other man
 Wi' sharpen'd sly inspection.—(Burns.)

I am no friend to enquiring into other men's lives. (Sancho Panza.)

Jenny Lind was once asked if she became unnerved when singing before an audience of musical critics. She replied: "It would be disastrous if I allowed myself to think of what any audience may be thinking of me or of my singing. It is my invariable practice to forget my audience and their thoughts, and to sing only to God."

Surely there is a time to submit to guidance and criticism and a time to take one's own way at all hazards. (Huxley.)

When a man tells us—they very seldom do—what wonderful fellows we are, we say naturally, "What is he getting at?" When he tells us we are the biggest fools he has ever met, we simply wonder what he knows about it, and we do not mind.—(Mr. Baldwin.)

A criticism has been made against these confessions that they are wanting in scenes of touching and pathetic interest. True, quite true; but I console myself on this head, for I remember hearing of an author whose paraphrase of the Book of Job was refused by a publisher, unless he could throw a little more humour into it, and if I have not been more miserable and more unhappy, I am very sorry for it on your account, but you must excuse my regretting it on my own.—(Charles Lever.)

Then gently scan your brother man
 Still gentler sister woman;
 Tho' they may gang a kennin' wrang,
 To step aside is human.—(Burns.)

In every good work, trust thy own soul; for this is the keeping of the Commandments.—(Ecclesiasticus.)

KEW GARDENS AGAIN.

THERE was a splendid gathering on June 8 last of Retired Colleagues of the C.T.O. at the usual rendezvous, Kew Gardens. No less than 172 sat down to tea, and glorious to relate Jupiter Pluvius forgot to use his water-can, and left King Sol to do his best in the, of late, abnormal circumstances. With so huge a list of names it will be well understood that the present restricted space of the *T. and T. Journal*—a result of the present urge for economy—it would be impossible to record all the names of those stalwarts who answered the keen call so gallantly. On the other hand, it would perhaps appear invidious to single out a few. One must take risks, however, so it is to be noted that both Mr. and Mrs. C. S. Keen were present! James Bailey, I.S.O., who never fails, and Mr. and Mrs. Belderson were present as an exceptional privilege to the gathering for even the Postmaster of Neath's remuneration does not permit of many double fares to London, G. T. Bennett and A. E. Bowden, J. Cherry, M.C., G. A. Costello, M.B.E., C. J. Faunch, Mrs. A. C. MacEwan, Mr. H. Parker, Mr. F. Morgan, Miss F. J. Watts,

Mr. H. B. Winder, Mr. E. L. Hilton, Miss G. Hall, Miss E. C. Mayersbach, Miss M. E. Barnfield, Mr. and Mrs. H. E. Adams, and Mr. S. J. Smith; the latter never fails these gatherings, and was indeed the only representative of T.S.F., not excepting the present writer, who, however, had previously obtained leave of absence from the Chiswick Chief!

One is aware that real difficulties are always arising in the affairs of men and women which undoubtedly prevent attendance at these gatherings. It would however be much appreciated by the really hard-worked organisers of these and kindred organisations, if those who find themselves unable to attend would in future advise the Secretary of their inability to do so.

J. J. T.

SOUTH MIDLAND TELEPHONE DISTRICT NOTES.

THE District Manager's staff at Reading during the past three months has undergone considerable additions and changes in personnel, due principally to the absorption of part of the old St. Albans District, and promotions, in addition to the normal development of the District.

On May 20, 1932, Mr. James Magnall, Traffic Superintendent, Class I, was the subject of an interesting and representative gathering of his colleagues in the various branches of the District Manager's Office, who had met to present him with a small token to commemorate his work amongst them and to mark the occasion of his transfer to Manchester in a similar capacity as Traffic Superintendent, Class I.

The Chairman, Mr. W. A. Frame, Traffic Superintendent, Class II, spoke in warm terms of Mr. Magnall's zeal and untiring energy, of his ungrudging assistance and helpful guidance in all official matters, which during his stay of 18 months in the District had contributed largely to the efficiency of the Traffic Staff.

Tributes were also expressed by Messrs. French, Brewer, Brown and Dockrill on behalf of the various sections of the District Manager's Staff, including also an expression of good will conveyed in a letter from Captain Hill, the Executive Engineer, Reading Section.

Opportunity was also taken to welcome Captain F. H. Neate, O.B.E., to the District from Headquarters Traffic Section as successor to Mr. Magnall.

Mr. C. F. Moorhouse, District Manager, in making the presentation, which took the form of a gold watch chain, spoke in highly appreciative terms of the sterling qualities possessed by Mr. Magnall and wished him success at Manchester.

Mr. Magnall, in responding, expressed thanks for the loyalty and support afforded him by the Traffic Staff and the kind thoughts of his colleagues and hoped that the high degree of progress and efficiency evinced in the Reading Traffic Department and the spirit of inter-departmental co-operation would continue unabated.

On June 5, 1932, another assembly gathered in the Traffic Office for the purpose of officially wishing Mr. L. H. Brown, Assistant Traffic Superintendent, God-speed on the occasion of his transfer to Bristol.

On this occasion Captain Neate, Traffic Superintendent, Class I, as Chairman, spoke of Mr. Brown's official capabilities, which he had learned were of such an exceptionally high order as to merit commendation. His geniality, help and guidance had earned for him a very exalted place amongst his colleagues and his transfer would be a loss to Reading.

Equally eulogistic expressions were voiced on his behalf by Messrs. Frame, Jones and Brewer.

Mr. C. F. Moorhouse, District Manager, in endorsing the remarks of the previous speakers, presented Mr. Brown with a chiming clock, pewter flower vase and book subscribed for by colleagues and friends from all branches of the District Manager's Staff, including colleagues at Oxford.

Mr. Brown responded in happy terms and wished to thank all who had made the meeting possible.

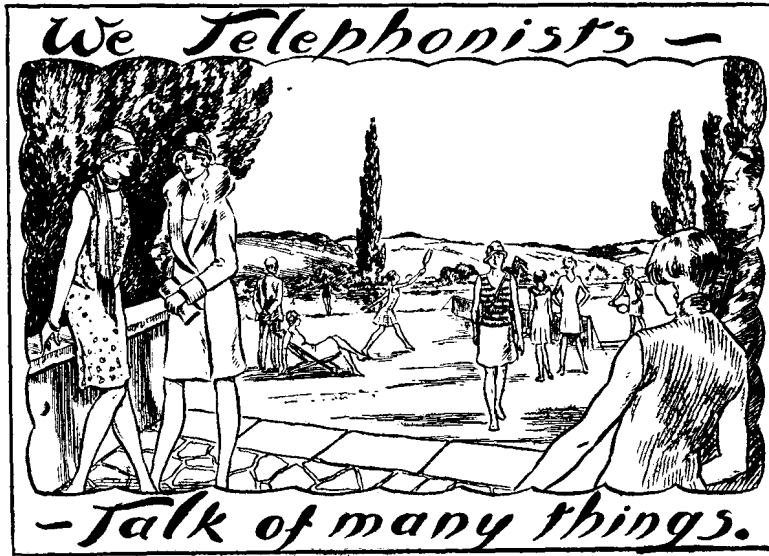
Mr. Brown took up duty at Bristol on June 6, 1932, and his vacancy at Reading has been filled by Mr. A. H. Woodland, Assistant Traffic Superintendent, transferred from Bristol on the same day, to whom a hearty welcome was extended by the Reading Traffic Staff.

An interesting ceremony was held in the Reading Traffic Office on April 11, 1932, in the form of a presentation to Mr. W. Palk, Assistant Traffic Superintendent, of a dinner wagon to mark the occasion of his wedding last Easter.

The presentation, which was quite an informal affair, was made by Mr. James Magnall.

Expressions of cordiality and good wishes were voiced by Messrs. Frame and Tatchell.

Further recent additions to the Reading Traffic Department are as follow: Mr. Jones, Assistant Traffic Superintendent, promoted to Traffic Superintendent, Class II, at Reading; Mr. R. G. H. Doughty, Assistant Traffic Superintendent; Mrs. Murfitt, Travelling Supervisor; all of whom have been accorded a hearty welcome to the South Midland District.



Summer Feeding.

AND summer not, but now that the hot weather is here—"Ha!" say they as they wrap their coats round them and draw nearer to the fire: "Ha!" they repeat as they shiver in the July blast, "hot weather indeed: why summer didn't even fall on early-closing day this year: hot weather—pah!" As I was saying (and if you don't like to listen you can go out and catch frost-bite), now that the hot weather is here you will have been waiting with ill-concealed impatience for some guidance from me as to the most suitable summer diet. It is, of course, needless for me to say that one doesn't want to go eating heating things (and by the way, I wonder why we always must utter remarks which we admit are needless: but we always do, don't we. I need hardly remind you that it's perfectly stupid, but anyway, don't say I haven't reminded you). Er—where was I? Oh, yes, "heating eating": oh quate—so one ought to avoid boiling oil and mustard plasters and the like. In the words of the renowned dietist, Professor Crunchingjinja, what you really want is fewer calories without sacrificing the requisite volume, quantity or proportion of vitamins (series A to Z: Y being a vowel for this purpose). Exactly: that's just it: fewer of the carraways and a standard quantity of the doings. You see it's all so simple, but people just won't do it. It does make me mad: Doesn't it you? For example, there's breakfast—grape fruit: eggs and bacon: banana and cream: toast and marmalade and coffee—far too much for any somnambulist. All that is required is a casual between 9 and 10 a.m.: satisfying: revitalising and giving one the requisite strength to park a lunch. Now lunch is really important and as a varied menu is essential, let me offer a few suggestion. First, dispense with soup: after all, what is soup? It's a wise soup that knows its own father. There is a subtle suggestiveness about the phrases "to be in hot water" and "to be in the soup." Instead, go for fish. Try sole (phillips) not to be confused with fillets, which are usually much more bony. As a variety, sole in anguish can be recommended. Joint—well you can try boiled button and paper sauce or if you prefer an entree there's fried inkeraser (announced on the menu as liver). For cold viands you might have ham and juphet or cold grief with a green ballad and O.K. (or perhaps RWT) sauce. Of course, if you are a vegetarian you can go and eat grass or make a meal of nuts and may, although you would find pegs on toast or confetti hard to beat. And now sweets—stewed plugs and mustard: dockets and steam or lipstick and gloy, finishing off with C.C. ices. If you must drink, what's the matter with water? There's nothing like it—fortunately. This is one of the seven Wise Provisions of Nature—it prevents you from drinking it in mistake for something else. Tea?—well yes, but take it with lemon, having first removed the peel from the lemon.

If you make a careful selection from the foregoing suggestions you will never suffer from heat in the future—unless, of course, you have led a bad life.

PERCY FLAGE.

Service Cameos: No. 4.—The Development Officer.

Phew!—pass me several tea-pots and the lemon or bring me one large oasis. My dears, you'd never believe, I mean really, but I'm most frantically exhausted and I doubt if I shall ever prattle again. And it's all in the cause of telephones. You see, I just trailed round after him all day at a most terrific pace and I mean, I'm sure, he hadn't time to do justice to his subsistence allowance. It's been too dreadful, but it was all just too marvellous for words, I mean, really. You see I thought it must be rather wonderful, don't you think, to know about things and so on. I mean—well, I mean

how they know about Mr. Jones wanting a telephone, with an extension, when Mr. Jones is not even born yet. I know it sounds too awfully absurd but that's the sort of thing they do. I mean, it's simply too extraordinary, don't you think?

So you see I called at his office—Oh, I forgot, he's Mr. Forsyte, not one of dear Mr. Galsworthy's, well I mean he didn't look like a man of property and he's a Development Officer—well, anyway, I mean I went to his office. You never saw such a place: it's all over maps: it's like being in an aeroplane and looking down on London. Mr. Forsyte said he hadn't time to grant me an interview, but if I liked I could go round with him just to see how it's all done. So I said "Yes, really, I mean I should like to most awfully" and would there be room for me in his car. "Oh, yes!" he said, "it carries 23 inside and 33 on top and if you're coming, let's be going." You know, I mean, buses and things simply make me heave, but directly we'd got seated he unfolded a large blue-print map and pored over it. He pointed out the area we were to visit and started to talk about town planning, local authorities, arterial roads, factory sites and types of residence until, I mean, I was all whizzy. When we got off the bus he kept on popping into estate agents' offices and so forth. So I asked him if he were house-hunting because if so, really, I'd be getting back to town because, I mean, I said and thought it was really about telephones and things but he said "No, it's all part of the game" which I thought was a bit incoherent. Well, I mean, wouldn't you, really?

Then we went off down a dusty lane, climbed over a stile, crossed a field, jumped a ditch, skirted a cow—I mean I thought it was a wild bull but he said "Ha! Ha! No!"—crawled through a hedge into another field. There Mr. Forsyte sat down and unfolded his blue print map again. By that time I was feeling a bit unput so I puffed and powdered, I mean I always think one ought to look one's best at all times, shouldn't one, don't you? Then I said "Now, tell me about things quietly and so forth." But he murmured to himself "10, 20 years." So I said "Oh Mr. Forsyte, do you sing?" "Sing," he said, looking—well, I mean—rather startled. "Oh yes," I said, "I mean that song about '10, 20, and so on, years ago'—don't you think it's rather sweet, I mean really." "Sing," he said "no." "Then what—" I asked. "Oh," he said, "I'm counting up the telephones that will be in use here." "But," I said, "I mean it's so perfectly obvious. I mean, really, of course, you know best, but I should say nought, or in other words nil. I mean it stands to reason. There aren't any houses here and I mean all the really up-to-date people have some sort of a house round their telephone." "Ah," he said, "let us take the long view and become prophetic," and he closed his eyes as if he saw a vision. Of course, he really ought to have said adbraecadabra and drawn a circle and so forth. But he merely remarked in a blasé sort of way "Where we are now will be rows of smart suburban villas—telephones one in 2.8: H.M.T. plus 10% for extensions: over there a factory—3+ 20 initially: two miles north-north-east a hotel and golf course—2 lines and 37 extensions or possibly 38. And, of course, a shopping centre on our left—ratio 95%." "Bosh," I said, "supposing there's an earthquake or something—" "Ah!" said he, "thank you for reminding me—one fire and ambulance station—2 lines: 6 extensions and a private wire—and one hospital—say a couple of lines and a dozen extensions. Yes, not so bad. And now, Miss Twilfit, is there anything else I can tell you!" Well, I was feeling tired and thirsty and huffy so I said "Yes, Mr. Forsyte, I don't believe a word of it, I mean really, and you can tell me the time of the next train—train, mind you—to town and civilisation."

So he did, and here I am—but my dears did you ever? I mean really it's all so positively extraordinary but of course it may be all right. I wonder, now I really do wonder, if you know what I mean, but I do wonder if he would be any good for the Derby or the Oaks, I mean really.

BIRDIE TWILFIT.

Park Exchange.

A very successful bazaar was held at Park on Saturday afternoon, May 28, in aid of the Children's Country Holidays Fund.

Mrs. G. H. Wilderspin performed the opening ceremony, and in her speech outlined the need for helping the Fund at the present time.

All the stalls were very artistically arranged and decorated. The articles displayed showed how enthusiastically the staff must have worked to achieve such a splendid result.

The night staff and engineers were in charge of the amusements, which attracted a constant stream of visitors.

Parties were conducted round the switchroom half-hourly, and this proved a very successful and interesting feature of the bazaar.

Everyone agreed that the function was most enjoyable and as a result the Fund will benefit to the extent of £44 10s. 0d.

The Author Returns Thanks.

Greeting and thanks to all my cast, let hymns of praise abound: let cymbals clash, let songs ascend, and make a joyous sound. (Two mentioned here last month would not be recognised too easily—for "Peter Cruff" read "Peter Craft," "Frank Bearley" read "Frank Beazley.")

First, Ada Price was—Ada Price, calm, poised, aloof, unique; the audience begin to clap when she begins to speak. She quickly turned our thoughts into a most romantic current, led on by "Mister Lister," ably played by Ernest Durrant.

For Arthur Hemsley, three loud cheers; we gratefully confess he does the utmost that he can to bring the play success. And Nora Cheason's sweetness and the charm of Peggy Murray made us forget the hour was late and we should have to hurry.

John Whiffen sang—and very much we thrilled to hear him do so; and no one missed McCormack, Tauber, Scotti or Caruso.

G. Pfeiffer and E. Phillips were adorable (and svelte) their *genre* and their *joie de vivre* the hardest hearts would melt. And Peter Craft and Angus (John) as Michael and Young Bert, in all they did were most enthusiastic and alert: while Harper (V.) and Williams (Hugh) and shy, demure Marie (Lehane) were one and all as good as ever they could be.

The dancers, taught by "Teddy," were as clever as of yore; some even said they'd never danced so gracefully before. And when Cecilia "took the stage" (her other name is Lawless) she "took all hearts" as well, with singing absolutely flawless.

The Heavenly Twins, so sweet, so gay, were youth personified: their cheeks were like the red, red rose, their eyes with star-dust vied.

Maud Clayton, Petaché, Dean, Craft, Beazley, Payne and Thorogood, worked very hard on our behalf as only sportsmen would.

And, last, our two accompanists: how could we do without them, and how shall I find fitting words to tell you all about them. Their rhythm and their harmony were to the play a leaven; they synchronised as angels might, on harp and lute, in Heaven; and let me add just this—our efforts would have been quite funny, without our dear Eve Garvey and our one and only Bunny.

Greetings and thanks to all my cast, oh, make a joyful sound; let cymbals clash, let songs ascend, and hymns of praise abound.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

BRISTOL DISTRICT NOTES.

Mr. A. R. H. Cass, M.B.E.—His many telegraph friends in other parts of the country will note with pleasure that, in the recent Birthday Honours, membership of the Order of the British Empire was conferred on Mr. A. R. Harris Cass, Assistant Postmaster, Bristol. Our congratulations to him on the well-deserved honour.

Retirement of Mr. A. Gray.—On Saturday, May 21, a large gathering assembled at St. Stephens Restaurant, Bristol, to bid adieu to Mr. A. Gray, Assistant Superintending Engineer, S.W. Engineering District, on the occasion of his retirement after nearly 44 years' service in the Post Office. The tributes paid to him by the Chairman, Mr. P. Thornton Wood, Superintending Engineer, Mr. J. Baxter, Asst. Superintending Engineer, Mr. R. C. Balcombe, Sectional Engineer at Taunton, and Mr. D. Williams, Staff Officer. The enthusiasm with which these tributes were received, and the fact that the presentation made to him was subscribed to by officers throughout the District were indisputable evidence of the esteem in which Mr. Gray is held by all who have come in contact with him.

Mr. A. G. Bristow, District Manager, and Mr. L. G. Allen, Traffic Superintendent, were present, as also were the Chairman and Secretary of the local Branch of the P.O. Engineering Officers' Union.

The excellent musical programme provided, and the distribution of light refreshments, materially assisted in making the evening not only an enjoyable social event, but a fitting send-off to a deservedly popular officer and colleague.

To Mr. H. S. Thompson, formerly Assistant Staff Engineer in the Engineer-in-Chief's Office, who has succeeded Mr. Gray, a very hearty welcome.

Mr. A. H. Woodland, Asst. Traffic Superintendent, has been transferred to the South Midland Telephone District. Before he left the esteem in which he is held here was denoted in tangible form.

A cordial welcome to Mr. Brown, Asst. Traffic Superintendent, from Reading.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

DURING the month of May there was a net increase in the London Telephone area of 1,687 stations.

A telephone exhibition was held at Messrs. Kennards' Stores, Croydon, from May 2 to May 21 in connexion with their birthday celebrations. The demonstration included most of the interesting exhibits which were brought direct from the "Ideal Home" Exhibition, and included models of the trunk repeater system, a beam wireless aerial, teleprinters in operation and electrical marvels such as "See your Voice" and "Invisible Ray" apparatus, in addition to a Savings Bank Home Safe Castle.

The publicity and educative value of the exhibition was considerable. It is estimated that 13,000 persons visited the exhibition during three weeks, 3,000 of this number attending on the opening day. The visitors included many hundreds of school children, who were given demonstrations in the working of automatic telephone apparatus, in which they seemed to take a keen delight.

Nearly 600 experimental calls were dealt with from call offices and the phonogram and teleprinter circuits were very popular, upwards of 7,500 telegrams being dealt with.

Messrs. Kennards placed at the disposal of the Department a display cabinet, in which were shown hand micro-telephones, pedestal instruments and a replica of the first Graham telephone. Large posters were placed in the main windows advertising the exhibition and 6,000 leaflets were distributed by the Postal Service to residents in the district. In addition, Messrs. Kennards advertised the exhibition by the distribution of upwards of 250,000 circulars.

The staff of the Engineering Department and the Postmaster of Croydon co-operated with this office splendidly and considerable credit is due to the efforts of the engineers in transferring apparatus from the "Ideal Home" Exhibition, which closed on the Saturday evening, and was in position when the exhibition opened at Messrs. Kennards' early on Monday morning. The exhibition was favourably commented upon in the local press.

A temporary Show Room and Control Office, shown in the picture, was open at 52, High Street, Notting Hill Gate, W.11, between April 20 and May 14, and created much interest in the district. The display was supported



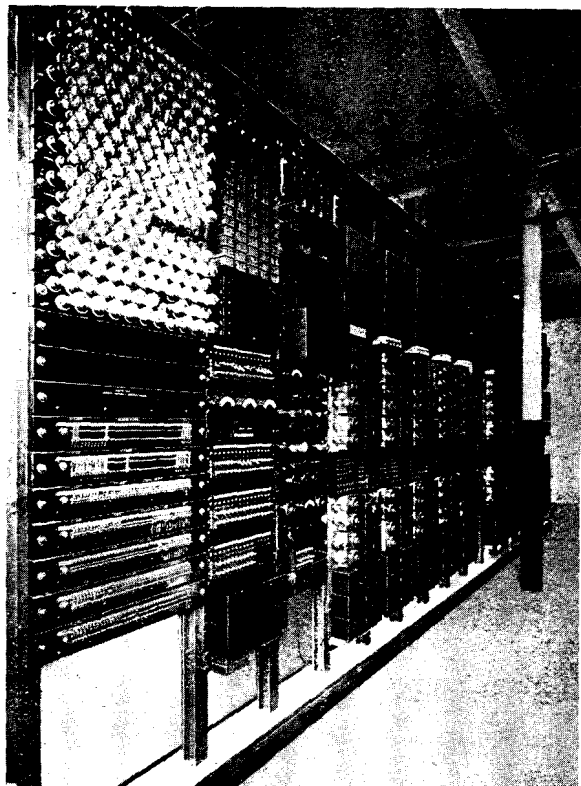
TELEPHONE SHOW ROOM, NOTTING HILL GATE.

by the distribution to residents in the neighbourhood of 13,500 copies of a modified tariff card, together with other advertising literature. Several hundreds of people visited the shop and were given demonstrations in the working of automatic telephone apparatus.

It was noticeable that enquirers for information were not confined to the immediate neighbourhood, and addresses were obtained of people in other districts from other parts of London, revealing that these displays have more than a local value. The arrangement was commented upon in the Press.

How the use of the telephone has penetrated social life in America is instanced by the following extract from an English church magazine. The paragraph is of local interest, as the Pastor of the American church referred to is shortly to preach in London:—

"Another interesting point is the list of telephone numbers given for reference, including those of the officials and three installed on the church premises."



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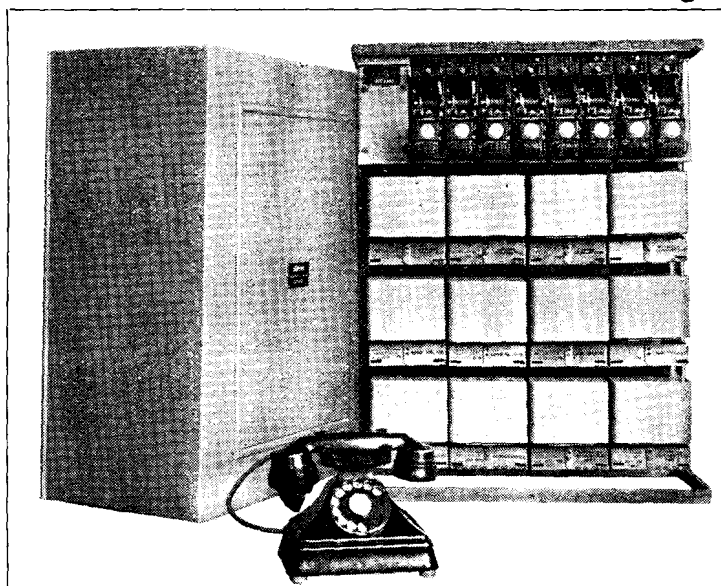
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CRICKET.

The Secretary's Office (G.P.O.) Cricket Club played the Cavendish (W.D.O.) Cricket club in the first round of the Curtis Bennett Cup at the Polytechnic Ground, Chiswick, on May 19, 1932, and won by four wickets. Scores :—

<i>Cavendish.</i>		<i>Secretary's Office (G.P.O.).</i>	
Spencer, b. Asplin	0	Vaughan, c. and b. Bowyer ...	2
Gibbon, b. Wilkins	0	Skinner, b. Goom	8
Clarke, b. Wilkins	0	Wilkins, b. Wells	22
Fear, b. Asplin	0	Mann, b. Goom	20
Forman, run out	6	Masters, b. Gibbons	8
Goom, b. Asplin	0	Harvey, b. Gibbons	1
Marsh, b. Asplin	0	Powis, b. Gibbons	19
Tucker, not out	27	Sargent, b. Gibbons	6
Bowyer, b. Ashton	20	Baldwin, not out	5
Evans, b. Ashton	4	Ashton, b. Bowyer	9
Wells, b. Wilkins	0	Asplin did not bat	—
Extras	24	Extras	11
Total	81	Total for 9 wickets	111

On June 8, on the same ground, the Secretary's Office Club played the London Engineering District and met with a heavy defeat. Scores :—

<i>Secretary's Office.</i>		<i>London Engineering District.</i>	
C. G. Bray, run out	8	James, c. Hill, b. Harvey ...	11
W. C. Harvey, l.b.w., b. Ferris	9	Ferris, b. Wilkins	5
W. Appleby, b. McCoy	0	Jeffrey, b. Wilkins	13
E. E. Wilkins, b. Ferris	0	Lane, st. Mann, b. Bray ...	4
F. Kemp, b. Ferris	0	Blyte, run out	4
A. U. Price, b. Ferris	6	Westwood, c. Crowe, b. Appleby	11
A. G. Hill, c. Cox, b. Ferris ...	1	McMullan, c. Crowe, b. Pearce	20
R. J. Crowe, l.b.w., b. McCoy	4	Burdick, b. Pearce	13
F. J. Pearce, c. Westwood, b. McCoy	5	Cox, b. Baldwin	13
G. W. Adlam, not out	16	McCoy, not out	22
A. Baldwin, b. Ferris	6	Elliot, b. Wilkins	8
Extras	8	Extras	11
Total	63	Total	136

The Telegraph and Telephone Journal

ESTABLISHED OVER 17 YEARS.

Written by and for Telegraph and Telephone Men.

Besides reaching the Telegraph and Telephone Staff of the British Post Office throughout the United Kingdom, the Journal also circulates amongst Telegraph and Telephone Directors, Managers, Engineers and others in :—

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The chief point of interest is the possibility of providing telephone service at church and school premises, where social functions are always being held. It is rare that telephone facilities are found in these places. The explanation may be that it is not "done" in this country, but why not? The need exists already in some parts of London and we must create the demand. The public notice boards on church premises generally furnish the names and sometimes the addresses of ministers and other church officers, and Contract Officers should find this a ready source of information for getting in touch with these people.

A lady, when canvassed, expressed herself definitely opposed to having a telephone installed. Some time following the interview she was unable to keep an appointment with her husband owing to illness. She was too ill to leave home to go to a call office to advise him. The Contract Officer is now very hopeful of securing an order.

The result of the efforts of the staff in the various departments of the Staff Salesmanship Scheme in September last, when the scheme started, has been as follows:—

	Total Number Ordered.	Orders Received Month ended June
Exchange lines	732	113
Extensions	667	76
Private lines	9	—
Plugs and sockets	119	13
Hand microphones	3,203	420
Extension bells	258	35
Miscellaneous	351	46

"Copped."

Recently the following experience befell me. I was engaged in a S.W. London District canvassing likely prospects and existing subscribers. I was standing about entering up particulars relative to the calls I had made, my bag standing on the ground, with the official marking facing passers by, when I noticed a man intently looking at me. He had been watching me from a distance for some time. I was waiting to use a kiosk near by, which was engaged at the moment; while thus occupied my suspicious friend approached me, saying "Good afternoon, have you any business round here?" I replied "Yes, quite a lot!" "Who are you?" he asked. "Who are you?" I replied; he then gave me to understand that he was a detective sergeant, and on request he produced his authority. I then showed him my pass card and visiting cards. His suspicions had been aroused through the unusual observancy I had shown in looking and calling at houses. I was pleased to enlighten him as to the nature of my business, explaining to him how important it was to me that I should be aware of all the additional telephones that were required in my area.

I then engaged the detective sergeant in conversation. He told me of his experiences and explained to me how two men had been visiting houses with cards marked "J. Brown, L.F.O.," the initials evidently standing for "Looking for Orders." Having listened for some time I endeavoured to interest him in my business. I explained at some length upon the uses of the telephone service, and of its social advantages, &c. He was interested, and in bidding me good-bye I had his assurance that the question of the telephone was going to have his earnest consideration.

It would seem that I had impressed him, for a short time ago I had a request to call at a certain police station to see Detective Sergeant ——. I did so and eventually secured an order for a telephone at his private house.

The seed had been sown under strange circumstances, and it proved fruitful, although perhaps I might have spent a night at the local lock-up.

A policeman's life is not a happy one, but what about a Contract Officer's?

P. S. B.

Post Office Ambulance Centre.

On May 31, at 2 p.m., the Postmaster-General inspected the Brigade and Nursing Division in the yard of K.E.B. The brigade was formed into five companies, with one company of the Nursing Division. Assistant Commissioner, Dr. N. Corbet Fletcher, took charge of the parade, and the "Fall in" took place at 1.45 p.m. and the March Past in "Column of Rank" at 2.20 p.m.

The presentation of awards was held in the Goldsmiths' Hall at 3 p.m., Col. Prynn, the President, was in the Chair, supported by Drs. Bashford, Lund and Rolfe Fisher, also Colonel Banks and Miss Walker, Lady President of the Women's Section. Major-General Sir Percival Wilkinson, K.C.M.G., C.B., Secretary-General to the Venerable Order of St. John of Jerusalem, was also present.

Introductory remarks by the President started the proceedings, which were immediately followed by the presentation, by the Postmaster-General, of the awards in connexion with the First Aid and Home Nursing Examinations. The medals of the winning teams in the previous annual competition were also presented.

After the presentation of awards, Major-General Sir P. Wilkinson made some congratulatory remarks regarding the progress and good work of the P.O.A.C.

Col. Banks, D.S.O., M.C., Controller, Savings Bank Department, then made a speech, in the course of which he remarked that a large amount of official time was saved by the expeditious work of the P.O.A.C. in dealing with cases.

A vote of thanks was proposed to the Postmaster-General by Dr. Lund, who made a few witty remarks, pointing out that the Postmaster-General was in the enviable position of being able to summon the P.O.A.C. to his aid both in the House of Commons and outside. The vote of thanks was seconded by Miss Walker, Lady President.

The Postmaster-General, in his reply, emphasized his pleasure in having been able to attend the meeting, and referring to Dr. Lund's remarks, expressed a wish that he could obtain the services of the P.O.A.C. both in the House of Commons during stormy debates, and when interviewing irate members of the public.

London Telephone Service (Men's) Swimming Club.

The club is enjoying a successful inaugural season and the attendances on Thursdays, the club evening at Holborn Baths, have been very good. The assistance of a coach is now available from 5 p.m. each club night, and his services have been much sought after.

Six matches have so far been swum off in the Civil Service League, Division II, and the L.T.S. Club Team has been successful on each occasion. Eight races remain to be contested.

Anyone interested who has not yet become a member should communicate with the Captain, Mr. Waghorn (A.N.), or Secretary, Mr. Frier (T EDE).

Putney Exchange.

The Putney Exchange staff have, during the last winter season, been conveying a material expression of their sympathy with one of their colleagues who is at present on extended sick leave, through the medium of a series of dances held on her behalf.

The bray of the saxophone and the shrill, enthusiastic squeal of the clarinet were again heard in the land on May 24, at St. Paul's Hall, Southfields, and judging by the enthusiasm and general support the quality of the entertainment was fully up to standard.

In addition to the Putney Exchange staff, Battersea, Brixton and Wimbledon Exchanges were represented, and Traffic Officers from Battersea, Hampstead, Headquarters (Establishment and Designs Sections) and Merton Abbey were also amongst those who spent a most enjoyable evening under the amiable and efficient direction of Mr. F. Hambrooke, who acted as M.C.

Personalia.

Resignations on Account of Marriage.

Telephonists.

Miss C. M. Flowers, of Livingstone.	Miss A. Hilton, of Trunks.
" E. A. Wright, of Palmers Green.	" E. K. Egan, of Trunks.
" O. M. Bridgeman, of Palmers Green.	" E. E. G. Walters, of Trunks.
" A. Cripps, of Greenwich.	" E. R. Hayling, of Trunks.
" G. E. E. Sharman, of Greenwich.	" E. G. Williams, of National.
" H. M. Borneman, of Paddington.	" L. E. Pope, of North.
" D. F. Fabian, of Ambassador.	" M. E. Pither, of Hampstead.
" K. R. M. Pepper, of Flaxman.	" B. M. Ball, of Langham.
" A. H. Humphrey, of Ravensbourne.	" E. F. Drayton, of Central.
" F. G. Chapman, of Clerkenwell.	" A. M. Brace, of Central.
" G. Bodley, of Terminus.	" V. A. Barnes, of City.
" N. L. Russell, of Hop.	" H. M. Wilkins, of City.
" E. M. Treacher, of Hop.	" G. M. Pamant, of Battersea.
" D. G. Cowdery, of Welbeck.	" I. E. Otridge, of Victoria.
" S. E. Keily, of Purley.	" V. O. Warden, of Victoria.
" G. M. Hucker, of Wimbledon.	" G. A. Hayward, of Victoria.
" F. M. Kingcott, of Bishopsgate.	" I. G. Gardner, of Bermondsey.
" E. M. Marvell, of Abercorn.	" W. A. Collier, of Tudor.
" R. M. Jordan, of Tandem.	" D. G. Hazelden, of Museum.
" C. E. Churchett, of Tandem.	" D. Thresher, of Museum.
" D. A. Young, of Holborn.	" D. McEwen, of Museum.
" E. M. Hall, of Royal.	" V. G. Lovelock, of Museum.
" C. A. Allison, of Gerrard.	" J. F. Rimer, of Museum.
" C. M. Tanner, of Croydon.	" J. M. Jefferson, of Speedwell.
" J. R. Bird, of Clissold.	" D. Gray, of Ealing.
" K. E. Rumble, of Clissold.	" A. C. Lord, of Gladstone.
	" M. L. Clarke, of Enfield.

MANCHESTER NOTES.

Transfers to Automatic Working.—During June further advance was made in the Manchester Automatic Scheme by the conversion to automatic working of the following magneto exchanges:—

June 4 ...	Ashton-under-Lyne Exchange ...	1,149 lines.
June 11 ...	Gatley	682 ..
June 11 ...	Pendleton	1,173 ..

The transfers were carried out successfully, and now approximately 21,000 subscribers' lines are connected to Manchester director automatic exchanges. In addition, calls can be dialled directly to 22,000 lines connected to manual exchanges with call display positions.

Ashton-under-Lyne Ideal Homes and Industries Exhibition; Post Office Exhibit.—The Exhibition was held from June 8 to 18 and proved very successful. The Post Office Exhibit attracted much attention. In addition to illustrating the progress in telephone instrument design, members of the public were afforded an opportunity of seeing and operating for themselves various pieces of modern telephone apparatus. The teleprinter also was shown under working conditions.

Mr. W. Basquill.—On June 3 Mr. W. Basquill, Contract Officer, Class I, died after a prolonged illness. He was held in great esteem by his colleagues and by all those with whom he came in contact.

The funeral ceremony took place at Stockport Borough Cemetery on June 7, and many of his colleagues were present to bid farewell to one whose kindly humour and likeable personality will be sadly missed.

Floral tributes were sent from the District Office and the Contract Department.

C.T.O. NOTES.

Promotions.—Mr. C. H. Badderly, Assistant Superintendent to Superintendent (Lower Grade); Mr. A. S. Bearn, Overseer to Assistant Superintendent.

Retirements.—Miss E. Horsley, Supervisor (Higher Grade); Messrs. W. K. Ware, Superintendent (Lower Grade); F. A. Gray, Telegraphist; J. A. Blundell, Telegraphist; W. J. Lawrence, Telegraphist.

Cricket: Curtis Bennett Shield.—The Centels played the Ministry of Transport and were heavily defeated. The Ministry scored 220 for 5 wickets, of which Heaslip ran up 164 not out. Centels tried seven bowlers, Pepper being the most successful with 2 wickets for 45 runs. The reply by the Centels amounted to 114, Drummond and Banks being the best scorers with 32 and 36 respectively. Heaslip took six wickets for 25 runs for the Ministry.

NEWCASTLE-ON-TYNE NOTES.

In consequence of his promotion to Traffic Superintendent, Class II, at Sheffield, the District Manager's Staff at Newcastle had to say good-bye to a very popular officer in Mr. G. A. Beaumont. Resuming duty in the London Telephone Service at the end of the war after service in the Royal Navy, Mr. Beaumont came to Newcastle in 1922, and in the course of his traffic career his experience has been wide and varied.

We wish him all the best of luck at Sheffield and commend him to our colleagues there.

At a large gathering in the Conference Room at Telephone House on the eve of his departure, Mr. Beaumont was presented with a gold watch from the Telephone Staff at Newcastle.

The District Manager, Mr. J. D. W. Stewart, made the presentation and the Traffic Supt., Mr. A. E. Ryland, the Chief Clerk, Mr. F. Robson, Mr. Reynolds, of the Contract Section, and Mr. Wright joined with him in conveying to Mr. Beaumont the best wishes of all the staff at Newcastle.

LONDON TELEPHONE SERVICE SPORTS ASSOCIATION.

The third annual sports and gymkhana was held at the Civil Service Sports Ground, Chiswick, on Wednesday, June 8.

Once again we were favoured by excellent weather and the large and enthusiastic crowd saw some excellent racing.

The results were as follow:

100 yds. Veterans' Race—1st, F. Moyle (AR4); 2nd, C. Marland (TO C).

Girl Probationers' Race—1st, Miss N. Pawsey.

Boy Messengers' Race—1st, C. R. Cooley.

Throwing Cricket Ball (Ladies)—1st, Miss L. C. Kay (BA); 2nd, Miss D. Head (AR1); 3rd, Miss B. D. Searle (TL B).

Throwing Cricket Ball (Men)—1st, A. J. R. Varley (BM); 2nd, E. Sweetingham (TAG); 3rd, R. J. A. Couchman (AN).

100 yds. Ladies' Championship—1st, Miss M. Menzies (EG); 2nd, Miss D. Uglow (PT); 3rd, Miss J. L. Rosier (TK).

220 yds. Handicap (Men)—1st, H. S. Read (TO CK); 2nd, C. R. Cooley (BM); 3rd, J. Greenway (AN).

Three-legged Race—1st, Misses M. J. Webster and B. D. Searle (TL B); 2nd, D. Watson and Miss Roberts (TAG); 3rd, Misses G. F. M. Baker & B. Kingston (AR4).

Toddlers' Race—Norman Whittaker.

Children's Races—Barbara and Peter Blakelock.

Half-mile Handicap (Men)—1st, H. W. Merriek (TO GL); 2nd, H. S. Read (TO CK); 3rd, F. E. Bishop (TEDE).

Wheelbarrow Race—1st, F. E. Bishop and Partner; 2nd, N. Taylor and Partner.

Inter-Exchange Relay Race—1st, Trunks; 2nd, Putney; 3rd, Toll A.

Civil Service Ladies' Championship (880 yds.)—1st, Miss Rossie (Coventry); 2nd, Miss Lush (Ministry of Health); 3rd, Miss McComochie.

Egg and Spoon Race (Ladies)—1st, M. J. Webster (TL B); 2nd, H. M. Grey (AR5); 3rd, A. Watson (PT).

One Mile Scratch Walk (Men)—1st, R. J. A. Couchman (AN); 2nd, F. E. Bishop (TEDE).

100 yds. Ladies' Handicap—1st, Miss P. B. Ward (PT); 2nd, Miss E. Harris (BA); 3rd, Miss P. L. Roper (TL B).

Sack Race—1st, Miss M. J. Webster (TL B); 2nd, Miss N. E. Pawsey (GP); 3rd, Miss D. I. Boothby (TL A).

Ladies' Invitation Relay—1st, London Telephone Service (Civil Service Relay Champions 1929, 1930, 1931 and 1932.—Team, Misses Menzies, Uglow, Rosier and Bannister); 2nd, Ministry of Health; 3rd, Board of Trade.

Obstacle Race—1st, Miss D. I. Boothby (TL A); 2nd, Miss B. D. Searle (TL B); 3rd, Miss G. M. Jones (TK).

At the conclusion of the meeting, after a few opening remarks from Mr. M. C. Pink, the Chairman of the Sports Association, Mr. W. H. U. Napier, the Controller, handed over the trophy which he has so kindly presented for competition in perpetuity and the prizes were then distributed by Mrs. Pink, who was the recipient of a bouquet from the hands of Miss Nora Couchman.

The first winner of the "Napier" trophy was Mr. H. S. Read (TO CK).

OBITUARY.

WE regret to have to record the death of Mr. J. Gillies, Clerical Officer in the District Manager's Office at Exeter. Mr. Gillies came to Exeter from Liverpool in 1914.

During his period at Exeter he has only been absent, due to sickness, on one or two short occasions, and has no late attendance recorded against him. On May 23 he left for a week's annual leave, at the end of which he had to undergo a serious operation and died on June 6, as a result of complications following the operation.

THE Telegraph and Telephone Journal.

VOL. XVIII.

AUGUST, 1932.

No. 209.

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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

C.

MR. L. A. JONES.

MR. L. A. JONES joined the Surveying Dept. of the Post Office from the Higher Division examination in 1908. His merits soon secured him a transfer to the Secretary's Office as a Second Class Clerk, Higher Division. He was promoted to a First Class Clerkship in January 1920 and eight months later became a Principal. All his service up to his transfer to the Telephone Branch in 1930 was spent in the Establishments Branch, where he speedily became and remained for many years a mine of information, and on staffing problems, scales of pay and hours of duty. During that time he served for a number of years as Secretary to the Surveyor's Conference, and as Official Side Secretary to the Post Office Engineering and Stores, Whitley Council. Latterly also he made frequent appearances before the Arbitration Court as representative of the Department. In the



Telephone Branch he has charge of Directories, Way-leaves, Statistics, and Accommodation.

Quick and incisive in judgment, he is intolerant of hesitating or opportunist methods, and always works for a definite decision at the earliest possible moment. He has brought many a flight of fancy down to earth; but he does not fail to appreciate a real difficulty or to sympathise with a genuine grievance, and he can be relied on, if practicable, to provide a remedy. His unassuming manner covers, but does not entirely conceal, a kindly, practical interest in the human side of things.

Of his leisure moments little is known but much can be surmised. He plays tennis and is no mean performer on the piano; but some of his spare time must be occupied in cross-word puzzles and acrostics, in the solution of which he can have few equals and practically no superiors, which perhaps is why telephone statistics can and do have no terrors for him.

The Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

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		W. H. GUNSTON.

NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

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No. 209.

THE SOFT ANSWER.

WE print in another column a letter of rather unusual character from a subscriber expressing appreciation, not without surprise, of the attention given by the Post Office to his complaint of difficulty with a long-distance call. It is the expression of surprise rather than that of appreciation which seems to call for some comment. It is likely enough that members of the public who receive suave letters of regret from the Post Office, accept such expressions as "the necessary steps are being taken to improve this service," or "an unfortunate series of faults developed on the line on the day in question" as convenient official formulæ, and do not realise, as does the writer of the letter we publish, the considerable trouble taken to trace and remedy all causes of complaint when reported.

All who have had to deal with the investigation of complaints and the preparation of letters of explanation to subscribers know how difficult it is sometimes to make such answers sound convincing and satisfying, though the writer is well enough aware that infinite pains have been taken to examine all records and test all lines concerned in the call. Often, too, when the complaint refers to a trunk call to a small town, the subscriber may not want to use the connexion again for many months, and will receive with indifference the assurance that speech to the town in question is now perfectly satisfactory. Again, to inform a subscriber that according to the docket relating to his call, no difficulty would appear to have come to the operator's notice, or that unfortunately the relative tickets cannot be traced, will afford little comfort,

though the most earnest endeavour may have been made to get at the root of the subscriber's difficulty and afford an explanation or apply a remedy.

It is perhaps in human nature to doubt the sincerity of the assurances of public authorities, couched as they often are in somewhat stereotyped if polite form. We are taught to regard all corporations as being devoid of a soul. And, after all, the annoyance we have been caused by an exceptionally late train, or by an ineffective telephone call is hardly allayed by explanations, however plausible, or by promises of amended service in the future. We ought perhaps to wait and watch whether the promised improvement takes place, as it often does, before allowing our incredulity to become a habit. Intelligent people recognise that great public services, however efficiently conducted, are vulnerable on occasion inasmuch as they are human, and subscribers may be led to recognise that not only are their complaints taken very seriously but that every effort is made to remedy them. It is therefore of the greatest importance that letters replying to complaints should not only be courteous and sympathetic but so worded as to convey (what is the fact) the impression that everything possible has been done to investigate and remedy the cause of their difficulties.

THE WORLD'S TELEPHONES ONCE MORE.

IN an editorial in our April number, we referred briefly to the telephone development of the world in 1931, and ventured to estimate that, when the complete figures for that year of financial depression were available, a net decrease instead of an increase would result for the first time on record. We then estimated the decrease at nearly half a million. Later information, though still far from complete, does not permit us to modify that estimate materially, but there are nevertheless some encouraging features in the latest returns. They show that Europe, apart from Germany's unfortunate decrease, had made progress which, under unfavourable conditions, may be regarded as gratifying. France shows an increase of 75,000, Switzerland of 26,000, Sweden of 24,000, Holland of 20,000, Poland of 20,000, Belgium of nearly 6,000, Finland of 5,600, and Austria of 5,200, while in Denmark the Copenhagen Telephone Company alone increased by 7,000 stations. Great Britain, as our readers already know, added 84,000 telephones to its total, the largest increase of any country in the world in 1931. Taking into account outstanding returns, we may expect a net increase in Europe of rather over 200,000 telephones. Against this must be set the present known decrease in North America of 550,000 stations, and as any gains which may materialise in Asia will be more than offset by probable decreases in Australia and other places, we do not see much hope of the net decrease of the world's telephones last year being less than 400,000.

Telephone statistics of late years, however, have a habit of springing surprises and we sincerely hope that unexpected developments somewhere or other may prove our estimate unduly pessimistic.

HIC ET UBIQUE.

A DIRECT radio-telephone service was opened between London and Canada on July 11. Telephone calls for Canada have hitherto been routed by the Transatlantic service via New York; the new service will be worked direct between London and Montreal, where connexion will be made with other parts of Canada.

The rates of charge and conditions of service will remain unchanged.

We comment in our editorial columns on the following letter recently received from a subscriber:—

I had a grievance against the 'phone Service, a justified grievance, and I wrote you, never expecting to get an answer. I wrote a sarcastic and biting letter, one which was intended to hurt.

My first surprise came when you wrote saying that you were looking into the matter. Then I found that you *were* looking into it, and more than that, that you were taking a lot of trouble over it. And now, months after the event, you take the trouble of writing that the difficulty had been overcome.

Well, I take my hat off to you and withdraw the unkind spirit I had shown in my original letter. If you carry on in the same spirit, the day will come when this country will have little to learn from others in respect of telephone service.

As to charges, they are still too high. You are doing a lot of advertising, which is excellent, but what will bring new customers in large numbers is *first class service*. This is the only method by which you will be able to reduce your charges.

Good service = more customers = larger income = lower cost.

With thanks for your courtesy and best wishes for success.

The following verses from the *Daily Herald* on the Tea Relief question, introduce most ingeniously the first three letters (the essential ones for purposes of automatic dialling) of many of the London exchanges:—

WAT WIM of MAN—or MON—(said SHE)
Has PUT the BAR
Upon the morning TOT of tea
That kept at PAR
Nerves which the switchboard otherwise would MAR?

If I MAY now no longer CIT
And take things SLO,
HOU shall I BUC up and keep FIT,
As to and FRO
My fingers HOP? WAT are the con and PRO?

WEL, I WIL bear my ROD (the gal
Was heard to sigh),
Till I POP off; but a TRU PAL
Who paused to PRI
Into my case, would MUS and wonder WHI!

TOMFOOL.

We cull the following anecdote from the *Morning Post*:—

"Thank you, Mr. Watson. I will just repeat your bets. You wish to put half-a-crown on . . ."

I had asked for an Addiscombe number on the telephone, and somehow or other I found myself listening to a conversation between a bookmaker and his client. Six horses were mentioned, but I did not act upon the accidental tip. Afterwards I had the curiosity to find out whether the unseen punter had been successful. He had not. Only one of his six horses was placed—second.

I almost wish I could meet him. It would be entertaining to play the know-all Sherlock Holmes for once, and to murmur, "elementary, my dear Watson."

"We talk about the slow-moving East," says a correspondent of the *Manchester Daily Dispatch*, "but the smooth-working

automatic telephones of China and Japan would astonish many Britons."

We don't quite know why smooth-working automatic telephones in the East, probably, in many cases, manufactured by the same firms as those who make for Great Britain, should astonish Britons. Britons do not wonder at smooth-working Japanese liners, and we believe there were smooth-working trains in China before the recent troubles arose. It would almost seem, from what one sees in the Press, that any kind of automatic telephone, except a British one, arouses a disproportionate sense of wonder in British breasts.

REVIEWS.

The Combination of Observations. (By David Brunt, M.A., B.Sc. Second Edition. Published by the Cambridge University Press. X + 239 pp. Price 12s. 6d. net.)

When the first edition of this work was published, in 1917, it took its place as one of the best books available for the student who was engaged in work needing the employment of the method of Least Squares. This edition for some time past has been out of print, and the appearance of a second edition, which in certain parts has been amplified or re-written, will accordingly be welcomed.

The book gives an account of the theory and application of the method of Least Squares, which is used for extracting the most probable result from a series of observations or physical measurements. After an introductory chapter, dealing with the errors of observation, there follows a mathematical discussion of the normal law of error. The next chapter deals with the calculation of the probable error of the result of a series of observations, where only one unknown quantity is involved, and the following chapter with the "weighing" of observations, when these vary in probable accuracy.

Then follow investigations into the probable errors and weights of observations when more than one unknown quantity has to be determined.

After a chapter on the methods to be used in the rejection of observations, the various alternatives which have been proposed to the normal law of errors are discussed. The book concludes with chapters on correlation, harmonic analysis and the periodogram.

The treatment of the subject is clear and easily followed. It is a book which should be on the shelves of all who are occupied with work involving measurements of any kind, from which unavoidable errors have to be eliminated and the most probably correct result deduced.

Rubber Information. (Published by Leonard Hill, Ltd., Thanet House, Strand. 144 + lxxiii pp.)

This is a useful compendium of the rubber industry in all its branches, and consists of three main parts, viz. (1) an alphabetical list of firms concerned in the industry; (2) a Rubber Dictionary dealing alphabetically, amongst a variety of subjects, with Analysis, Balata Colours, Drying, Ebonite, Electrical Properties, Testing, Vulcanization, &c.; (3) Rubber Information consisting of (a) a useful index of compounding ingredients and other rubber chemicals, (b) tabulated rubber trade statistics, and (c) Rubber Plantation Company returns.

The whole forms a very comprehensive and up-to-date work of reference and should be invaluable to all interested in the production, treatment, and use of rubber.

LONG DISTANCE TELEPHONY.

PAPER PRESENTED AT CONFERENCE OF TELEPHONE TRAFFIC OFFICERS, HELD IN LONDON IN JUNE, 1932, ON

DEMAND TRUNK WORKING,

BY

J. F. DARBY (*Headquarters Traffic Section*).

Information relating to the general principles of Demand Trunk Working has now been fairly widely circulated*† and it is not proposed, therefore, in this paper, to deal with this aspect of the subject. It is also assumed that readers are acquainted with the type of equipment to be provided at the large trunk (zone) centres.†

It is desired, however, to give an indication of how the scheme, from a practical point of view, is being introduced, to enumerate some of the problems which are having to be met, to show the class of results which are being obtained and to attempt to draw some conclusion therefrom.

OUTLINE OF METHOD OF INTRODUCTION.

Some readers will already have had experience in connexion with the initial working of the system; on the other hand, the majority are anticipating an early encounter with it and, in this connexion, it is hoped that the following information may be of some assistance. I will first quote, in broad outline, the scheme adopted for introducing the system at a centre, and then give, in some detail, particulars regarding the two undertakings already launched, viz., in London and Birmingham.

In approving the adoption of the Demand method of working for the telephone system of Great Britain, on Oct. 27, 1930, the Secretary directed that the system should be *introduced on such routes as are practicable at the earliest possible date*; it is on the basis of conversion of "route by route" that the system is being developed. The alternative of converting the whole of the operating at one particular centre to demand working at one time would, of course, have led to considerable delay, and, in many cases, would have been almost impracticable. A further merit of the "route by route" basis is that, at any particular centre, training of staff can be simplified, the overhaul of the line plant spread over a period, and experience in demand working gained, step by step. It also admits of a change-over of equipment being made where only limited space is available, and this aspect has a particular bearing on reconstruction plans in existing exchange buildings.

First consideration has naturally been given to the conversion to demand working of the main "backbone" routes of the country in view of the very high proportion of the total long distance traffic which circulates directly between the main centres. It follows, therefore, that the first steps have been taken at the big centres such as London and Birmingham. Schemes are, however, now in hand for all the zone centres and, in many instances, new demand equipment is being manufactured or installed.

In order to make the opening of a demand service at any one centre independent of that of any other, it was found necessary, at the outset, to operate the trunk circuits concerned on a unidirectional basis. This has involved the setting aside for demand working a certain number of circuits in the groups concerned. (When the system is fully developed, a common group of bothway circuits to serve any two centres connected by direct circuits is contemplated.)

* Report of Commission to the United States, August, 1930.

† Articles in *T. & T. Jnl.*, December, 1930, to August, 1931. (A reprint of these articles is available.)

At the outgoing end of the circuits equipment for combined recording and setting up of calls is, of course, necessary (i.e., demand positions). At the incoming end, the best possible arrangement for the termination of circuits on existing equipment (with minor modifications) has to be made, pending the provision of new incoming positions at that centre. As far as possible incoming "demand" circuits have been terminated on the B type of position, with ancillaries of the calling equipments to facilitate a good speed of answer.

Not only is it necessary, at the outset, to limit the introduction of demand working to certain routes but it has been found expedient to LIMIT THE AREAS, at each end of the route concerned, included in the scheme. As progress is made with the system and more switchboard equipment becomes available, so the system can be extended by increasing the areas served at each end until the whole of the "group" areas are embraced at both the outgoing and incoming ends. Where incoming positions of the new type are available at the incoming ends, the next stages will be the setting up of "trunk to trunk" connexions at these positions and, with such facilities, the system will be expanded in the widest possible way.

There is one particular equipment aspect that should, perhaps, be referred to at this stage. The new trunk cord circuit—known as the "sleeve control" cord circuit—differs so materially from the old type that the two types cannot work directly into a COMMON OUTGOING MULTIPLE. As it will be necessary at most large centres to work both old and new type equipment side by side during the change over periods, the following expedients (singly or in combination) have to be resorted to in connexion with the outgoing junction and trunk multiple problem.

- (a) Divide each group of circuits into two sections—
 - (i) one for use on new suites,
 - (ii) one for use on old suites.

This is only a temporary phase—lasting perhaps 2 years at the most—and it is a reasonably satisfactory solution where spare line plant exists to make good the circuit capacity losses through the splitting of the groups. It has, of course, an adverse effect on the "output" figures of the group of circuits concerned.

- (b) Provide an outgoing multiple over, say, the *old* suite and transfer circuits from the new suite to the old suite. The new suite would gain access to the multiple in question via the transfer circuits. (The arrangement can, of course, be reversed according to the volume of traffic from the new and old suites respectively.) This scheme involves a definite drag on operating, but is a useful expedient where small groups of junction circuits are concerned.
- (c) Provide a "unit" in connexion with each outgoing circuit in the multiple to admit of the common use of the circuit on both old and new positions. This method means the installation of special equipment for a short period only; valuable accommodation may have to be utilised and some delay may be occasioned in its provision. In the circumstances, it should only be resorted to where the case cannot be suitably met by (a) or (b).
- (d) Provide a class of cord circuit on the lines of the existing cord circuits. This method will only be adopted where a temporary scheme to last a few years is adopted. Birmingham is such a case.

During the transitional periods, it is possible to use new demand and new delay positions for demand working and continue to use old type positions for circuits still worked on a trunk signalling basis. It is also practicable to use new demand positions for calls completed on demand and the old type of trunk signalling positions for "delayed" calls (those not completed on demand at the first

LOCAL FEE AREAS.

Table with columns for Exchange, Index Letter, and listing various local exchange areas like BIRMINGHAM, EDINBURGH, and GLASGOW with their respective index letters.

ALL TRUNKS ENGAGED.

Hold subscriber for 90 seconds. Report to subscriber at 30, 60, and 90 seconds. NUMBER ENGAGED. Await verbal advice. Re-ringing if verbal advice not received. NO REPLY. Await verbal advice. Re-ringing if verbal advice not received in 90 seconds. NUMBER UNOBTAINABLE. Await verbal advice. Re-ringing if verbal advice not received. DELAY IN COMPLETION AFTER TRUNK IS OBTAINED. Hold subscriber for 3 minutes. Report at 1, 2, and 3 minutes. EPSOM & STAPLEFORD. In the case of a call from an EPSOM or STAPLEFORD number, after recording obtain BIRMINGHAM circuit and advise caller...

LONDON EXCHANGES IN 10 MILE CIRCLE.

- Alternative routing is via TOLL "B." List of London exchanges including Abercorn, Acorn (Auto.), Addiscombe (Auto.), Albert Dock, Ambassador, Amherst (Auto.), Archway (Auto.), Avenue, Barnet, Battersea, Baywater (Auto.), Beckenham (Auto.), Bermondsey (Auto.), Bethnal Grn (Auto.), Bishopsgate (Auto.), Bowes Park (Auto.), Brixton, Buckhurst, Byron (Auto.), Central, Chancery, Chiswick, City, Clerkenwell, Clusold, Colindale (Auto.), Croydon, Cunnigham, Ealing, East, Edgware (Auto.), Eltham, Enfield (Auto.), Fairfield (Auto.), Finchley, Fitzroy, Flaxman (Auto.), Franklin, Frobisher (Auto.), Fulham (Auto.), Gerrard, Gladstone (Auto.), Grangewood, Greenwich, Grosvenor, Gulliver (Auto.), Hampstead (Auto.), Harrow, Hendon (Auto.), Hillside (Auto.), Hither Grn (Auto.), Holborn (Auto.), Hop, Hounslow, Ilford (Auto.), Kensington, Kingston, Langham, Lee Green, Leytonstone (Auto.), Livingstone (Auto.), London Wall, Macaulay (Auto.), Maida Vale (Auto.), Malden, Mansion House (Auto.), Maryland, Mayfair, Merton Abbey (Auto.), Metropolitan (Auto.), Mill Hill, Mitcham (Auto.), Monument (Auto.), Mountview, Museum, National (Auto.), New Cross, North, Paddington, Palmers Green, Park, Perivale (Auto.), Pollards (Auto.), Popsgrave, Primrose (Auto.), Prospect (Auto.), Putney, Ravensbourne, Regent, Reliance (Auto.), Richmond, Riverside, Rodney, Royal, Shepherds Bush (Auto.), Silverthorn, Sloane (Auto.), Southall (Auto.), Speedwell, Streatham, Sydenham, Temple Bar (Auto.), Terminus, Thornton Heath, Tottenham, Tudor, Tulse Hill (Auto.), Valentine, Victoria, Walthamstow, Wanstead, Waterloo, Waverley (Auto.), Welbeck (Auto.), Wembley, Western (Auto.), Whitehall (Auto.), Willesden, Wimbledon, Woolwich, Wordsworth (Auto.), Exchanges in the 5 MILE CIRCLE. Exchanges underlined have trunk-controlled ringing, if o/w.

* The Index letters apply only to calls made from exchanges within the LONDON FIVE MILE CIRCLE. (See List at right-hand side of this notice.) # (318)5492 Wt.5309-6-114 250 4/32 E & S

FIG. 1.

attempt) in respect of the demand routes. As this will, in most cases, involve the division of the circuits between the places concerned into two groups it is desirable to arrange, if at all possible, that, when a route is converted to demand working, both the demand and the delay work in connexion therewith be carried out on the new type of positions so that a common multiple of outgoing trunk circuits may be available for both classes of work.

As regards the TREATMENT OF TRUNK DEMANDS during the transitional period, it is arranged that if a call is received for a place reached on a demand basis, the subscriber is informed "Hold the line, please, I will try to connect you." On the other hand, if the call is for a connexion on a non-demand basis, the transaction is carried through on the lines of an ordinary trunk booking and the ticket passed to the appropriate delay position. It can, therefore, be seen that the system can be developed, step by step, at a centre, as the necessary rearrangements of equipment and circuits are carried out, without any inconvenience to the public, or alteration in directory notices, &c.

In order that the record operator should be aware of the towns to which a demand service is given, a suitable printed notice 5 1/2 ins by 13 1/2 ins., is placed under the BULLETIN GLASS PLATE on the keyboard—see Fig. 1. (To avoid "light" reflection, lights should not be placed immediately above the glass plate, but in a line about 18 ins. to the rear.) As the system develops, this information will be amplified and inserted in the VISIBLE INDEX FILE which forms part of the equipment of each new trunk position. Appendix A (to be printed at the end of this paper) gives notes relating to the visible index file (the official designation is Notice Frame No. 25) with illustrations of specimen cards from the "London" file.

SPECIAL OPERATING FEATURES.

It may be of interest to mention certain general points of operating procedure which have had to be disposed of in connexion with the inauguration of the scheme.

In place of the American expression "without" (quoted thus—"Yonkers 1234 without") used in connexion with the reversal of a call to an originating manual exchange (involving the ignoring of the "engaged" test) the word "Overplug" has been adopted; it is used thus:—

"Overplug Brixton 1234."

It is thought that there is an advantage in placing the "warning" word before the exchange number; also the term "overplug" indicates a definite action and is outstanding in its significance.

In cases where the exchange lines serving P.B.X.'s on manual exchanges are divided, it has been necessary to provide a subscribers' multiple termination for all lines on which calls are originated, in order that the "overplug" procedure can be carried out. A special group of signal circuits had to be provided at a London exchange to a position having access to outgoing lines from P.B.X.'s which have numbers outside the normal multiple field of the exchange.

As heavy loading of trunk circuits worked on a demand basis is anticipated, it is highly desirable that a speedy clear shall be given at the incoming end to ensure that a circuit is disconnected at that end before it is again seized at the outgoing end for another call. Through-clearing from the called subscriber's switchhook to the incoming trunk position is, therefore, necessary. Special attention is being paid to the provision of through-clearing facilities in areas where demand working is involved.

Another point in connexion with the through-clearing aspect is that, as the new Chargeable Time Indicator is the standard timing equipment on demand positions, non-through clearing from an exchange included in the demand scheme renders the timer ineffective for originated calls from that exchange. In consequence, it was found necessary to fit a limited number of Zenith clocks for timing calls from such exchanges in the Birmingham area until through-clearing was introduced throughout.

It was decided that the demand operator should not request the distant operator to "interrupt for trunks" in connexion with "number engaged" reports, obtained when working on a demand basis, but should inform the calling subscriber that the called number is engaged and that he will be called later. The ticket is then sent to a delay position where instructions for "trunk interrupt" are given if necessary. This procedure was decided upon in order to keep the work on demand positions as simple as possible.

Another modification in procedure which has been introduced is the verification, by the incoming trunk operator, of all ineffective reports—"number engaged" as well as "no reply," "number unobtainable tone," &c. The Birmingham results show that this step has been warranted.

Where the "concentration" procedure is in force at night at large local exchanges, under which (by means of "scouts") all

"calling signals" are connected with particular positions, a problem arises in connexion with the setting up of demand calls. As the conditions at the local exchanges vary, a solution to the problem has to be found for each particular case.

A point of interest arises in connexion with the holding of a subscriber while an attempt is made to find a free "demand" trunk circuit. The American system is to hold the subscriber to the telephone for 60 seconds and then hold his exchange line up to a period of ten minutes, if necessary, in order to obtain a free trunk circuit. When a circuit becomes available the subscriber is re-rung. (A particular merit of holding the subscriber's line is that, in the case of a long distance system where a subscriber, on a high percentage of his calls, obtains the required party almost immediately, he is tempted, when any delay does occur, to initiate new calls in his endeavour to get the distant number. With his circuit joined through to "Trunks," such attempts, at any rate for the large majority of cases, would be "trapped" by the trunk operator in charge of the original demand.) In the absence of the re-ringing facility on "automatic" lines, it has been decided to depart from the American practice, as explained in the next paragraph.

Arrangements are in hand for providing the re-ringing facility in director areas, but a serious problem arises in connexion with the holding of a subscriber's line after he has replaced his receiver, in the case of calls (originated at manual exchanges) which are reversed, in connexion with the "over-plug" procedure, *via* a jack-ended B position at the local originating exchange. The point is that a single lamp clear is given on the calling cord on the jack-ended position, and the operator at this position would normally clear such a connexion, after challenging. It seems necessary either to make this signal inoperative, or to associate it with the answering cord and supervisory lamp. Alternatively, all trunk junctions might be terminated on a plug-ended basis with a single supervisory lamp controlled by the trunk exchange.

For the time being, it has been decided to extend the 60 seconds' "waiting" period, referred to above, to 90 seconds. After the lapse of this period, the demand operator will release the subscriber's line and send the ticket to a delay position for treatment.

In connexion with the up-grading of the TRANSMISSION QUALITY of long distance circuits, it has been arranged with the Engineer-in-Chief to have a complete overhaul of each route before conversion to demand working, with a view to attain a standard not exceeding 6 decibels, and, if possible, to provide zero loss circuits. There are 75 such circuits (see statement below) at present working in Great Britain, and it is the intention within the next year or two to place all inter-zone routes in this country on that basis.

"ZERO" TRANSMISSION LOSS CIRCUITS, JUNE, 1932.

London—Aberdeen	...	Bothway	...	2
„ Bristol	...	„	...	2
„ Cardiff	...	„	...	8
„ Edinburgh	...	Outgoing	...	2
„ „	...	Bothway	...	2
„ Glasgow	...	Outgoing	...	5
„ „	...	Bothway	...	8
„ Leeds	...	„	...	6
„ Newcastle	...	„	...	6
„ Reading	...	Outgoing	...	2
Birmingham—Glasgow	...	Bothway	...	3
Bristol—	„	„	...	1
„ Newcastle	...	„	...	1
„ Nottingham	...	„	...	1
Cardiff—	„	„	...	1
Glasgow—Edinburgh	...	Outgoing	...	2
Leeds—Glasgow	...	Bothway	...	6
Liverpool—	„	„	...	5

SPECIAL CIRCUITS FOR OVERSEAS SERVICES.

London—Birmingham	...	Outgoing	...	1
„ Cardiff	...	„	...	2
„ Edinburgh	...	„	...	1
„ Glasgow	...	„	...	1
„ Hull	...	„	...	1
„ Leeds	...	„	...	1
„ Liverpool	...	„	...	3
„ Manchester	...	„	...	1
„ Newcastle	...	„	...	1

The bothway circuits from London to Bristol, Cardiff, Newport, Exeter, and Plymouth will be on a "zero" basis by the end of the year. Early next year, the bothway circuits from London to Birmingham, Liverpool, Southampton, and Portsmouth will be on this basis also.

In connexion with the up-grading of "group to zone" circuits, it may be of some interest to state that the cost of repeater equipment for "minor lines" at the present time, is approximately one-sixth of what it was a year or so ago, and there is a possibility of further reduction in cost.

LONDON DEMAND SYSTEM.

A brief account will now be given of the introduction of the system in London. Traffic design data for a suite of 60 demand positions were sent to the Engineer-in-Chief in the Autumn of 1930. Contemporaneously with circuit design, the positions were manufactured and installation commenced in December, 1930. The positions were opened in May, 1931, and worked, at the outset, as record positions only.

Certain aspects of the change-over are worthy of mention. The speed of answer of "trunk records" was reduced from a figure of over 11 seconds (connexion was made *via* a distribution position) to one just below 5 seconds. The trunk operators became acquainted with team work methods and generally accustomed to the new type of switchboard, one feature of which was the ancillary system with 5 lamp appearances associated with each record circuit.

A further feature was the bringing into use of new pneumatic tubes (with ribbed sides) for the disposal of tickets. An attempt was made to work the new tubes with the old type of ticket—the double arrow head type—but the results were very unsatisfactory. After much investigation work by the London Telephone Service and the Engineers, a satisfactory solution of the difficulties was arrived at by the use of a new type of ticket (with a small "sail" at the rear of the ticket). A suitable quality of ticket paper was decided upon for standardisation. It is hoped that this pioneer tube ticket work, carried out in London, together with the development work undertaken by our power engineers, will result in highly efficient systems being installed, at the outset, in other centres.

In November, 1931, a demand service was opened from the LONDON TELEPHONE AREA (as existing at that date) to BIRMINGHAM (7 mile circle), the Birmingham circuits having been previously overhauled and a transmission value of 6 decibels attained. (Certain "overhead" circuits were replaced by "underground." It is now the policy, wherever spare cable circuits are available on a route, to allow the "overhead" circuits to become the spares and utilise the cable circuits to meet requirements for as long a time as possible).

The new positions were not sufficient in number nor suitably equipped to enable the "delay" working to Birmingham also to be undertaken thereon, and the circuits to Birmingham were, in consequence, divided (some for demand working and others for delay working) because of the difficulty referred to earlier in connexion with the use of a common multiple over old and new positions.

The staff in the London local exchanges were fully trained as regards that part of the demand procedure for which they were

to be responsible ("overplug" and special clearing procedure). The magnitude of the instructional work can be gauged when it is realised that practically every operator in the London Telephone Service had to be trained in some aspect of demand working.

As regards the reversal of calls to originating local manual exchanges in connexion with "OVERPLUG" procedure (in order to obtain switch hook supervision, &c.), it was not practicable to provide a multiple of trunk junction circuits over the new positions and, in consequence, one of the expedients mentioned earlier—that of the use of transfer circuits to a position on the old suite on which the trunk junctions were available—had to be resorted to. (As the system develops in London, a trunk junction multiple will be provided over the demand positions serving manual exchanges).

The demand service to Birmingham, therefore, was opened under rather restricted conditions:—

- (a) Divided group of outgoing trunk circuits:
- (b) bothway working not available:
- (c) holding and re-ringing procedure not introduced: and
- (d) "overplug" procedure *via* an intermediate position.

The IDLE INDICATING SIGNAL of the "pin hole" type, for indicating a disengaged trunk circuit, was introduced for the first time in this country, and has, I think, proved to be a valuable aid in the working of the system.

Notwithstanding the disabilities referred to above, the service results obtained on the London—Birmingham route were highly satisfactory. Some of the salient features are given below. (The percentage figures were arrived at from reports received after the opening).

Calls completed on demand	approximately 85%
Calls completed or a report given to the subscribers of "no reply" or "number engaged" on demand	" 94%
Average time taken to set up demand connexions from the receipt of the calling signal at trunks (from March quarter Observation figures)	118 seconds.

(The figure in respect of calls originated at automatic exchanges is somewhat below this figure of 118 seconds, while that for calls originated at manual exchanges is in excess). It is mentioned that the reversal of the "manual" originated calls through an intermediate position causes a certain amount of drag which will disappear when the direct "overplug" procedure is carried out as it is now done at Birmingham.

As regards CIRCUIT LOADS, the position, broadly, is that the demand service to Birmingham has been given on a slightly lower number of trunk circuits than when normal trunk signalling working was in force. Another interesting feature has been the definite improvement in the paid time results during the busy hour—the output under demand working having been increased by over 10%. (It is recalled also that the group of circuits has been divided). In April, 1932, a demand service was opened from LONDON to GLASGOW (7-mile circle) and EDINBURGH (5-mile circle). Here again the groups of circuits had to be divided between the new demand and old trunk signalling positions. No additional circuits were added at the outset, but a re-allocation was made as between Edinburgh and Glasgow, the latter being used as an alternative route for the former. It is early yet to judge the results on these routes but the statistics so far available show a service not inferior to that given to Birmingham. (One additional circuit has now been temporarily added to compensate for the division of the groups).

(To be continued.)

TELEPHONE EXCHANGE METHODS FROM THE VIEWPOINT OF A SUPERVISOR.*

BY MARGARET J. CLEMENT, *London Telephone Service.*

As the title of my paper suggests, I am centering my remarks to you this evening round exchange life. My choice of subject was governed by two considerations. In the first place, in such a vast organisation as the London Telephone Service, where efficiency can only result from perfect co-operation between the various branches, it is well, on occasion, for one side to hear something of what the other side is doing. In the second place, exchange methods have altered to such a great extent during the past few years, and progress has advanced at such a rate, that a brief resumé of exchange methods may be of interest even to those who work day by day in an exchange as I do. I felt, too, that a few remarks on automatic exchange procedure, as distinct from manual procedure, might also be welcome; for although a number of papers have been given before this Society from time to time on various aspects of the Automatic System, I cannot recollect one which has dealt entirely with exchange practices.

By way of introducing my subject, I would point out that present-day practice is the very cream and essence of 55 years of study and experience. It was in 1877, 55 years ago, that Professor Graham Bell laid the foundation stone of telephony, and it is from the accumulation of knowledge and experience gained during the intervening 55 years that present-day practice has been built up. At the present time we are marching along the line of progress at such a rate, that it is almost impossible to imagine what the future will reveal; the possibilities of progress seem almost unlimited! It is certain, however, that present-day practice is not the pinnacle, and that there are many things we do not know. But every discovery makes another one possible, and it is we of the present day who have the opportunity before us of adding a contribution to the pool of experience from which all evolutionary progress springs.

To-night I am speaking primarily for my own class and the class from which I graduated, and I am perhaps right in saying that no section of the staff (other than the technical staff, of course) possesses such opportunity for progressive thought as the Exchange Staff. Their position is unique, inasmuch as they have first-hand knowledge of every prevailing traffic condition and requirement, and, so far as manual exchanges are concerned, have direct contact with the public in the administration of service as the public view it. The importance of the part played by them cannot be over-estimated, and in all the progressive changes in method of recent years, it is to the Exchange Staff that the Department has looked for the smooth presentation of the scheme to the public.

It would be interesting to trace back to the very beginning the various practices which have been in force, but time will not permit. I will, however, go back to the period just prior to 1927, when automatic telephony, which we had heard so much about, was about to become an actual fact, and the world of telephony was to be turned upside down. Fundamental changes in practice then became necessary, and, while the engineering profession, by study and research, were perfecting the new machine, we, in exchanges, who were to assist in launching the scheme, were spending the time in preparation. The changes which became necessary affected both subscribers and exchange methods alike. In order to safeguard subscribers from trouble and inconvenience, and also to ensure that no dislocation took place in the already running machine, the changes were brought about gradually on a well-ordered basis. First of all, certain existing exchanges had to be re-named, as the first 3 digits clashed on the dial. In all, 4 exchange names were altered for this reason. Consideration then had to be given to numbers, inasmuch as the coming dial would refuse to accept any number not composed of 4 digits. Therefore all 3-figure numbers were prefixed by 0. In addition, many subscribers were destined to change either their number or the name of their exchange, or in some cases both, due to area correction transfers. Following on the settlement of exchange names and numbers came the question of tones, the language of the dial, viz., the dialling tone, ringing tone, busy tone, and the number unobtainable tone. Of these four tones only one was in being, viz., the busy tone. So far as the dialling tone and number unobtainable tone were concerned, it was not possible or necessary to bring them into force before the first automatic exchange was opened. The only other tone was the ringing tone, and this was introduced in 1927. Regarding the various tones, I think there is room for improvement. In my opinion the ringing tone and the busy tone are too much alike, and to many ears must be confusing. I think the fact that subscribers so frequently mistake the tones is proof that we have not gone far enough in this direction. No such thing as indistinct articulation should exist on the automatic system, its language should be clear and unmistakable!

But before the automatic system could be received, a system, whereby automatic subscribers dialling manual exchange numbers might obtain them without any apparent intervention of an operator, was necessary. The outcome of engineering research here was the introduction of Tandem and the C.C.I. system. Both of these systems opened their gates to the flood in 1927, thereby constituting the first real test of automatic switching plant

* Paper read before the London Telephone and Telegraph Society.

in London! One or two minor operating difficulties needed straightening out, of course. As an example, the loading of Tandem positions first had to be proved and then in many cases altered. But all the difficulties were minor, and the boon which Tandem proves especially to the smaller exchanges and during the night concentration periods cannot be over-estimated. Various improvements in the system of feeding C.C.I. positions with calls have also taken place since its introduction, until the load at the present time is from 450 to 550 calls per busy hour.

The first London automatic exchange—Holborn—was opened in November, 1927, and at the present time 41 out of a total of 114 exchanges in the 10-mile circle work on the automatic system.

Inasmuch as Automatic Telephony is the coming system, and gradually all London will be converted to it, I think I will at this point outline very briefly some of the methods adopted by the exchange staff in their endeavours to work successfully an automatic exchange. I refer to exchange duties only, of course.

Pre-opening work involves such things as furniture and fixtures, establishment of the catering club, and arrangements for the upkeep of the building so far as safety and cleanliness is concerned. The foundation of the clerical system must be laid, and the clerical accuracy of every exchange and subscriber's record guaranteed. The whole exchange organisation must, in fact, be built up.

One of the first tasks to be performed after the actual transfer has taken place is what is known as Test A. This test demands that all the new subscribers should be rung, and conditions such as the ringing tone &c., noted. From experience gained in many transfers, I have formed the opinion that this test should not simply confine itself to a traffic test of the circuit, but it should also form the Departments' first and golden opportunity for gaining the subscribers' confidence in the automatic system and in their new exchange. First impressions are everything, and a courteous enquiry from the new exchange on the day of transfer, as to whether assistance can be given on any point, is appreciated by the subscribers, and confidence in their new exchange is the direct outcome.

Having paved the way with Test A, concentration on several points in connexion with the work is essential. In order to make my remarks at this stage of interest, I propose to divide the work into three sections, viz. apparatus, subscribers and operators, and speak about each in turn. I think by this means it will be possible to touch upon the most important items of the work. I will first deal with—

APPARATUS.

On the subject of apparatus my mind carries me back to my operating days. Roseate days these for the subscriber, for I cannot recollect any fault system: at a later stage, however, faults seem to have developed, and to the best of my knowledge the testing positions in C.B. Exchanges were introduced for the purpose of giving assistance to the Engineers, in that the operating staff accepted and recorded faults, and also carried out a preliminary test by means of a voltmeter.

With the introduction of the Automatic System, a slightly altered fault procedure became necessary. No facilities for preliminary testing were afforded the exchange staff, as in the case of the manual system, but in other respects its principles were widened, and the fault position became a very live magnet in the working of an automatic exchange.

Fault position duties embraced:—

1. Docket Registration (which constituted a safeguard to the whole system),
2. Fault Recording (which freed the engineers from much clerical work),

and, with the aid of a local see-at-a-glance system:—

- (a) The study and analysis of faults;
- (b) The immediate detection of recurring faults;
- (c) The immediate detection of any fault occurring on a circuit which, for some reason or other, demanded special attention;
- (d) Supplied immediate and see-at-a-glance information regarding the state of any unit or subscriber, on any given day or period.

In addition, the position was the means of keeping the exchange alive so far as interest and personal knowledge of the subscriber was concerned.

I have not time to dwell upon the scheme, since I wish to pass on quickly to the system which has now superseded it, viz., the ENG Repair Service. In view, however, of the concentrated worth of the fault position, which was used all day and every day in the service of the subscriber, I feel that due record should be made of many of the points which the system embraced. Improvements in the quality of a public service cannot be measured by figures alone. In such a personal service as the telephone service, quality is valued not only in terms of accuracy, but in terms of personal service to the subscriber. The fault position embodied the spirit of personal service to the full.

Before I pass on to an explanation of the ENG system, I think it would be of interest to explain that although automatic exchange staff have no actual facilities for testing, very valuable work is performed over the TKO circuits. From an engineering point of view the value of these circuits is considerably cut down since faulty connexions cannot be held. From the service point of view, however, and notwithstanding the absence of the facility named, the circuits are invaluable as a means of assisting subscribers,

locating trouble caused by mis-operation of the dial, verification of subscribers' statements, &c. With the added help of a "hold connexion" facility the circuits would be extremely useful.

The "ENG" System.

With the introduction of the "ENG" system in July, 1931, the whole policy of the fault system was altered, for, whereas subscribers had previously been instructed to report all difficulties to "O," under the new system subscribers were asked to report faults to the Engineers direct by dialling ENG. In explanation of the system and in order to make the circumstances in which subscribers should dial ENG quite clear, I will quote from the notes which appear in the preface of the directory, on "How to report a fault." The instructions given there are as follows:—

When your installation is out of order and needs the attention of the Repair Section of the Post Office Engineering Department, dial "ENG" (Engineer). Examples of the difficulties which should be reported to the Repair Section are:—

- (a) No dialling tone received when receiver is lifted.
- (b) No ringing tone heard when repeated attempts are made to call a certain number.
- (c) Wrong numbers persistently received when repeated attempts are made to obtain a number.
- (d) Bell not ringing, ringing faintly, or persistently tinkling.
- (e) Difficulty in being heard, or in hearing distant subscriber.
- (f) Apparatus broken.
- (g) Extensions, cords, exchange indicators or any part of private switchboard out of order.

But in addition to dialling "ENG" another channel for reporting difficulty is open to subscribers, and (again quoting from the directory), they may dial "O" in the following cases:—

- (1) For general enquiries with reference to the service.
- (2) To report service trouble.
- (3) If difficulty is experienced in obtaining a subscriber after repeated attempts to obtain the subscriber by dialling have proved ineffective.

The principle of the ENG system is that plant faults be reported to "ENG" and difficulties to "O," but although fundamentally sound in principle, in so far as our own internal organisation is concerned, difficulty arises in the application of the scheme, inasmuch as the dividing line between faults (to ENG) and difficulties (to O) is so fine as to make it almost impossible for the average subscriber to differentiate the one from the other. The result is that one of the very basic principles of the scheme is shattered, and engineers are receiving work which definitely comes under the category of exchange assistance work, and vice versa.

It will be appreciated that the Department is faced with a very difficult problem, inasmuch as subscribers—and it must be remembered that two-thirds of the telephone public have yet to be received into the automatic fold—subscribers cannot be expected to draw a perfectly straight line between faults and difficulties. I am not attempting to solve the problem to-night, but I cannot shut my eyes to the fact that the question of the "ENG" system, with its associated difficulties, is of such vital importance and is capable of having such a far-reaching effect upon service, as to demand from each one of us concentrated and constructive thought upon the matter. Viewing the system from a logical standpoint, it seems that certain fundamental objections need to be put up against the scheme; full deliberation between the Traffic and the Engineering Staff providing the answer. A question of prime importance, of course, is the one of divided control. I cannot enter into discussion upon the questions in point to-night, time will not permit. There is just one question, however, which I should like to place before you, and that is—"Would it be advisable in the interests of the "ENG" system itself to institute a system whereby subscribers' complaints and statements were filtered? Cases of definite or suspected fault to be passed to the Engineers direct—subscribers' difficulties (presumed not faults) to be forwarded to the fault position for analysis purposes?"

In connexion with this question of filtering subscribers' complaints, I venture to place a few points of view before you. I am perhaps stating what are more or less restricted views, but as the cause of service can only be furthered by free discussion and unqualified co-operation between both the Traffic staff and the Engineers, I will speak freely.

I would like to say, first of all, that I feel honoured beyond question in working side by side with such a great profession as the Engineering one, and that any views which I may give expression to are founded on the firm conviction that not only can the Exchange Operating Staff be a very great help to the Engineers, but they are a very necessary complement to the successful working of an automatic exchange. There are obviously many things quite out of their province, but on the other hand there are many aspects, which, by virtue of tradition and years of training in speaking with subscribers and in exchange methods, they are specially fitted for, and in which they can assist the service and the engineers to a greater extent than the engineers can assist themselves, perhaps. Engineers' time, by reason of the years of study involved in acquiring the necessary knowledge, should be utilised in technical pursuits, and is, I always feel, far too valuable to be spent on such work as educating and soothing subscribers; and experience in automatic working, extending over a period of 3 years, has convinced me, and I repeat it again, that actual faults requiring the services of an Engineer

and *difficulties* (not faults in the engineering sense of the word) are so intermingled in the mind of the average subscriber as to make it impossible for them to differentiate the one from the other. A trained operator can accurately differentiate between a *fault* and a *difficulty* (the real and the false), and it is here that she can step in and prove of value, by passing to the Engineers the real only and keeping back the false.

Records prove that by far the greater proportion of faults refer to "Can't get Exchange," "No Ringing Tone," "Wrong Number," false "Number Unobtainable Tone," and false "No Reply Advice Incoming." Experience has proved that in many of such cases reported, the difficulty complained of is either of the subscriber's own making, or is due to a fault being picked up in the network of common apparatus. In the one case, of course, all that is needed is a little instruction, while in the other, it is an accepted fact that trouble incidental to and a feature of the automatic system caused by a fault in the network of common apparatus, *must* be met with by subscribers on occasion, but inasmuch as the fault is released by the time the subscriber makes the complaint, his report becomes of negligible value, and courtesy and offered assistance are the Department's only weapon of defence in such cases. Subscribers can make trouble for themselves in a number of ways, but I think that most of the pitfalls to which they are liable are known to the operators! A little delving over a TKO circuit will reveal much in the case of no ringing tone, wrong number, and number unobtainable reports.

Alleged false No Reply incoming cases are admittedly difficult to solve. I can only quote the result of investigations which have been made from time to time in the matter of following up incoming "No Reply" reports. Several thousand cases have been followed up, but I will quote from one record of 1,320 cases. I should explain that every "No Reply" case which came under the notice of an assistance operator or the Keysender B observation officer, was passed to the Fault Position operator, who first of all verified, by picking up the number on a Selector circuit and T.K.O. circuit *simultaneously*, that the ringing was going out. She then followed the case up with the following results:—

1. Subscriber stated had been out	...	787
2. Office closed	... ..	56
3. Bell not heard	... ..	235
4. Reported to Engineers as Cgt.	...	242

Of the 242 cases reported to the Engineers, the clears were as follows:—

Cases of "No Access"	... ..	143
Circuit liable to interruption	... ..	3
Engineers working on line	... ..	7
Right when tested	... ..	36
Fault in hand	... ..	21
Apparatus found faulty	... ..	32

In brief, the investigation proved 4% of faults on 1,320 cases of "No Reply" followed up; 1.6% of the faults were already in hand by the Engineers, while the remaining 2.4% were revealed by the record.

Before I pass from the subject of faults reported by the subscriber, and I have touched upon the fringe of the subject only, I would mention the very elusive complaint of false rings. I know that cable diversions, &c., can cause this type of trouble, but I know also that the observation position proves, that John, desiring to speak to Gladys the maid, will, without a single qualm, replace the receiver quietly when Mrs. Brown herself answers the telephone. I believe more of this goes on than meets the eye.

But whatever the cause of the subscribers' complaints, I feel convinced, that whereas Engineers alone can deal with faulty apparatus, the Exchange operating Staff are pre-eminently suited to such work as filtering subscribers' statements, educating and assisting subscribers, &c., and if the value of their tradition, and the result of years of training in such matters can be placed in a common pool to be used to the best advantage, increased efficiency must be the outcome, since by common endeavour and unqualified co-operation alone an efficiency result.

SUBSCRIBERS.

If in the manual system the co-operation and the support of the subscribers is essential to efficiency, it is doubly necessary in the Automatic System. It will be appreciated, therefore, that there is much ground-work to be performed in the way of educating subscribers in automatic working, and a few particulars showing the extent to which the exchange staff work in this direction will perhaps be of interest.

On one occasion roughly 200 P.B.X. operators visited the Automatic Exchange to which their installations were about to be transferred, in the weeks immediately prior to the transfer. Engineer, traffic officer, supervisors and operators all worked together in the common endeavour to interest the visitors in the merits of the Automatic System, and tried to ensure that when the great day came no point of doubt existed. Very few of the visitors stayed for less than a day, while many stayed for as long as 4 days. In addition to the visits described, all subscribers with 2 lines or more were called up before the transfer of their installation took place; an invitation to visit the new exchange was extended and many points of doubt in connexion with the Automatic System cleared away.

Other typical examples of endeavour made by the exchange staff to safeguard the interests of the Automatic System have been:—

The calling up of subscribers some time after transfer with an enquiry as to whether the automatic service was proving satisfactory, and whether assistance could be given on any doubtful point.

Taking as an example a case where 2,683 subscribers were called up, 2,005 expressed themselves as perfectly satisfied on the first call up, 678 could not express entire satisfaction and their individual cases were worked upon until satisfaction was ultimately expressed, 9 failed to express satisfaction at any stage of the enquiry. One of the 9 stated that she could speak 4 languages but could not cope with the telephone. The task which was performed by supervisors and chosen operating staff, revealed the fact that the vast majority of the subscribers were, out and out, for the Automatic System, and much preferred it to the manual system. Many interesting conversations with subscribers took place, and appreciation was expressed again and again.

In another case, a subscriber made a statement that all the subscribers working in a particular London Square were dissatisfied with their telephone service. All the telephone numbers of the subscribers working in the square in question were obtained, and the subscribers spoken with. Many friends were made as the result.

New subscribers, transferred subscribers, disability subscribers, troublesome subscribers, subscribers who dial "O" unnecessarily, are all spoken with by a supervisor or operator from time to time. No docket containing the slightest hint of dissatisfaction is ever filed until the subscriber is spoken with, and the cause of complaint removed, if possible. The ideal system (and by combined endeavour we shall, no doubt, ultimately reach the ideal) should give the exchange staff a means of watching and following up such cases. In the best interests of the service and the subscriber the personal touch should be kept alive.

I mention the above to show what has been done by the exchange staff in their endeavour to further the cause of automatics, and the coming transfer of large exchanges to the Automatic System calls for the continuance of such work.

But before I pass from the subject, I would like to emphasise the fact that all work of the nature described is simply the outcome of local interest and pride in the exchange, and is entirely supplementary to the very valuable and necessary work performed by the staff of Headquarters Training Section. So far as the exchange to which I am attached is concerned, I am only paying credit where due when I say, that the prestige of the exchange in this particular neighbourhood has been considerably heightened by the unflinching courtesy and conscientious hard work of the Service Inspector officially attached to the T.T.R. Section. It is very pleasant to be able to record also that the local contract officers, so far as they are able, help to keep the flag flying for the exchange to which they are attached.

It will be remembered that I previously said that in the endeavour to work successfully an automatic exchange, 3 main points demand concentrated attention. I will refer to item 3, which was—

OPERATORS.

I have previously made reference to operators in connexion with faults. I intend now to draw attention to what is known as assistance operating, although I am afraid that any attempt which I might make to explain what "assistance" stands for would be poor in comparison with its true relation to service. Assistance operating embraces clear speech, extreme courtesy, quickness of perception, initiative, knowledge, and a true conception of the word "service." I am perhaps right in saying that the first-named qualities will come if the last quality is there all right, for assistance is truly service, and service—assistance. Under the category of assistance work, and remembering always the fact that *faults* and *difficulties* are so closely allied, come such items as the sympathetic handling of disability calls, the guidance of subscribers unused to the telephone or its various conditions, tactfully sending back to the dial subscribers who dial "O" without cause, assisting subscribers when in doubt or difficulty over wrong numbers, no ringing tone, TOL, TRU, or special service calls, assisting M.C.B. callers, providing other exchanges with information concerning subscribers working on the home exchange, super-assistance in the case of illness or emergency, interception of calls, &c. All come under the category of assistance work and demand in their treatment the qualities I have named. I would specially refer to the absolute necessity for clearness of speech, for assistance given without it becomes negative in value, since it is lost upon the subscriber. Every inch away from the transmitter equals 10 miles, and assistance offered, say 30 miles away from the transmitter, although perhaps good in intention, becomes poor in value. If there are any juniors present to-night, I would say to them "Remember one inch equals 10 miles," and "Don't make good work in intention negative in actual value by talking to the switchboard or to the scribbling pad instead of the subscriber." Incidentally I wonder how many trunk complaints are due to careless speech.

My previous remarks will be incomplete without some brief reference to the methods employed in automatic exchanges in connexion with the interception and observation of calls.

Automatic interception work comes under two headings, viz., changed number interception and service interception. The titles of the circuits, I think, explain their purpose. I am not going to weary you to-night with detail. I would rather speak about results. So far as service interception is concerned, results disclose the fact that "Called in error trouble" exists to rather an alarming degree. I go so far as to say that at the present time it constitutes a serious blot upon the service! There is nothing elusive about the cause of such error. It very definitely revolves round carelessness on the part of the subscriber or operator; faulty apparatus plays but little part. Records prove that a percentage of error may be attributed to operators,

a percentage to subscribers, whilst a small percentage is indeterminate. As a matter of interest, I will explain how figures on the matter are obtained. Local instructions provide that for every false call received at the service interception position a docket is prepared, while a special stroke record records O.K. calls. Every false call received is delved into, and it is from the information thus obtained that records are prepared. The causes of error are too well known for me to enumerate them to-night. It is sufficient to say that the subscriber who has a number similar to that of a cab rank, theatre, or in fact with any very busy firm, or the subscriber who works on an exchange which is phonetically similar to another, such as Flaxman and Gladstone, is constantly troubled. So also is the subscriber who unfortunately becomes the target of another subscriber's incorrect dialling! But the point which appears to me alarming is that interception results on known cases *must be but an index of the general state of affairs which exist.*

The cure is partly within our own household, but how to cure subscribers of their carelessness is another question! Strangely enough, suggestions on this point have often come from subscribers themselves. One titled gentleman suggested instruction by means of the films or by broadcasting. The question as to how and when was discussed on more than one occasion, and proved that subscribers themselves are not only willing but desirous of helping the cause of automatics.

I wonder if it is generally known that the world's first safety pin was produced by a man who was annoyed by the remark of his wife that pins would work loose and stick in baby in spite of the best pinning. He vowed he would make a pin which would not stick in anyone, and he did!

I think it follows that the problem of subscribers being called in error should be solved *by one of the sufferers.* Perhaps if someone present to-night would change their telephone number to one which bears a very strong phonetic similarity to a cab rank, the necessary inspiration would come.

Automatic Service Observations.

I will now turn to the subject of Automatic Service Observations. Facilities exist for checking the operation of a subscriber's register, and also for observing upon their incoming and outgoing service. What is termed an R.O.C. circuit caters for register checking, a Keysender Observation Desk caters for incoming service, while a Local Observation Desk equipped with calling signals, register check and a tape machine, provides for observations being taken on subscribers' circuits.

Subscribers' Observations.

So far as observations on subscribers' circuits are concerned, I am of the opinion that the efficiency of the position would be increased a hundredfold by the provision of a "holding" facility, and also by the provision of a facility for entering circuit and speaking with the subscriber. The general quality of the service can be obtained from the central observation results local observation desks should go one further, and help to solve the actual cause of the difficulty which is so plainly there. With the present desk this is impossible, and the observer must often find herself up against a brick wall almost. Various strokes in various columns lead to nothing unless the cause of difficulty is located.

Keysender "B" Observations.

The Keysender "B" Observation position is full of interest, and can be used to good account in the matter of finding out the reasons for the various classes of lost calls. The absence of a "speak on junction" facility can be overcome to an extent, though not wholly, by the observer going over to the "B" position concerned, throwing the junction disconnect key, and transferring the incoming call to a service instrument. Quite a number of investigations can be carried out in this way; as an example the theory was recently disproved that subscribers, by asking for spare numbers, were the cause of the high "Number Unobtainable" figure! The absence of a "hold junction" facility, however, hampers the investigation of many other cases.

On the subject of requests by the Exchange Staff for various facilities, I would here like to quote a few remarks made by Sir Henry Bunbury, K.C.B., when addressing this Society in 1929. Sir Henry then said "It is a principle which has become more and more clearly recognised in progressive concerns, that it is for the productive or operating side to say what they want the equipment to do, and for the technical side to produce the equipment, which will do it; and will do it continuously and efficiently." *I think the words quoted very truly sum up the word "co-operation,"* and on this note I will leave my recital of automatic exchange procedure, and revert again to manual exchange procedure.

It will be remembered that I broke off at the point when Holborn Exchange became automatic in 1927. Since that time manual exchanges have kept step with the various progressive changes which have been brought into force, and have taken their full share in the big task of safely landing 41 exchanges on the other side of automatics. The effect of such changes has increased the need for vigilance on the part of the exchange staff, inasmuch as many additional points and phases in operating have to be understood and watched for. The surface conditions of the Automatic System, Tandem, Toll, Trunks, &c., must be understood by the Manual Operating Staff, for, as I said previously, the Department depends upon them for the smooth presentation of any new scheme to the public. In this there has been plenty of scope, for within the last few years, in addition to the introduction of the Automatic System, Tandem, and the C.C.I. system, various improvements

or progressive schemes have taken place in connexion with Toll calls, Trunk calls, Call Office facilities, straightforward junction working, voice frequency keysending, special facilities, &c. So far as Call Office working is concerned, an operator's knowledge must be very wide. This knowledge must not only include routing, ticketing, timing and charging, but also how to deal with Emergency calls, Trunk calls, Toll calls, Express Letter calls, Telegram calls, Personal calls and any other call which comes her way.

Voice Frequency Keysending.

Voice Frequency Keysending is a system which is claiming much of our attention at the present time. The two governing factors in this system are the manual "A" operators and the automatic apparatus. The Automatic Exchange Manual Staff are not in the piece, except when help is asked for on any particular call. The principle of the scheme, of course, is that after picking up a free junction which automatically connects itself to the Keyset, *the "A" operator herself keys out the number required.* So far as the quality of service is concerned, this depends upon the adequacy and the efficiency of the equipment. There will be great need for care on the part of the "A" operator in the matter of picking up the correct junction, inasmuch as with voice frequency keysending, a junction picked up on a wrong automatic exchange will become either a "Wrong Number" or false "Number Engaged" or "No Reply" advice will be given. With order wire operating the Guard Signal Flash immediately tells the operator if she has picked up a junction on a wrong exchange. The need for care with voice-frequency keysending will therefore readily be appreciated.

In this connexion I have often doubted the policy of arranging the outgoing multiple in manual exchanges in such precise alphabetical order. I give expression to-night to the theory that a jumbled outgoing multiple would be more in the interests of accuracy, perhaps, than the present method of strict alphabetical order. I think operators, I am not counting learners, will agree with me that they make for the *spot*, and not much attention is given to the alphabetical arrangement.

I know that the use of automatic 3-letter codes is on its way, but 3-letter codes look very much alike, more perhaps than 2-letter codes, and in the interests of accuracy I think it unwise to group them together alphabetically. I am perhaps right in saying that the work involved and the disfigurement of stile strips which takes place when junctions of a new exchange are added to the outgoing junction multiple, is out of all proportion to the benefits gained by placing the newcomer in strict alphabetical order. The words "stile strip" sound very simple, but, in view of the amount of work involved in connexion with their upkeep, the man or woman who designs a standard and suitable slip in type is worthy of a halo. The stile strip in use at the present time slips in, of course, but only as a *whole* and not in part. One which could be quickly assembled from slip in *parts* is what I would refer to.

I will pass on and refer very briefly to the special facilities available for the use of subscribers, a knowledge of which must be possessed by every member of the Exchange Staff, both automatic and manual. To tabulate them would take too long, I will only mention:

1. Inland Trunks and Continental Service.
2. Overseas Service.
3. Radio-telegrams to Ships at Sea.
4. Telegram and Telephone Service to Ships at Sea.
5. Air Mail Letter Service.
6. Personal Calls, Inland and Overseas.
7. Night Telegraph Letter Service.
8. Express Letter Service.
9. Ordinary Letter by Telephone Service.
10. Express Messenger Service.
11. Standard Time Service.
12. Foreign Telegram Service.
13. Alarm Call Service.

The list, which embraces communication with 98% of the world's telephones, is a very comprehensive one and proves, I think, that the study of telephony becomes very far-reaching. To the girl who wishes to increase her vision, the Trunk Exchange offers the advantages of handling long-distance and overseas calls, while a knowledge of, or the desire to study a foreign tongue places the foreign positions within reach. Recent improvements in method and in operation of Trunk and Toll calls have raised the standard of such service to a higher level, but remembering such things as through clearing conditions, routing, ticketing, timing, charging and the need for the extension of the "no delay system," there is still a wide field for the girl who feels like exploring.

It was Sir William Morris who said recently: "I like people with fresh ideas. Every progressive business man realises that the person who is doing any particular job of work must be in a position to see ways and means of localised improvements." Exchange Staff can never complain of want of scope in this direction, for as I said in my opening remarks, there are many things we do not know.

But my time is up, and I have treated but the very fringe of a great subject, a subject so wide as to be inexhaustible almost. What has been the purpose of my paper? It has been this. To try and bring home the fact that in every achievement of the past which has had its fulfilment in present-day efficiency, the Exchange Staff have taken their place and part! Years of study and experience in exchange administration and method and the personal side of telephony, has made them specialists in their own particular branch of work, and it is this specialised knowledge coupled with the three

maxims of service, "courtesy, accuracy and speed," that has helped to make the London Telephone Service what it is to-day—"A Telephone Administration second to none."

So far as the future of the Exchange Staff is concerned, I can see no future for them, unless in the scheme of things (I refer to the fact that London as a whole will soon be on the Automatic System) work which they can do, and as I have just said, work which they are more or less specialists upon is allocated to them, thus leaving the Engineers free and unfettered to carry out the bigger tasks of their great profession. But I am no pessimist, and I know that the one thing which will safeguard our future—United Endeavour in the cause of Service—will not be lacking, and time will see to it that efficiency draws from a common pool.

A final word: What is the secret of our great affection for "the Service"? Why is it that in every parting letter, be it from the highest to the lowest in position, these words invariably appear—"Will always remind me of the happy days I have spent—"

There must be something to account for the staunch affection for the Service which exists! I think the answer must be that for pure interest, in a hundred ways, telephony is the profession of all professions—long may it prosper.

A SERVICE INSPECTOR'S DAY.

BY H. BARNARD, *Manchester.*

"EE—fowk are funny," said a Lancashire woman to me one day; and, in the same tongue, "Bah gum! she were reet."

A day out with the Service Inspector can be a very dull affair, but it's a very poor day that doesn't produce two or three interesting characters or incidents, especially when the town areas are left behind.

Recently, with the aid of train, tramcar and my feet, I found myself in a quiet avenue for the first call of the day. Quickly finding the required house I knocked and shortly the door opened about an inch. One eye, with a few other portions of a female figure filled the crack, whilst a voice said "Not to-day, thank you."

In a case like this one has to let the magic word "Telephone" be heard quickly—it's a real "Open Sesame." After general apologies, one usually gets a long tale about hawkers in general and some in particular. After one or two hard trials—people in the house not answering my knock, or being inspected from behind the front-room curtains, in which case the sight of the attaché case I carry is enough for them ("another hawker")—I learnt never to visit in a road where I could see the hawking fraternity operating. It saves time to pass on and return after a reasonable interval.

The next subscriber was a man about 60 years of age, and in response to my enquiries as to the state of the service he said: "I've employed women and girls for many years and can't make anything of them yet. I've been married over thirty years to the finest woman you could wish to meet, but she's a woman all through, and I wouldn't like to gamble on what she would do or say next. So I'm not going to say anything about your exchange—I expect you'll have enough to do looking after them lasses without me saying anything about them!!!"

Then I went "outside"—that is, to the furthest point I wished to touch that day. More hardly-bought experience. If one works towards the outside there's a possibility of having to put up with an indifferent lunch or of wasting time in getting back. Now, when possible, I go out quickly and work back. It's well, too, to ask directions of more than one person—the first I asked stuttered! Local people, for some reason or other, are notoriously incapable of giving plain directions. They love to include such landmarks as Farmer Giles's cow shed—burnt down these past five years!

One or two visits, everything going smoothly, and then: a big house and a fine chatelaine. We talk service in the hall for 10 to 15 minutes. Then, as the lady will not pass a call, I request to be allowed and in turn am requested to "Wait a moment." The lady disappeared, and when eventually I was conducted to the telephone I found she had very carefully spread a duster under the instrument. I am still wondering.

At the next call there was a lot said, and I listened. The lady, apparently feeling the need of support, sent for her daughter, who, when she arrived, "flopped" into a chair like a boneless fish. They took their cues splendidly from each other whilst the poor Service Inspector writhed in pain from words that had to be repressed. The mother would say "They (the operators) did so and so. Didn't they, Muriel?" and softly would come from the depths of the chair an insipid "Yes, mamma" and a list of uncorroborated enormities in a flood. I gently tried to explain how and why, and also tried to elicit any substantiating facts, but these were not to be had. Finally I managed to conclude the visit and left, feeling that if the exchange staff have many subscribers like these, they have my sympathy.

I had a good stiff walk across country to the next call and felt better for it. Here the lady was having a cup of tea. I gratefully accepted a cup and we proceeded to discuss the service over it. Incidentally, all telephone people are reputed to drink gallons of tea per day—aren't the operators said to be drinking tea whenever any delay occurs? The amount drunk yearly in some districts I visit would float several battleships, or, at least, "so it would appear."

In oddments. I once called at a house where they covered the parrot's cage up—in case the bird took a bite out of me. Whilst talking to the subscriber the parrot decided to show what it could do with a telephone—"Hullo! Hullo! Yes, Brown speaking! No: can't hear you!" and so on, for about five minutes. Outward transmission very satisfactory!

The Department got one subscriber under rather unique circumstances. The lady was very short in stature. She told me her son had two telephones and there was a kiosk nearby from which the mother spoke to her son several times daily. Then the villain entered, disguised as a P.O. Engineer: he took out the old hand combined instrument and substituted a wall pattern instrument with the mouthpiece five feet from the floor. The lady tried hard, but tip-toes weren't enough. Two bricks would have been enough, but who wants to walk up the street carrying two bricks several times a day? Anyway, this lady wasn't having any, so the son fixed her up as a subscriber.

And that's that.

THE PASSING OF MR. F. P. DIDDEN.

To many the name of this former Asst.-Controller of the Cable Room, Foreign Telegraphs of the C.T.O., London, may be but a name, for it is nearly 20 years since he retired. Mr. Didden entered the C.T.O. in 1874, resigned and was re-appointed in 1877. German by birth, he was closely and for some time associated with the Controller's Office, particularly during the regime of Sir Henry Fischer, then plain Mr. When the Post Office took over the Submarine Telegraph Company's staff and lines, in 1889, Mr. Didden assisted very materially with the then new organisation. He became a British subject in due course, and some time after the war returned to his native land, in fact to the little village of Linnich, near Aachen, where he was born. In this village he passed quietly away on June 28 last, and was buried among his own folk on July 2 last. He was a lovable man, always willing to help a lame dog over the stile, liberal to any worthy cause, bore no malice, straight in his dealings, and though a stickler for rules and regulations, could always find the necessary way out where human compassion or efficiency demanded it. An old friend who saw him a year or two back on his own soil, relates how he still retained the picture postcards sent by his English friends and old colleagues, though recently his health prevented the use of his erstwhile facile pen, facile in at least three languages. Said this same mutual friend of F. P. D.'s death: "Wonderful, I think, to be caught to the breast of the same mother Earth again, and to lie at rest amongst his own. That, surely, is the *Ruhe in Frieden aller Seelen.*"

J. J. T.

MOTOR CYCLE COMBINATIONS IN NATIONAL TELEPHONE CAMPAIGN.

FIVE new motor-cycle combinations out of a fleet of 20 projected for telephone inspection purposes were launched on an advertising tour in June last. They were designed by the Engineer-in-Chief's Department on the lines of the most up-to-date telephone equipment and, as our illustration shows, the sidecar is constructed in the form of a large replica of the hand-microphone, the automatic dial being ingeniously used as a cover for the wheel. The model is conspicuously labelled "Post Office Telephones." The well-known advertising phrases "You are wanted on the telephone" and "The world at your finger-tips" are boldly displayed on the side car.

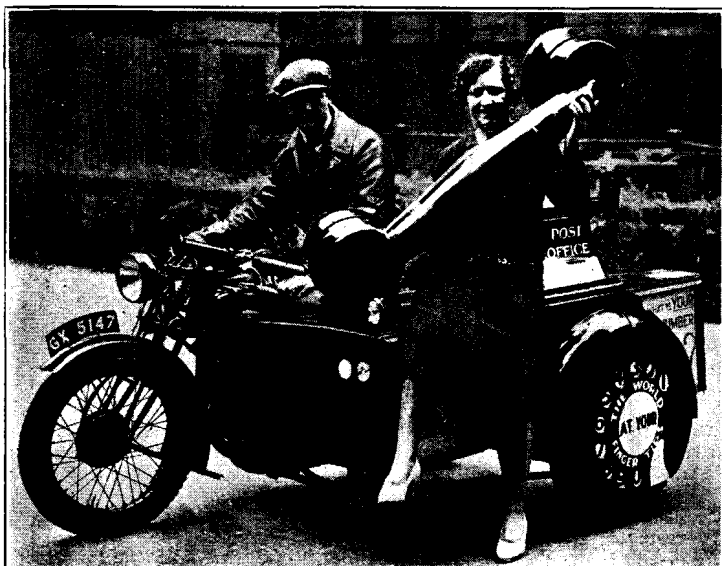


[Photograph by courtesy of Sport & General Press Agency Ltd.]

SIR KINGSLEY WOOD, THE POSTMASTER-GENERAL, INSPECTING THE FLEET OF MOTOR CYCLES.

On June 21 the Postmaster-General, Sir Kingsley Wood, inspected the squad before it set out from the General Post Office on its tour through the London District, and formally inaugurated the campaign. He said:—

"The telephone continues to extend its range by wire and wireless, and the opening of a service to Egypt is but another indication of the manner



[Photograph by courtesy of Sport & General Press Agency Ltd.]

THE GIANT HAND MICROPHONE LIFTED FROM ITS REST.

in which the nations are being brought closer together through the all-powerful channel of the spoken word.

"The Post Office is determined to place Britain high up in the list of telephone nations, and I hope that these new machines, built in the form of the latest telephone, will serve to remind the public of the desirability of joining the ever-growing ranks of telephone subscribers."

These striking motor-cycle combinations will serve as a lively reminder to the public of the insistent call of the telephone service and of the unremitting efforts of the Post Office to spread the benefits of that service by the most novel and efficient forms of advertising. The fleet will invade in turn all those provincial towns in which it is desired to give a special fillip to publicity demonstrations.

LONDON ENGINEERING DISTRICT NOTES.

Northwood Exchange.

THE old C.B.S. equipment at Northwood, Middlesex, was thrown out of service on Wednesday July 13, at 1.30 p.m., by the opening of the new C.B.I. Exchange. Approximately 1,040 subscribers' lines were transferred, together with 56 junctions, arrangements being made for half the junctions to be transferred at 1.0 p.m. The new equipment consists of 10 operators' positions, 1,460 subscribers' answering equipments, 1,600 multiples with an ultimate capacity of 7,200.

Bayswater Automatic Exchange.

The above exchange was opened for public traffic on Saturday, July 16, at 1.30 p.m., with the transfer of approximately 2,600 lines from Park Manual Exchange. The automatic equipment, installed by Messrs. Standard Telephones & Cables, Ltd., has an initial capacity of 4,600 lines, the ultimate being 10,000 and is of the single-sided rack design.

Among the 2,600 lines transferred were 30 public call offices and 60 subscribers' multi-coin boxes. A new method of transfer was adopted in these cases, a tumbler switch being fitted on the instrument, which had been previously changed to the automatic type. Manual C.B. working was maintained by this means till the time of transfer, when the throwing of the switch enabled the box to work on the automatic equipment without any other change whatever.

London Engineering District Amateur Sports Association.

Cricket.—A definite result was at last obtained in the Curtis Bennet Shield match against the India Office at Poly Ground, Chiswick, on June 16. India Office won the toss and decided to bat on a fast, true wicket, their opening batsmen playing fine cricket and giving a chanceless display gathered 120 runs before a separation was effected. The fielding and bowling of the L.E.D. team were excellent, nothing being given away. India Office eventually declared their innings closed at 5.45 and the L.E.D. were left approx. 2 hours to knock off the runs. A good start was made, the first wicket realising 45 runs, but unfortunately a collapse occurred in the middle of the innings and the L.E.D. were finally well beaten by 147 runs.

Athletics.—*Further Success of our Relay Team.* On Wednesday, June 22, at the Customs and Excise sports meeting, the L.E.D. registered a comfortable win of about 30 yds. :—

- (1) Siers, G. H. ($\frac{1}{4}$ mile), gained a lead of 2 yds ;
- (2) Bareford, H. (220 yds.), increased lead to 8 yds. ;
- (3) Smith, F. O. ($\frac{1}{4}$ mile), further increased lead to 25 yds ; and
- (4) Walker, R. C. W. (220 yds.), held the lead without effort.

Very handsome prizes were awarded.

On the same day Paul, Cheyney and Tolley ran in a representative match for the Civil Service and London University at Mootspur Park. Cheyney achieved 3rd place in the $\frac{1}{2}$ mile and M. Paul 3rd place in the mile.

In the relay of four $\frac{1}{4}$ miles on Thursday, June 23, at the Board of Trade sports meeting for the Nathismus Shield the L.E.D. were placed third:—

- (1) Siers, G. H., after a promising start, fell away, and
- (2) Walker, R. C. W., started last but ran a splendid quarter to hand over the baton at 3rd place to
- (3) Cheyney, C. E., who retained this position.
- (4) Smith, F. O., against the two crack C.S. $\frac{1}{4}$ -milers, was able to maintain the third place.

Result of Invitation Relay Race.—*War Office Sports, July 6, 1932 :* 4 Laps of 350 yds. each.—L.E.D. drew 2nd from inside and F. O. Smith took first lap, handing over a lead of 8 yds. to C. E. Cheyney, who increased this to 10 yds. R. C. W. Walker added another 2 yds. and sent H. E. Bareford away with a 12 yds. lead. Bareford ran a fast last lap and won comfortably from Inland Revenue, 2nd ; and Customs and Excise 3rd. Time, 2 mins. 53 1.5th secs. A very sound and splendid performance.

The continued success of the L.E.D. in service relay racing is a matter for congratulation and a fine example of what a few enthusiastic athletes can do when really keen, and who are willing to sacrifice a possible individual win in some event, for the sake of the team. There is nothing that brings out the team spirit, or what is known as sportsmanship, more than this type of racing.

TELEGRAPHIC MEMORABILIA.

THERE has been considerable comment in financial circles during last month on the position of the Cables and Wireless combine. "The air," wrote one financial commentator, "is thick with talk as to the prospects: the three cables and wireless stocks have become popular gambling counters." The report of the Globe Telegraph & Trust Co., Ltd., read at the 59th Ordinary General Meeting, by the Chairman, The Rt. Hon. the Earl of Middleton, K.P., said that their gross receipts amounted to £58,861, against £269,868 in the previous year. The year under review had been the worst experienced in the history of the company, which had for the first time in fifty-nine years paid no dividend on the ordinary shares. Cables and Wireless, Ltd., went on the report, "had paid no preference dividend in the last two years, and the experience of great foreign companies had been the same." Consequent upon these world-wide conditions the Trust's revenue from that source had dropped by £218,731 on the basis of the previous year's figures.

This particular company, however, had taken steps three years back to widen the powers of investment and had now invested £600,000 in securities independent of cables—principally, it is understood in electric light and power companies.

It is now announced that the net profit of Cables and Wireless fails to cover the preference dividend now declared by £2,218. The carry-forward will, however, provide for this emergency, it is stated.

At one period, too, there was a rumour to the effect that the Commission appointed to inquire into cable communication was about to "recommend an agreement between the Cables & Wireless combine and the British Post Office." Later, on the announcement of a dividend of 2¼%, Cables & Wireless Ltd. preference stock, the stock rose very considerably. As we go to press Anglo-American Telegraph Preferred shows a gain, despite the recent passing of its dividend by the Western Union Telegraph Company. There is, however, a touch of optimism in an American report now before the writer, "that when the present spasm of apprehension has passed," the telegraph stocks will rally.

First Principles of Television is the title of a book written by the capable hand of Mr. A. Dinsdale, at one time editor of a Television monthly. The critic of the *Electrical Review* on this welcome little volume makes two emphatic comments, with which, number one, "Things are moving quickly in this new science," one can readily agree. The second particular thing that strikes our contemporary's critic is "the amount of activity apparent in the United States and that in the race for a perfect system for popular (i.e. home) use we are handicapped in this country by the relatively small number of systems being investigated, and—of course—the small number of interested amateurs dictated by mere relative population." Comparison is also made between "the very patent desire of the German Post Office to perfect the best possible form of apparatus," and "the battle which television has had to wage with established wireless in our own country."

There are undoubtedly many readers of the *T. and T. Journal* who are paramouly more competent to adequately deal with these comments than the scribbler of these notes. He would, however, wish to remark that in these days of struggle against adverse national balances, and of the willing personal financial sacrifices of millions, the present facilities now given to a certain television organisation, for the moment at any rate, would appear to be adequate.

Personal.—Mr. E. R. Johnson, Divisional Controller of Posts and Telegraphs of the Orange Free State Province, South Africa, has arrived in this country on leave.

Obituaries.—With regret it is announced that the death has occurred near Johannesburg of Major Andrew Brown, Controller of Telegraphs at Johannesburg from 1901 till his retirement in

1922. The gallant major initiated and was commander of the Transvaal Signalling & Field Telegraph Corps. During the Great War he reorganised the corps, which then became the South African Signalling and Field Telegraph Corps.

With deep regret is also recorded the decease of Mr. M. A. Claydon in his eightieth year at his home in Westcliff-on-Sea on June 3 last. Formerly Asst. Superintendent, Foreign Telegraphs, C.T.O., Mr. Claydon was transferred to the Government Telegraphs in 1889, when the old Submarine Telegraph Company was taken over by the State, and retired in 1908 owing to ill-health. Mr. Claydon was a man of high principles, of independent thought, and was studious to a point of erudition. He was closely associated of late years with Crowstone Congregational Church, Westcliffe, where a special service was held prior to the interment at the Borough Cemetery. Among the mourners was noted one old colleague of deceased, Mr. J. Goodheart. There were several others who would wish to have been present, but were prevented by circumstances, but who still wish to tender their sincerest expressions of regret at the loss sustained. On the 20th June at the residence of his old friend, Mr. A. Hardman, 26, Sylvan Avenue, London, the much respected and beloved "Teddie" Crook of the C.T.O., passed away suddenly. He had been spending a goodly part of his time on a North London bowling green, in which he was interested, and there was apparently nothing to indicate any abnormal condition of our much respected colleague. Every sympathy is extended to his wife (nee Jessie Pascal) and relatives, and these expressions were symbolised by the attendance at the graveside of the following representative colleagues, Mr. S. Bathurst, F. Clark, A. Hardman, E. H. Hough, H. Kent, and J. Rees. Among the floral tributes were those from the River Bowling Club, Dover, and Institute Bowling Club, Dover. The inscription on the latter well expressed the sentiments of his office friends: "To the memory of a good sportsman, captain, and friend." Deceased was 72 years of age and will be best remembered by many in his close and long association with the old 5 to 2 staff.

Countries.—ARGENTINE.—From Buenos Aires, it is understood that arrangements are now actually completed for the building up of the new high-power "Radio Excelsior" broadcasting station (L.R. 5) near that city. The new transmitter replacing the existing one is in the hands of the Marconi works. It is expected that a regular service will commence early in the coming year.

CHINA.—According to the *Daily Mail*, Marconi's Wireless Telegraph Co., Ltd. has received an order for a new Beam radio telegraph station near Shanghai, which will also be capable of broadcasting. The price is in the neighbourhood of £35,000 to £40,000.

EAST AFRICA.—The following wireless items are excerpted from the Annual Report of the Kenya and Uganda Post and Telegraph Department for 1931. The number of wireless receiving licences was 418, an increase of one on that of 1930. Transmission on 350 metres from the Nairobi broadcasting station was satisfactory, but reception on the short wave of 49.5 metres was not consistently steady in certain areas. During the ten months that the Mombassa Coast wireless station was operated by the Department, 2,972 radiograms were dealt with, and of these 1,724 were exchanged with ships at sea. Special wireless facilities at Nairobi and Kampala in connexion with the England—South Africa air service were established during the period under review. At Nairobi these facilities are provided under an agreement with I. and I. Communications Ltd. The facilities at Kampala are provided by a new long- and short-wave station completed and brought into service during September last.

It is interesting to note that Kampala is operated and maintained by the "Department," and though primarily intended for air-service duties, it can be utilised for internal wireless services and for general communication with the Sudan and the Belgian Congo. Thus, "through this station Uganda is now in wireless communication with all the neighbouring territories." A veritable outpost of Empire!

EGYPT.—According to Reuter's Agency in Cairo, the Ministry of Communications has agreed to the taking-over of the development of Egyptian broadcasting. The company, it is understood, is to build a broadcasting station on behalf of the Egyptian Government at a cost of £30,000, undertaking in addition thereto, all the work incidental to broadcasting programs, &c. The company is to receive an agreed percentage of all licence fees.

GERMANY.—*World-Radio* informs us that in connexion with the exhibition of "Sources of Interference"—which has been arranged in the Berlin Broadcasting House by the German Post Office, the Union of Electricity Works and the Reichs-Rundfunk-Gesellschaft,—both the exhibition itself and the printed catalogue are to be permanently kept up to date. As the exhibition includes electrical apparatus designed to eliminate interference, this permanent source of ever-increasing information, will not only keep those interested in what is being done, but will place before such observers the choice of a number of solutions for particular circumstances.

Television.—C. D., in the *Daily Telegraph*, London, on "Derby" Day, gave a brief but interesting account of viewing the running of this popular race while sitting in an armchair at the Metropole Theatre, and at the same moment when fifteen miles away the race was being run. "We actually saw the race," says the writer, "we watched the horses flash past the judge's box at the very instant they were in motion." This demonstration by the Baird Company was the occasion for a certain measure of congratulation as being the "first time in history," that a race of this fame and kind had been so transmitted and received. The critic, however, was forced to admit that, "though the transmission was actually a success, the development of Television had not yet reached that stage when "television could be employed for public entertainment." Regular transmissions by the Baird process at 11 p.m. are now being made through the B.B.C. four times per week. The new series is to continue until March, 1934, and the programs hitherto provided by the Baird Co. are to be taken over by the B.B.C., who will probably modify them as required. The Baird Co. is to concentrate on research and the improvement of reception equipment.

The Director of Telegraphs and Telephones and Police Communication.—Mr. L. Simon, C.B., Director of the Telegraphs and Telephones, G.P.O., London, recently read a most interesting paper at the Conference of the Chief Constables' Association which was held in the British capital. This paper outlined the possibilities of Telegraphy, Teleprinter services, Telephony and Radio as handmaids in assisting both the police and the fire brigades in carrying out their onerous duties of protecting the public.

INDIA.—As from the 1st of last month the cable and wireless telegraph services in India have been brought under one control and will now be operated by the new organisation, as already mentioned in these columns, known as the Indian Radio and Cable Communications Co. Ltd. On the opening day of the joint working of the two services, messages were sent by Mr. J. C. Denison-Pender, acting chairman of I. and I. Communications Ltd., in London, to the chairman of the board of directors of the Indian Company in Bombay and between Mr. R. M. Chinoy, and Mr. Sultan Chinoy, directors of the Indian Company, and the Rt. Hon. F. G. Kellaway, joint managing director of Imperial & International Communications Ltd.

Wireless Listening Posts for Indian Villages.—The special correspondent of the *Daily Telegraph* informs us that, due to the generosity of two Indian philanthropists, no less than three hundred wireless receiving sets are to be placed in villages throughout the Bombay Presidency as an experiment in educational work. The scheme, put forward by Mr. E. Duncan Smith, Secretary, Y.M.C.A., Poona, for Government approval, is, it is understood, likely to be accepted, if it has not already received full sanction. It may be added that Mr. Duncan Smith is also Wireless Consultant of the Government of India. Villages will be selected, says my informant, in closely populated areas, and in each one a listening post will be erected, and will take the form somewhat like a telephone kiosk, but being made of concrete with a loudspeaker in the roof. A

thousand people will be able to sit around and listen to the programme. Quite naturally the Government of Bombay reserve the right to use the service at any time, such as when it becomes necessary to allay false rumours, or when giving news during floods or famine, &c.

IRISH FREE STATE.—The new high power broadcasting station commenced to transmit, temporarily, last month. The wavelength is 413 metres, the same as that of the Dublin station, 725 kc., and the carrier power is 60 kw. ITALY.—The new broadcasting station built at Bari has now been completed. It will, however, not commence to operate until next September, and then with a power of 20 kw., and radiating its own programs until some time in 1933, when it will be linked with other stations. It is understood that this station will serve the Apulia and Calabria areas chiefly. SPAIN.—The Spanish Government, according to *World-Radio*, is prepared to consider offers from private sources for the establishment of a broadcasting system, one of the conditions being that eight transmitters must be established at the following places: Madrid station, 120 kw., wavelength between 1,333 and 1,395 metres: also one of 20 kw., 424 m., and short-wave of 10 kw. In Barcelona station, 20 kw., 368 m.: Valencia station 20 kw., 349 m.: Seville station, 20 kw., 263 m.: Corunna station, 20 kw., 251 m.: and Bilbao station, 10 kw., 229 metres.

SWITZERLAND.—Vice-Admiral C. D. Carpendale, C.B. (Great Britain), who received a knighthood in the last Birthday Honours List, was re-elected president of the International Broadcasting Union for 1932-33 at the summer meeting of the Union held in Montreux. Among those present were the representatives of 16 European broadcasting organisations, 10 European postal administrations, the European directors of two principal chains of U.S.A. broadcasting stations, two U.S.S.R. delegates, the Director of the International Bureau of the Telegraphic Union, Berne, and a representative of the Section of Communications and Transit of the League of Nations. It was announced at this same gathering that the number of licences in Europe alone had increased by more than 2,000,000 between Mar. 31, 1931, and Mar. 31, 1932.

THE ARCTIC CIRCLE.—Under the aegis of the Radio Research Board a wireless expedition is being sent to the Arctic Circle. The experiments will consist, it is understood, of measuring the intensity of ionisation in the Arctic Circle. A preliminary visit to Tromsø and Simavik in preparation for the expedition which left our shores last month, had already been made, to get the apparatus in working order, so as to begin the Polar Year experiments at the beginning of the current month of August. The expedition will be taken to Norway under the direction of Professor E. V. Appleton, who will return to England in September after the experiments are in running order. The *Electrical Review*, in its issue of July 8, published an excellent photograph of the Superheterodyne receiver with cathode ray oscillograph and recording camera for photographing echoes reflected from the upper atmosphere.

Riches.—The minds of men and their cares are not lightened by riches.—TIBERIUS. J. J. T.

FOR OUR ADVERTISERS.

All enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

Australia.—Melbourne. Aug. 23. Posts and Telegraphs Dept. Fuses (A.X. 11386). Aug. 29. City Council. Five 600-A., 6,600-V. 3-phase 50-cycle, totally enclosed, metal-clad, compound-filled switch units (A.X. 11399). Aug. 30. P. and T. Dept. Switchboard cords (A.X. 11377). Sept. 20. 300 miles telephone wire (A.X. 11377).

Great Britain.—London. L.C.C. Aug. 8. 4 p.m. Tenders invited for wiring and fittings for electric lighting staff quarters at eight fire brigade stations. About 380 points. Specification, form of tender, &c., on application Chief Engineer (C), Old County Hall, Spring Gardens, S. W. 1, with remittance of £1 by money order or cheque. Cash not accepted.

India.—Simla. Aug. 25. Indian Stores Dept. Lamps (A.X. 11400). New Zealand.—Wellington. Aug. 17. Instrument cords (A.X. 11381).

J. J. T.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office System at June 30, 1932, was 2,085,306, representing a net increase of 5,657 on the total at the end of the previous month.

The growth for the month of June is summarised below :—

Telephone Stations—	London.	Provinces.
Total at June 30, 1932	779,304	1,306,002
Net increase	1,660	3,997
Residence Rate Stations—		
Total	248,195	323,953
Net increase	556	1,308
Call Office Stations (including Kiosks)—		
Total	8,396	29,464
Net increase	56	90
Kiosks—		
Total	3,202	10,220
Net increase	52	157
Rural Railway Stations connected with Exchange System—		
Total	51	2,004
Net increase	-	1

The total number of inland trunk calls for the month of April, 1932 (the latest statistics available) was 10,460,788, representing an increase of 344,522, or 3.4%, on the total for the corresponding month of the previous year. International calls in April numbered 98,284 (incoming 48,201 and outgoing 50,083) as compared with 93,828 (incoming 48,673 and outgoing 45,155) in April, 1931.

Further progress was made during the month of June with the development of the local exchange system. New exchanges opened included the following :—

London—Byron (automatic) ; Pinner (reconstructed, manual).

PROVINCES—Ashton - under - Lyne, Gatley, Pendleton, Lee-on-Solent (automatic, conversion) ; Troon (reconstructed, manual) ; and the following rural automatic exchanges : Abbots Bromley (Burton-on-Trent), Blackawton (Dartmouth), Barbon (Kirkby Lonsdale), Baillies Mills (Lisburn), Birstwith (Harrogate), Blisworth (Northampton), Bunbury (Chester), Black Torrington (Beaworthy), Brightstone (Southampton), Flimwell (Hawkhurst), Frilford Heath (Oxford), Hermitage (Newbury), Kirk Michael (Douglas), Little Cherrington (Shipston-on-Stour), Longworth (Oxford), Llangarron (Ross-on-Wye), Llangoed (Chester), Little Mill (Pontypool), Longformacus (Duns), Maud (Aberdeen), Mawgan (Helston), New Abdour (Fraserburgh), Portavogie (Newtonards), Ravensden (Bedford), Ridgmont (Bedford), Sampford Spiney (Yelverton), Shefford (Hitchin), Spofforth (Leeds), Tollerton (York), Tummel Bridge (Pitlochry), Temple (Gorebridge), Wooley (Huntingdon), Warkworth (Morpeth), Zennor (St. Ives) ;

and among the more important provincial exchanges extended were :—

Banbury, Clacton-on-Sea, Tonbridge, Willenhall.

During the month the following addition to the main underground system was completed and brought into use :—

Sunderland—Houghton-le-Spring,

while 74 new overhead trunk circuits were completed, and 86 additional circuits were provided by means of spare wires in underground cables.

ASHTON-UNDER-LYNE IDEAL HOME AND INDUSTRIES EXHIBITION.

H.R.H. PRINCE GEORGE VISITS THE POST OFFICE DISPLAY.

BY H. C. FROMM, *Traffic Supt. II, Manchester.*

ASHTON-UNDER-LYNE, a busy industrial town in South East Lancashire, with excellent communications and cheap supply services, is the immediate centre of a population of 300,000 and has a potential market of 2,000,000 within a radius of ten miles. When recently the enterprising Chamber of Trade decided to advertise the great advantages of Ashton as a shopping and trading centre by the promotion of a Shopping Week and Exhibition the occasion gave rise to Manchester's most ambitious effort, so far, at telephone publicity. The presence of H.R.H. Prince George on the initial day to perform the opening ceremony focussed attention on the Exhibition and did much to ensure its success.

The period of the Exhibition, June 8 to 18, fell very fortunately just after the opening of the Ashton-under-Lyne Director Automatic and Auto-Manual Exchange. On receipt of an invitation to open a telephone display at the Exhibition it was determined to show the Ashton public, much more completely than had been done by the usual pre-transfer visiting and demonstration arrangements, the value to their town of the new telephone system which was superseding the familiar magneto plant.

Although a relatively early intimation of the holding of an Exhibition was received there was delay in fixing the details of the plan and the Post Office were left with only ten days in which to make the multitude of arrangements inseparable from an extensive exhibit. None of the local officers had had previous experience of organising such a publicity effort, and as time was short unconventional but effective methods were adopted to secure the necessary authorities and get the large amount of work done. Tribute should be paid to the cheerful and close co-operation received throughout from the Engineers, the Office of Works, and the Chamber of Trade's Organiser, without which it would have been impossible to complete the Post Office display in time.



[Photo by Mayfair Studios, Ashton-under-Lyne.
P.O. EXHIBIT AT THE IDEAL HOME EXHIBITION, ASHTON.]

The site first offered to the Post Office was quite inadequate, and owing to the great demand for space at the Exhibition nothing else suitable appeared to be left. An unpromising-looking miniature rifle-range in the Hall was, however, discovered, and by dint of great activity in clearing and decorating a wonderful change in the place was effected. The engineers, during one busy week-end, set to work unpacking and arranging the large number of exhibits ; and the big task, with the aid of the District Office staff, was tackled with enthusiasm, and completed in time. The results, at such short notice, were very creditable. In addition to insuring the Post Office exhibit for £1,000, the Official Organiser secured the installation of demonstration fire extinguisher equipment. The demonstration staff was trained, and all was ready, on Wednesday well in advance of the official opening at 6.0 p.m., after which H.R.H. Prince George made a tour of exhibits including the Post Office display. In view of space restrictions it was originally planned to keep the demonstration staff low, viz. : 1 director-set demonstrator (male), 2 teleprinter demonstrators (female), 1 operator-demonstrator, 1 contract officer, the

T. and T. representative and 2 engineers. Later, in order to handle and instruct the large numbers of visitors it became necessary to employ additional engineers and traffic personnel.

Anyone visiting the display room on Saturday who returned at noon on the opening day would have been amazed at the transformation effected. The ugly duckling had become a swan with no small pretensions to beauty. The untidy rifle range had become a fairy place of bright lights and bright colours, with long ranges of magical devices. Brilliant floodlighting making the best of a harmonious scheme of decorations in green and orange, and ample material to hold the interest being present, the Post Office room was indeed an attractive place and the enthusiasm of the crowds who thronged the place showed that they had caught the glamour of a unique occasion. The display was the best attended and most popular portion of the Exhibition and public interest did not abate throughout the ten days it was open. The Post Office clearly ran away with the show, for of a total of rather more than 40,000 visitors, no less than 18,000 visited the display room. This was specially satisfactory in view of its location in an annexe, whose entrance was partly masked by two large stands in the main hall.

Of the many exhibits the director demonstration set easily awakened most interest, as was perhaps natural in view of the recent conversion of the Ashton Exchange to automatic working. After this it is difficult to say whether the mounted final selector, the meter testing desk, the voice frequency indicator, the photo-electric cell, the museum items or the routing map with lamps attracted the greatest attention. The director demonstrator found the radio-gramophone a rather obstreperous neighbour. The demonstrators all worked with a will, untiringly, to inform and please the crowd and thoroughly succeeded. No dry-as-dust methods were employed, but instruction was imparted in the most apt and cheeriest manner possible, quip and jest not being disclaimed. In the result Post Office activities and resources came as a revelation to thousands, and its enterprise at Ashton not only created a pleasant surprise, but was greatly appreciated. Good business should follow any revival in trade.

Owing to the depressed state of the cotton industry, Ashton's staple occupation, the anticipation that orders from visitors would be few unfortunately proved correct. A very large proportion of those whose attention could be diverted from the exhibits were found to be already known to the Contract Officer. He obtained orders, however, for a good many Telephones 162 and added a number of promising "prospects" to his list. The position was much the same with respect to the teleprinter section.

LEEDS DISTRICT NOTES.

The Telephone & Telegraph Exhibition at Messrs. Schofield's Store, in Leeds, during March, had an interesting repercussion when the Yorkshire Agricultural Society asked if a similar display could be provided at the Yorkshire Agricultural Show to be held at Leeds in July. The Secretary agreed, and the Show Committee provided the necessary building on a very good site close to the main entrance to the "Jumping Arena." As part of the



EXTERIOR VIEW OF THE TELEPHONE AND TELEGRAPH EXHIBITION, YORKSHIRE SHOW.

Exhibition, the building also housed the official post office and the one-position C.B.S. Exchange which served the show ground.

The interior was attractively decorated with the help of Messrs. Schofield, who generously loaned the decorations which had been used at the previous display and placed the services of their Display Staff at the disposal of the Post Office. The Exhibition, with its automatic demonstration set, working

teleprinters, clockwork selectors, coloured hand microphones, magic rings and voice frequency indicator, provided visitors with the opportunity of seeing and, in some cases, handling the most modern devices of telephony and telegraph; an opportunity of which they took full advantage. The closing day was Children's Day and while the boys and girls thoroughly enjoyed themselves there were times when it was fortunate that the railings protecting the exhibits were strong and that the attendants had been specially selected for their angelic disposition.

The attendance of 48,684 during the three days the Show was open included many distinguished visitors, and it was with a twinkle in his eye that Sir Harold Mackintosh (of toffee fame) told the Contract Officer that he had visited the Show to buy a "Shorthorn" but had come away with a couple of new H.M.T.'s instead. Thousands of items of telephone advertising literature were given away and, although it was not expected that much business would be done at the Show, orders for 3 exchange lines and 16 H.M.T.'s were taken and the Contract Officer has an idea that another 12 stations will come along in the near future.

The closing down of a manual exchange upon the introduction of automatic working is invariably felt keenly by the operating staff, and there was no exception to this at Horsforth Exchange, when farewell had to be said to familiar surroundings. When the transfer was successfully over, however, the telephonists, headed by Miss Rathmell, the Supervising Telephonist, refused to let the occasion be one of gloom and entertained to tea visitors from other exchanges, ex-telephonists interested in the old exchange, and representative Engineering and Traffic Officers. A pleasing feature of the occasion was the recognition of the esteem in which Mrs. Atkinson, the retiring caretaker operator, was held by all those who had been associated with the exchange during the 15 years of her service. Miss Throup (Travelling Supervisor) asked Mrs. Atkinson to accept a gold wristlet watch as a tangible expression of appreciation from a long list of contributors and in a few well-chosen words conveyed their sentiments. Miss Rathmell voiced the thanks of the telephonists, and Mr. Salmon, of the Traffic Department, added an expression of appreciation on behalf of the District Manager.

A pleasing little function took place at the District Manager's Office, Leeds, on Friday, July 15, when Miss E. A. Wren, who was leaving to be married, was presented by Mr. J. N. Lowe (Contract Manager) on behalf of the staff with a tea waggon and a bathroom cabinet. Mr. Lowe, in making the presentation, gave expression to the good wishes of her colleagues for her future happiness and Miss Wren suitably replied.

Obituary.—We regret to announce the death through heart failure on the evening of July 8, of Mr. J. W. Nolan, Clerical Officer, Accounts Section of the District Manager's Office, Leeds. The news came as a shock as Mr. Nolan had that day attended the office and appeared cheerful and bright as usual. He was a member of the Bradford District Office staff before the amalgamation with Leeds. Of a retiring disposition, he was liked by all and the sympathy of his colleagues is extended to his widow and young daughter. The funeral which took place at Bradford was attended by Mr. Parsons (representing the District Manager) and Messrs. Donkin, Baxter and Culliton.



SOME "SPEEDWELL" TELEPHONISTS.

The above is a photograph of a few members of the Golders Green Branch of the Women's League of Health and Beauty. They are all Speedwell telephonists. The winner of the League's Graceful Walking Competition at the Royal Albert Hall, on May 7, 1932, is Miss B. A. Warner, shown in the photograph with arms raised. The winner at the local display for graceful walking, held at the Hampstead Garden Suburb Institute on June 16, Miss Marjorie Payne, is seated second from the left.

CORRESPONDENCE.

CO-OPERATION IN THE TELEGRAPH SERVICE.

TO THE EDITOR OF "THE TELEGRAPH AND TELEPHONE JOURNAL."

One of the most remarkable, as it is one of the most interesting, movements in our industrial life to-day is that which makes for a larger measure of co-operation between employers and employed. The movement sprang very largely out of the general strike of 1926. It is an ill wind that blows no one any good and it is to the credit of the shortsighted policy of the Trades Council that out of it should have sprung a more intelligent appreciation of the essential principles which govern our economic and industrial life and a sincere desire on the part of both parties to arrive at something in the nature of a working understanding—truly a case where "out of the strong came forth sweetness."

Who would have thought 20 years ago that a *modus vivendi* such as has been arrived at as a result of the Mond negotiations would have become an accomplished fact in this country, or, to come nearer to our subject, who would have believed 20 years ago in the possibility of an exchange of views between the telegraph administration and the representatives of its staff so full and frank—I had almost said so intimate and meticulous—as that which recently took place over the recommendations of the American Commission.

Most people will agree that it is all to the good that the administration should have succeeded in securing the co-operation of the representatives of the staff in the application of the decisions arrived at as a result of the joint deliberations, but while such an achievement holds promise of certain obvious advantages one may be pardoned the enquiry whether it goes far enough.

If, as we must assume, it is the object of the administration to secure the goodwill and co-operation of the staff in the carrying into effect of a policy which in the measure in which it affects the vital questions of the efficiency and economic conduct of the service affects also the present well-being and future prospects of every telegraphist; if it is desired to enlist the active support of all ranks in bringing to a successful issue the policy determined upon then, valuable as the recent negotiations may have been, it seems not a little doubtful whether the means employed are best calculated to achieve the desired end.

Apart altogether from the vital question "Can the union deliver the goods," there are many weighty considerations, of which the importance of enlisting the sympathy and co-operation of the non-unionist is but one, which serve to qualify our enthusiasm and to damp our ardour for a basis of co-operation which, while superficially promising and not without certain solid advantages, is on close examination of somewhat doubtful efficacy.

Is it possible to discover a "more excellent way"? A few years ago it was the custom at the conclusion of a headquarters teleprinter course for a representative of the Secretary's Office to visit the students and to address them in a quite informal manner on the objects of the course and on the far-reaching effects of the proposed reorganisation of the Telegraph Service on a teleprinter basis. Questions and comments were welcomed, the students eagerly availing themselves of an opportunity to increase their knowledge of the intentions and policy of the administration. It would be impossible to exaggerate the importance of such talks in providing a means whereby the co-operation of the staff might be secured upon an intelligent basis. Scores of men returned to their various spheres of duty throughout the country keenly interested in the new departure and ready not only to co-operate to the utmost of their powers to make it a success but eager to communicate their enthusiasm to their colleagues up and down the land.

It is not, of course, suggested that headquarters should provide an itinerant band of preachers—hot gossellers who should travel up and down the country proclaiming in impassioned phrases and with religious fervour the efficacy of co-operation as a means whereby some small remnant of us may be saved. There are surely ways and means by which the telegraph staff can be kept informed of the policy and intentions of the Department while at the same time it is sought to engage their active sympathy and co-operation in pursuit of the end in view.

In most of the larger provincial centres there are officers of the Department who by reason of their relationship to headquarters, or as a result of their own interest in the new order of things, are well qualified to explain the objects and policy of the administration and to make a strong appeal to the sympathy and goodwill of the staff. Already in the C.T.O. a good deal has been accomplished in this way and it is safe to say that the informal talks which have been arranged have done much to create a better understanding amongst all ranks and to foster that spirit of co-operation and goodwill which is so essential to the smooth working of the machine and to the solution of outstanding problems.

Not long ago the directors of a prominent manufacturing concern in the Midlands decided that twice yearly, on the occasion of the publication of the firm's interim and annual reports, they would circularise the entire staff setting forth in a simple, easily understood manner the then position and future prospects of the company. Research, overhead charges, salaries and wages, the relation of output to costs, profit and loss, &c., were all dealt with in a frank and simple way without any definite appeal save that which

the facts themselves made abundantly eloquent. The directors express themselves as entirely satisfied that the new departure has more than justified itself in increased output and efficiency.

Mr. F. J. Lane, in his interesting article in the July issue on "The Spirit of the Service," writes, ". . . The next most important thing is to cultivate a greater degree of intimacy between the administrative staff and the lower grades." Exactly, although the use of the word "intimacy" is not, perhaps, a happy one. Mr. Lane does not possibly include in his "lower grades" the actual operating staff but to do so in no way invalidates his argument but merely carries the principle for which he contends one step further.

Co-operation, to be successful, presupposes two things, a clear understanding of the object in view and a frank and full intimation of the means by which it is hoped to achieve that object. On the one hand it is folly to expect co-operation unless the object in view is clearly understood and appreciated and on the other nothing is more calculated to irritate and annoy than to be required to carry out orders and instructions the *raison d'être* for which is not apparent through lack of information.

In conclusion, this is *not* a criticism of past or present methods, neither is it a plea for lengthy discussions and long-drawn-out negotiations; it is a plea for the frank and candid dissemination of information and is put forward in the conviction that ignorance here, as elsewhere, is a prolific seed-bed of antagonism and distrust.

C.T.O.

July 14, 1932.

MENSANO.

SOUTH MIDLAND NOTES.

In this district we still occasionally receive letters written with a red-hot pen dipped in vitriol. These, of course, cause us much distress—and sometimes secret amusement. But we also get some letters couched in homied language and perfumed with *millefleurs*. These make us swell with pride in spirit, not in the head. To be serious, it really is gratifying to receive epistles like the following:—

"Please accept my very sincere thanks for getting the telephone into our house so quickly. It is a great help to us and we do appreciate your kindness." From a subscriber at Luton whose agreement was signed at 11 a.m. May 30 and whose line was working at 5 o'clock the same day.

"In these days when so much is heard of delay in getting new telephone installations, I want to express my thanks to those concerned for the extremely efficient service accorded to me at the above address. There was no delay and nothing but efficiency and courtesy." From a subscriber at Gerrards Cross.

"I should like to acknowledge my appreciation of the extremely prompt way you gave me phone service. I did not apply until Saturday and was connected on Monday afternoon. I also wish to say how much I appreciate your courtesy." From a subscriber at Hillingdon.

"Mr. F. Wray begs to compliment the P.O. Telephone Service for their neat and speedy workmanship."

On another subject: "Cast your bread upon the waters, and it shall return to you after many days."

Seven years ago an agreement filled in with all essentials, except the signature, was left with a resident in Reading. Since then every Contract Officer has called on what was considered a prospect, but no contract could be made. To our surprise the original agreement—out of date—was returned one morning unsigned and unaccompanied by a letter. A Contract Officer called and obtained a signature to an agreement for a line and an extension within an hour of its receipt, and the line was working before the finish of the day.

W. S. C.

BRISTOL DISTRICT NOTES.

Staff Outing.—On June 18 members of the District Manager's Staff enjoyed a most pleasant outing in ideal weather. A party of 25 proceeded by motor coach via Exmoor to Dulverton, Somerset. The lovely country through which we passed convinced us more than ever "West is Best." Congratulations and thanks are due to Messrs. A. C. Smith and W. F. Bartlett for the arrangements they made to ensure the success of the excursion, also to the Misses Jarrett, M. Davis, Regan and the Dining Club staff, for the appetising lunch provided, which was partaken by the roadside many feet above sea level. On arrival at Dulverton an excellent tea awaited the party. The return journey was made via Taunton.

Presentation.—Miss E. M. Currie (Clerical Officer), left us on June 30 to be married. She received a tea service from the District Office Staff, and a number of other presents from individual colleagues, with best wishes for her future happiness.

GLASGOW DISTRICT NOTES.

Transfer.—Mr. H. W. Smart, Assistant Traffic Superintendent, departed from Glasgow on July 2 in order to take up duty in the Western District. Tangible expression of the esteem with which he is held in this District was conveyed by means of a complete set of Dickens' works. Mr. Smart carries our very best wishes with him with the hope that our loss may be the Western District's gain.

Imperial Service Medal Presentation.—A pleasant little ceremony took place in the Postmaster-Surveyor's room on July 13. The occasion was the presentation of an Imperial Service Medal to Mrs. A. Brough (*née* Miss A. Cook),



MRS. A. BROUGH.

late telephonist in the Glasgow Trunk Exchange. Mrs. Brough resigned on Jan. 23, 1932, for marriage. Colonel Westbury, who made the presentation, referred to the fact that Mrs. Brough was the first telephonist to whom he had had the pleasure of presenting the Imperial Service Medal, and on that account he was more than usually delighted to hand it over to her and to congratulate her upon having deserved a token which, he might say, was not by any means lightly given. Miss Kay, Supervisor of the Trunk Exchange, said she had always found in Mrs. Brough a very reliable and conscientious officer, and she was glad to congratulate her upon having won and merited such a distinguished honour.

Glasgow Post Office War Hospitals Entertainment Committee. On Friday, June 17, a very happy and successful afternoon was spent when the ex-service men from Ralston and Erskine Hospitals had their annual summer outing. The weather was ideal and the arrangements for the comfort and enjoyment of the men were of the highest order.

After leaving the hospitals the first break in the journey was made at the birthplace of "Rabbie" Burns, in Ayr, where the men, who were able to walk, were shown round the cottage and museum and were highly entertained with narrative and verse by the Curator. The next stop was at the Brig o' Doon Tea Gardens, where the "boys" were royally received and their wants fully and graciously attended to. The gardens were bathed in brilliant sunshine with the clear river (Doon) flowing through and while tea was partaken of, the music from the radio-gramophone added not a little to the enjoyment of all.

After tea the party returned to the motors and was speedily conveyed to the picturesque village of Dumure, where a putting competition was held, the first prize being won by Mrs. Westbury playing for one of the disabled men. There was also a balloon race and a "Running Time" sweep. The return journey was made pleasant with community singing.

The Committee were pleased to have the support of Lt.-Col. Westbury, Postmaster-Surveyor and Mr. Coombs, District Manager, at the outing.

On Management and the Manager.—Oh why did the gods make me a manager? That isn't a conundrum—it's a misanthropical question. It's

very hard. As a man I am naturally of an easy disposition. As a manager, I am compelled to hold myself aloof, that my influence may not be deteriorated. ("Thespis.")

Management is an art and seeks to direct the organisation towards the objective set up for it, and to keep it within the governing policies imposed upon it.—(Glasgow Student.)

Certain persons went up to Laputa, and after five months' continuance, came back with a very little smattering of mathematics, but full of volatile spirits acquired in that airy region. These persons, upon their return, began to dislike the management of everything below, and fell into schemes of putting all arts, sciences, languages, and mechanics, upon a new foot. To this end, they procured a royal patent for erecting an academy of projectors in Lagado. In these colleges, the professors contrive new rules and methods, and new instruments and tools for all trades and manufactures, whereby, as they undertake, one man shall undertake the work of ten, with innumerable other happy proposals. The only inconvenience is that none of these projects are yet brought to perfection.—(Gulliver.)

Flexibility is the most requisite qualification for management.—(Cardinal de Retz.)

Were I a king in very truth
And had a son—a guileless youth—
In probable succession;
To teach him patience, teach him tact,
How promptly in a fix to act,
He should adopt, in point of fact,
A Manager's profession.
Oh, the man who can rule a (telephone) crew,
Each member a genius (and some of them two),
And manage to humour them, little and great,
Can govern this tuppenny state. (W. S. Gilbert.)

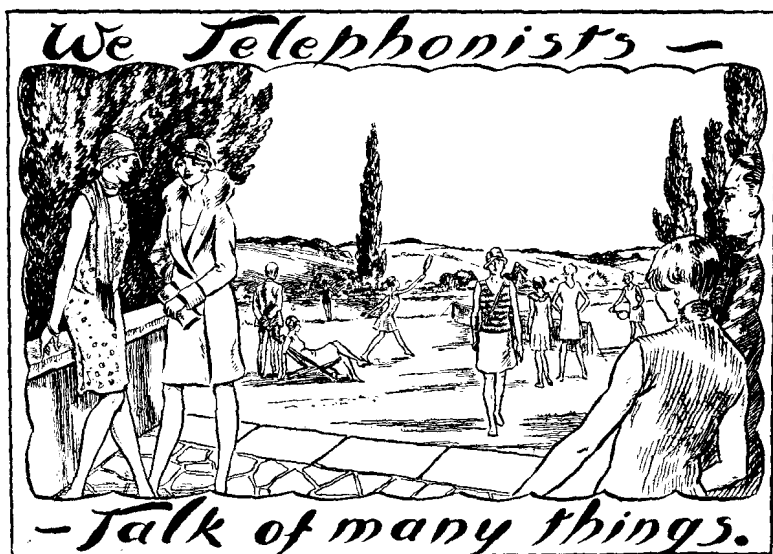
GUILDFORD DISTRICT NOTES.

Bisley. I had often heard of Bisley, and pictured it as a bleak and barren waste, flat and uninteresting. The reality came as a pleasant surprise. A little rain had just fallen and the country was looking its very best for the final stages of the King's hundred on Saturday, July 16. On all sides stood picturesque buildings, some covered with lovely flowers, and on the veranda of each sat happy crowds eating and drinking and making merry. These, I was told, are the headquarters of the various regiments. On either side of the avenue as I left the entrance gates rose hundreds of bell tents which housed the various units. I thought as I looked on the crowd that I had never seen such picturesque costumes, the hats were especially unique, and were of all sorts and shapes, from the large straw hat of the Mexican type to a bullet-ridden trilby which had seen many better days. I was warned, however, not to offer a gratuity to some especially seedy individual as he might very possibly be a very irate retired colonel in disguise. It is very exciting to watch the mounting scores as the last few targets fell. Just at this point there strolled on to the range a distinguished figure in naval uniform. The Duke of York had arrived. Then came the greatest thrill of all, the "chaining" of the winner, Mr. Bayly, after being congratulated by His Royal Highness. He was carried all round the camp preceded by a band playing "See the Conquering Hero Comes," and finally deposited outside the camp post office, where he had to pose as a film actor. I was then attracted to an enclosure where I listened to magnificent music from the military massed bands. After their music had died away the skirl of the pipes was heard, and The Queen's Own Cameronian Pipe Band came into view, a grand spectacle, and their performance was thoroughly enjoyed by all, at least from a spectacular point of view, as bagpipes are not everybody's music. The proceedings were brought to a close by the presentation of the truly wonderful collection of cups, shields and medals, by the Duke of York. I was told that it is one of the finest collections of prizes in the world, and had to be seen to be believed. Bisley was over for another year.

It was necessary to provide additional junctions to carry the heavy traffic, and the operators at the Brookwood Exchange, which serves Bisley, had a very busy time, but they rose to the occasion, and everything passed off without a hitch.

Cricket. An exciting match in the first round of the Postmasters' Shield competition resulted in a win for Guildford Post Office over Farnham by 78 runs to 61, a fine innings of 48 not out by C. A. Stewart being the deciding factor.

The Post Office Telephone Club was threatened with loss of ground at the beginning of the season, but rising superior to its difficulties, was able to take an overdue but friendly revenge over the Reading District Office by 101 for 6 (W. Jenner 38 not out, L. Ansell 28) to 45. We were delighted to see Capt. Neate, Traffic Supt., and Mrs. Neate, and Mr. Coulset, Contract Manager, and Mrs. Coulset, amongst the visitors.



"Byron" Opening.

THE thousandth telephone exchange in Britain (automatic) !—no wonder that we felt a bit uplifted and ecstatic, with Dr. Norwood in our midst, and Mrs. Norwood, too : and Mr. E. T. Campbell, and of councillors a few.

The Chairman, our Controller, in very happy mood, conveyed a hearty greeting, as his visitors he viewed.

"I met a fool, a fool, a fool," thus Dr. Norwood spoke, "within the forest, and he drew a dial from his poke." We would have told the doctor if only we'd been able, the foolish use a pocket—but the wise prefer a table.

And Mrs. Cyril Norwood, the flowers on whose behalf were, when told who had arranged them said how talented the staff were.

Our Mr. Pink was silent quite and much we grieved and sorrowed, but he'd a "Byron" with him which we very gladly borrowed.

When Mr. Dive arose to speak his hearers knew full well that Mr. Dive *comme d'habitude* would cast a magic spell. He told us what a loss was ours —his language vivid, fervent for Dr. Norwood started his career a Civil Servant. And then he parodied a song quite often sung at Harrow (we've put it at the end because the lines are rather narrow).

"It was a famous opening," and everyone seemed gay, and happy to be present on that bright and sunny day. And anyone who missed it would be sad, we have no doubt (and now we'll quote the school song as our space is running out) :—

When Norwood's rule
At Harrow School
Increased its far-flung fame,
Our new exchange
Through earth's wide range
Carried great Byron's name,
And high shall float the morn
Adown the stream of England's pride,
When Byron was reborn.
For now your speech
Your sons may reach
Though distant and alone,
And to the Hill
Their voices still
Travel by telephone.

The Market Place.

A wide street : half-timbered houses overhanging the pathway : here and there between them a low, dark, echoing entry through which it seems one might well escape out of this world : a sedate red-brick house, aloof but gazing tolerant through a scrolled iron gate : another, fronting the path with reserve and hauteur—clearly not of the world and scarcely in it : an ancient inn with gaping arched gateway and swinging sign painted with chivalric quarterings : a medley of shops, low-windowed, bow-windowed and no-windowed with a miscellany of wares : saddlery and scythes : hay and haberdashery : corn and crockery : bacon and bread and boots and baskets.

An unaccountable pavement, now flagged, now cobbled, now wide, now narrow, now high, now low, swerving round a tree, giving way to a trough and breaking at a gateway : flooded with a slow-moving crowd of people of all shapes and sizes, moods and motives, just as queer as we are and just as lovable.

Out in the road, stalls plain and canopied, wheeled and trestled, bright and drab, stacked high or spread meagrely : fruit, vegetables, flowers, fish, meat, hardware, linen and lino : rungs and rags, junk and bunk : second-hand books, more than second-hand furniture—pathetic in its descent from sale to sale through age and fashion, distress and distraint, yet perhaps to be proud once more as the foundation of a fresh home. Through the maze the patient horse and the fuming car serpentine for a passage.

The merchants, stained in face and clothing with the sun, wind and rain of a hundred market days, declaim their wares. One feels that they are philanthropists all, who for love of their fellows, have come to shed their blessings upon an unenlightened, unappreciative and stiff-necked people. It is wonderful to behold the wealth of passion expended in beseeching a stolid crowd of unbelievers to spend sixpence upon an article honestly worth a shilling. The reckless abandon with which goods appear to be sold at profitless prices makes one amazed at their generosity. Who would not be ashamed to be ailing after listening to the distinguished doctor who places the whole of the fruits of medical research in a box which he offers, not for guineas but for pennies ?

The crowd moves apathetically among the stalls, pausing to listen, fingering articles furtively, gazing timidly at a possible bargain, venturing pence on occasion with a sheepish grin : moving on to avoid the compelling eye of a merchant. Up and down, in and out, round and round : the scrape of feet, the jingle of harness, the buzz of voices, the shouts of merchants, the bark of dogs, bursts of laughter, the squeals of children, the rattle of wheels, the clug of cars, the clatter of boxes—all mingle in an undulating clamour.

In the midst of the market place the War Memorial— a cross on a plinth, surrounded by a narrow ring of grass edged with a low stone parapet. On each face of the plinth are names. The business of the market rolls round the memorial, the noise beats against it, the stalls stand at its feet, buyers and sellers sit for a while on its parapet, few raise their eyes to the cross which rises eternally mute as they, whom it remembers, are eternally silent. The sun touches it first with gold and then with red—the fire of the soul, not the blood of the body. They who moved in the market place are there still. I am glad they put the War Memorial in the market place.

PERCY FLAGE.

An Enthralling Hour.

From 6.45 a.m. to 7.45 a.m.—The magic of London town. Leaving Myddelton Square at 6.45 a.m., walk through Wilmington Square to Farringdon Road, boarding the tram-car No. 33 or 35, paying the fare of 1d. and alighting at the Savoy Bridge, Victoria Embankment : then cross over the road and enter the Charing Cross Embankment Gardens.

Now we are entering on our enchanted walk. No traffic, no noise, no danger whatever to the pedestrian. We can look around in comfort, and see the beauty of this glorious spring morning. The green grass, the budding trees with their fairy-like witching greenery, the glorious colours of the spring flowers, the graceful statue to the memory of Sullivan ; also the one to Robert Burns, with its horse shoe of ivy leaves : the camel statuette to the memory of the gallant Australians ; the wonderful fountain in its bed of water-lilies, beauty, beauty everywhere.

Now we have passed through these enchanted gardens and have come to the Royal Horse Guards Avenue, and are now in Whitehall crossing the road. We enter the Royal Horse Guards Parade, noting the smart sentry, in his picturesque uniform. We are now through the Archway, looking towards St. James's Park (and the time is 7.20 a.m.). The wide expanse of the Horse Guards Parade, the wonderful buildings to left and right, the statues to the brave men of history. Oh ! isn't London a wonderful place.

Now we enter St. James's Park, watching the ducks and wild fowl enjoying their morning swim, the ripples on the water, the curves of beauty they unconsciously make, the magic beauty of this April morn—the trees, the spring flowers, the blue sky, the white feathery clouds : in short, the mystic morn.

Oh, to be in London now that April's there. No wonder poets of old have extolled the beauty of England—in the spring time, oh, in the spring. We are now crossing the bridge ; to the left the grey handsome pile of Government buildings, to the right, Buckingham Palace. Having passed over the bridge we hear Big Ben booming the time, 7.30 a.m., only another quarter of an hour. We walk quickly now ; our time is getting short. Right through St. James's Park we come out opposite the barracks, in Bird-Cage Walk.

Listen to the sergeant-major's voice of command. Yes, there are the troops all lined up in rows. Aren't they smart the way they obey those mysterious orders, the officers smartly saluting each other, Oh ! isn't it a wonderful world ?

Now we are in Buckingham Palace Road, peeping in at the shop windows of Gorrings, getting inspiration about the fashions. We turn the corner, cross the road, and have come to Victoria Station—the time is now 7.45 a.m.

Our enthralling hour is over. We turn into Carlisle Place. There is a crowd of men waiting outside the convent of the "Sister of Charity"—waiting so patiently for the parcel of food that these good women give to the unemployed every morning before 8 o'clock. From Carlisle Place turn to the left into Morpeth Terrace. These side streets are so very, very quiet,

although they are only a stone's throw from busy Victoria. From Morpeth Terrace we see the building, "Victoria Telephone Exchange"—my destination.

I trip up the steps and am in the lobby near the cloak-room—the time is now 7.51.

"Good morning girls! isn't it a lovely morning? the walk through St. James's Park is absolute fairyland." I go to my locker, put my hat and coat away, adjust my instrument and take my turn in the queue of telephonists going on duty in the switchroom relieving the men "night-telephonists," my duty to-day being 8 a.m.-4.30 p.m.

"Number please?" My enthralling hour is ended, but the memories and mind pictures are everlasting. "RENUT."

The following paragraph has been culled from a recent statute and is a fine example of legal phraseology.

"This Act shall be construed as one with the principal Act, and, unless the context otherwise requires, any references in this Act to the principal Act, or to any provision of the principal Act which has been amended by any other enactment or is amended by this Act, shall be construed as references to the principal Act or that provision as amended by any other enactment or by this Act."

With slight modifications this paragraph could precede all Telephone Service Instructions without adding materially to their complexity.

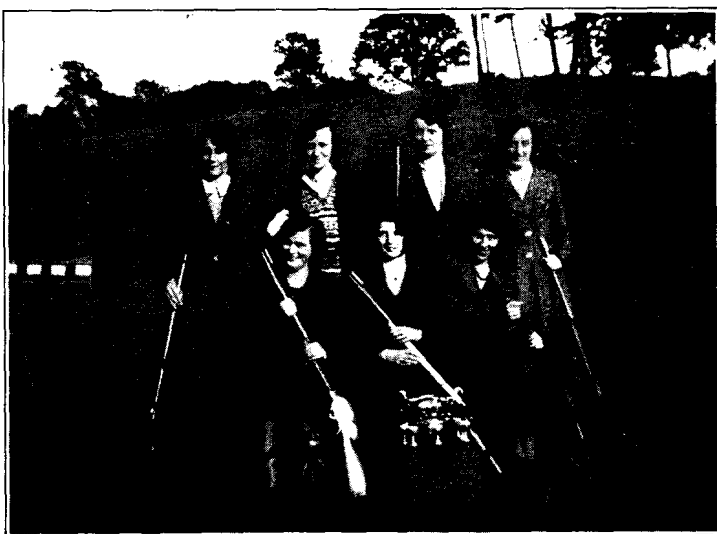
HALLEAT.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

WESTERN DISTRICT NOTES.

We have seen from time to time in the *Journal* photographs of men and women who have achieved distinction in various forms of sport, but it seems as if the West Country is breaking fresh ground in furnishing the first group of ladies to gain national eminence in the stern art of rifle shooting.

Exeter Ladies' Rifle Team.—The group in the photograph is the Exeter Ladies' Rifle Club, who recently won, at their first attempt, the Championship of the National Ladies' Rifle League (Division I), open to clubs in all England. Although the club is not directly connected with the service it has a strong service flavour. The markswoman, third from the left in the back row, is Miss H. B. Mathewson, Captain of the team and shorthand typist in the



District Manager's office. All in the front row have a service connexion. On the left, Miss D. Crabb (District Manager's office), next Miss L. Crowe (who has performed temporary duty in the office from time to time) and then Miss E. Watson (Exeter Exchange). Miss Mathewson, not content with leading the team to such a splendid victory, followed up this success a week or two later by carrying off the Devon Ladies' Individual Championship. This is hitting the bullseye with a vengeance.

Speaking of bullseyes reminds one that in the more serious sphere of increasing the use of the Telephone Service the Western District has, for the year ended Mar. 31, tied with the Norwich District for the best figures (net percentage increase). This success has also been achieved by the team spirit, everyone doing his and her best to increase the number of stations. No small contribution was made by those members of the staff in the Engineering and Postal Departments under the Staff Salesmanship Scheme. In this part of the country we realise that there has not been the same state

of trade depression as in the industrial areas, but it is hard working getting orders from farmers who, notoriously, are always going through bad times.

Shooting and mention of targets brings to mind tug-of-war, and this was one of the more vigorous pursuits on the occasion of the office summer outing on Saturday, June 25, when a party of 70 or so left the office in a procession of chars-a-banc and cars on a journey through the Doone Valley. Following the custom of former years there was a roadside halt for a picnic lunch. Tea was taken at Lynton. Each year attracts greater support for this event, and it adds to the pleasure of the event to enjoy the company of wives and children. It was a special pleasure on this occasion to have with us Miss Brooke, of the Leeds District Office, who was on holiday at a nearby holiday resort.

Still further referring to bullseyes reminds one that the Western District reached the 300th exchange "not out" on June 1, 1932. At the moment the score stands at 306.

Post Office Scholarship.—At the recent qualifying examination at the University College of the South West, Donald B. Bartlett, son of a Sorting Clerk and Telegraphist, Torquay, scored the highest marks of the six Post Office entrants. He will be the third student to take up duties at the university since the scheme was founded in 1927.

The scheme, which has previously been referred to in this *Journal* under "Western District Notes," provides for one free scholarship yearly, tenable for three years. What has been done in this district in this direction could no doubt be done by other areas with their respective seats of learning. The experience gained in the Western District is also at their disposal, and the Hon. Secretary (Mr. Ernest G. Horwill), of the Post Office Staffs Contributory University Scholarship Association, 26, Beechwood Terrace, Mutley, Plymouth, will always be pleased to supply any information.

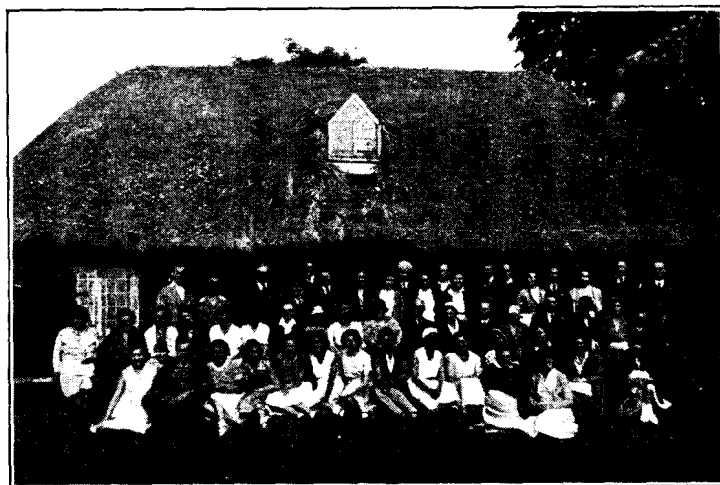
Mr. Hucker, Assistant Traffic Superintendent, in the Traffic Section, took up duties on May 1 as Assistant Surveyor, Class II (on probation) in the Surveyor's Office.

A farmer, far down in Cornwall, recently complained to the Head Postmaster, "At times my telephone bell rings like an alarm clock and at others it is like a ferret's bell in a deep sett." (For those not much acquainted with the country a "sett" is a rabbit's run or burrow.)

F. J. F.

GLOUCESTER DISTRICT NOTES.

Ramble. The recently elected Social Committee of the District Manager's Office at Gloucester commenced its activities by arranging a ramble for July 2. Sunshine was one of the essentials to the success of the walk, because the route chosen lay almost wholly through the woods on the slopes of the Cotswolds. After a morning of brilliant sunshine, the sky clouded over at lunch time, and the prospect was not very pleasant. There were, however,

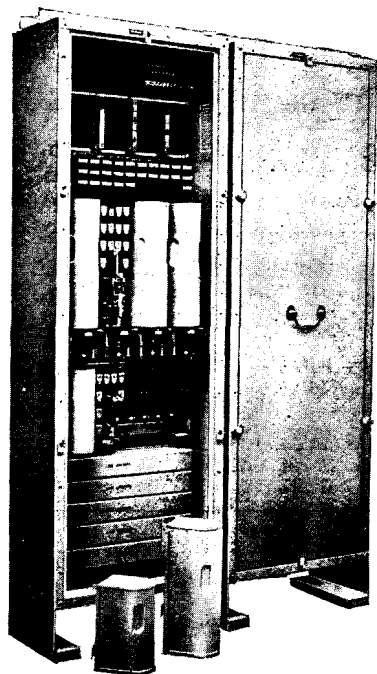


GLOUCESTER DISTRICT MANAGER'S STAFF RAMBLE.

signs of improvement at the time appointed for the meet, and when the several groups joined forces at the entrance to the woods, King Sol was again reigning in all his glory.

The walking party, which numbered about forty, enjoyed a leisurely walk for an hour and a quarter, through avenues of beech trees pierced here and there by the rays of the sun. The walk ended at the top of Birdlip Hill, and here in the gardens of the George Hotel—which is situated on the road

G.E.C.



THROUGHOUT Great Britain G.E.C. Rural Automatic Exchanges are placing the smallest village and the most remote community on the map of telephone progress.

The British Post Office Standard Unit Auto No. 5 illustrated here is an example from the complete range of semi-automatic and fully automatic rural exchanges of the unattended type manufactured by

**THE GENERAL ELECTRIC CO., LTD.
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BRANCHES AND AGENCIES THROUGHOUT THE WORLD

MANCHESTER TELEGRAPHS.

Presentation to Mr. W. I. Oldcorn.—The occasion was truly unique in at least one respect. The Chairman, Mr. C. A. Moorhouse (Assistant-Postmaster) found it necessary to refer to Manchester's fine and warm weather, in introducing the function to eighty or ninety friends and colleagues drawn from all Departments, who, despite the outdoor counter-attractions of an ideal summer evening, had assembled to do honour to the latest ex-Chief Superintendent of Manchester Telegraphs.

Among those present were Mr. Herbert (Superintending Engineer), Mr. Whitelaw (District Manager), Mr. Partridge (Assistant Superintending Engineer), Mr. Brookes (Chief Superintendent Postal), Mr. Hartley (Chief Superintendent, Telegraphs). Numerous Sub-Office Postmasters and Postmistresses were also present, and our retired colleagues were represented by Mr. Wilson (Ex-Assistant Postmaster), Mr. Carmichael (Ex-Chief Superintendent, Telegraphs), and others.

Some of those who were prevented from participating in person sent letters or telegrams which must have gladdened the heart of our worthy guest: among them Mr. Archibald (Deputy-Controller, C.T.O.), Mr. Parry (District Manager, Birmingham), Mr. Crombie (District Manager, Guildford), Mr. F. C. Kemp (Traffic Superintendent), Mr. Battersby (Traffic Superintendent), and two of Mr. Oldcorn's predecessors, Mr. Jewell and Mr. Markin.

The preliminary speeches—and there were many of them—all testified to the many sterling qualities of the guest of the evening.

Mr. Maddan (the Postmaster-Surveyor) made the presentation—a grandfather clock, to which a suitable inscription had been affixed, and a pair of cut glass crystal vases for Mrs. Oldcorn. He said Mr. Oldcorn had applied himself ungrudgingly to the service of the Department, which necessarily in its interpretation included consideration for all those whose duty it was to render that service, and this had led to his attainment of very great success in the Manchester Telegraph Department. Mr. Oldcorn replied in reminiscent vein and both amused and interested the company.

An excellent musical programme had been provided, and the presence of a charming bevy of ladies who lent support to Mrs. Oldcorn, added a note of colour that was both enjoyed and appreciated.

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Kindly mention this Journal.

BIRMINGHAM NOTES.

Demand Scheme.—Early this month we were pleased to welcome Messrs. Davies and Stanton, from the Bristol Traffic Section, who paid us a three-days' visit for the purpose of studying the Birmingham Demand Scheme in full operation. We trust that they enjoyed their visit and that the information they acquired will prove of value in their work towards the introduction of the Demand Scheme at Bristol.

Swimming.—It is with great pleasure that we congratulate Miss Nora Wall, of Central Exchange, on winning the Midland Counties Back-Stroke Championship at Small Heath Park Baths recently. Miss Wall has already made her name in the swimming world of the Midlands, for she became a Staffordshire county record holder at the age of 14 and on two occasions has won the 100 yds. Midland Junior Women's Championship, setting up a record for the race on the first occasion.

At the end of the last season she also won the Civil Service 100 yds. free style and back stroke championships.

The Civil Service Ladies' 100 yds. Three Star Championship is to be held in Birmingham on Saturday, Sept. 10. This is the first time that this race has been held outside London and we are hoping for a large gathering. The 100 yds. Local Area Team Race is to be decided on the same date.

The District Manager's Office Cricket Club.—The return match against the Stores was played on June 23, but once more they proved too strong for us, as was shown by our reply of 26 against their score of 104.

The match against Penn on June 29 was unfortunately abandoned owing to rain. Our first undefeated match this season.

The following week we gained a moral victory against the Gas Department by knocking up 141 for 5 wickets against their 47 for 5, the match being played to a time limit. Mr. Vallance again distinguished himself by getting 72 out of our total.

Vallance's form this season has again earned him a place in the Birmingham Area Civil Service team. The first match against Rampton State Institute, Retford, was won by a margin of 50 runs, but the next game, against Manchester Area, on July 14, was abandoned through weather conditions and it is to be played at Birmingham on the 21st.

These "Telling" Advertisements.—There is no doubt that telephone advertisements sometimes produce queer ideas in the minds of those who read them. Readers will no doubt have seen the postmark bearing the legend "You are wanted on the telephone," and we vouch for the truth of this story of a man who thought it was true.

The test clerk at — Exchange was hard at work heat coiling, jumpering and other strange things peculiar to engineers, when there came a knock at the door. The engineer opened it and was confronted by a man looking anxious and expectant.

"Who wants me?" he said.

"Who wants you? What do you mean? Who are you?"

"I'm from Smith's, the painters" (1½ miles away) "and they want me here."

"Where?"

"At the telephone exchange."

"Who says so?"

"Oh, it says so here," and the man triumphantly produced an envelope bearing the advertising postmark. His further remarks are not recorded but the test clerk, true to his calling, once more demonstrated the utility of the Staff Salesmanship Scheme.

CRICKET.

SECRETARY'S OFFICE v. THE ACCOUNTANT-GENERAL'S DEPARTMENT.

THIS annual match was played in ideal weather, on Tuesday, July 19, 1932, on the ground of the Sidcup Cricket Club. The Secretary's Office won the toss and had the use of a fast wicket, but hardly made the best use of it and were all out for 157, leaving the Accountants two hours in which to make the necessary runs. This they managed with 20 minutes to spare. Score:—

<i>Secretary's Office.</i>		<i>A.G.D.</i>	
H. G. G. Welch, run out ...	26	Bozzett, c. Link, b. Bath ...	32
D. Lester, c. Lewis, b. Aylett ...	30	Collins, c. Price, b. Pearce ...	26
P. W. Bath, not out ...	44	Aylett, run out ...	23
J. W. L. Powis, b. Aylett ...	29	Lewis, b. Pearce ...	35
J. E. Link, c. Bozzett, b. Aylett ...	0	Claydon, b. Lester ...	63
A. U. Price, b. Bozzett ...	0	Cannan, c. Bath, b. Sellars ...	8
A. G. Hill, b. Bozzett ...	8	Pitts, b. Pearce ...	2
F. J. Pearce, c. Bozzett, b. Claydon ...	16	Knott, run out ...	2
F. H. Brooks, c. Hovell, b. Claydon ...	0	Ricketts, lbw., b. Price ...	6
W. Sellars, c. Bennett, b. Claydon ...	0	Hovell, not out ...	6
R. J. Crowe, l.b.w., b. Claydon ...	0	Bennett did not bat.	
Extras ...	4	Extras ...	11
Total ...	157	Total (for 9 wickets) ...	210

For the Secretary's Office, Pearce took three wickets for 32 runs, Lester one for 9, Sellars one for 11, Bath one for 27, and Price one for 38.

THE
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has now agreed to issue through the

**CIVIL SERVICE INSURANCE SOCIETY
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under all the Company's non-profit Tables at one-half the rates applicable to Policies for £100.

The Disability Benefits may be included as in the case of Policies for larger Sums Assured, provided that premiums do not extend beyond age sixty.

Specimen rates per £50 without profits
(including Disability Benefits)

Age next Birthday	Sum Assured payable at age 60 or at previous death.		Sum Assured payable at death only, but premiums terminating at age 60.	
	Net Quarterly Premium	Equivalent net weekly deduction	Net Quarterly Premium	Equivalent net weekly deduction
20	4/3d.	4d.	3/7d.	4d.
25	5/1d.	5d.	4/3d.	4d.
30	6/4d.	6d.	5/1d.	5d.
35	8/0d.	8d.	6/3d.	6d.
40	10/8d.	10d.	8/1d.	8d.
45	15/1d.	1/2d.	11/0d.	11d.
50	£1/4/1d.	1/11d.	16/9d.	1/4d.

Premiums for higher Sums Assured proportionate.

Rates for other ages and for other classes of Assurance quoted on application.

The foregoing rates provide that should the Assured be compulsorily retired under the Superannuation Acts through ill health the sum Assured under these Policies will immediately become payable, and, should he be placed on reduced pay through prolonged ill health payment of premiums would be temporarily waived.

Still lower rates are charged if the Disability Benefits are not included.

Attention is drawn to the fact that Assurances of £50 payable only at death, may be effected through the **Civil Service Provident Society, either with or without profits**, and that proceeds of Assurances issued through this particular Society are payable to a Nominee immediately on proof of death without production of Probate of Will.

Further particulars of all Assurances may be obtained from:

Your Office Representatives of the Society.

The Secretary,
Civil Service Insurance Society,
34, Victoria Street, S.W.1.

or from the:—

North British and Mercantile
Insurance Company Limited,
White Lion Court,
Cornhill, London, E.C.3.

originally built by the Romans to connect their camps at Gloucester and Cirencester—we joined the remainder of the party who had reached this Cotswold height by means of locomotion unknown to Julius Caesar.

A total of about 60 did justice to a strawberry tea, and after the photograph here reproduced had been taken, we adjourned to a paddock for sports. These were enjoyed by competitors and spectators. Egg-and-spoon races, three-legged races and bun-eating competitions were followed by a tug-of-war between the ladies and the gentlemen, in which the ladies won two of the three pulls.

At the conclusion of the sports, a short talk was given by our recently appointed District Manager, Mr. R. M. McLarty. Then followed the distribution of prizes to the winners of the sporting events. The prizes, which were suited to the occasion (by no means a serious one) were distributed by Mrs. Parry, the wife of our Traffic Superintendent. A vote of thanks was accorded to the Social Committee, special mention being made of the energetic enthusiasm of the Secretary, Mr. S. H. Simmons. At this stage many of our people were compelled to commence their homeward journey, but a goodly number remained. After an interval to enable the men to determine to hold their own against the ladies in future, the hour remaining before our departure to the city was devoted to an impromptu concert.

We were unanimously agreed that the whole of the arrangements had been eminently successful and we anticipate an equally enjoyable outing on Sept. 3, on which date it has been arranged to visit Wookey Hole Caves, in the Mendips. We hope on that occasion to be joined by some of our friends in the Bristol District.

Tennis.—The ladies have been holding a tennis tournament during the past month and we hope to announce the winners in the September Notes.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

DURING the month of June there was a net increase of 549 stations and for the half-year ended June 30, 1932, the net increase amounted to 12,988 stations. Orders for hand-microphones are being received at the rate of about 950 per week. Up to July 9, 1932, the number ordered was 115,702—an increase since the commencement of the year of 36,920. The number of call office kiosks in the London telephone area at the end of June was 3,202 and Advice Notes had been issued for 99 more. Since Jan. 1 this year 215 additional kiosks have been provided.

The result of the efforts of the staff in the various Departments of the Staff Salesmanship Scheme since September last, when the scheme started, has been as follows:—

	Total No. Ordered.	Orders Received Month ended July 16, 1932.
Exchange lines ...	876	144
Extensions ...	787	120
Private lines ...	9	—
Plugs and sockets ...	128	9
Hand-microphones ...	3,792	589
Extension bells ...	304	46
Miscellaneous ...	414	63

The Iliffe Press, Ltd., are constructing new headquarters in Stamford Street, S.E. An initial order has been obtained for 50 exchange lines and 240 extensions of the H.M.T. type. This is an increase of 13 exchange lines and 35 extensions in excess of the ceasements due to removals. The number of extensions is expected to be increased to nearly 300 in a short time.

A subscriber in North London has expressed his gratitude for the presence of the telephone in his home in the following terms:—

"I was alone in the house and one evening was taken very ill and was unconscious until 3 a.m., when I recovered sufficiently to make a call for help. Had I not done so I was informed at the hospital that I would have "gone out."

A firm of builders operating in South London have adopted an idea which might commend itself to others and the idea may also prove useful to Contract Officers. A hut has been erected at the entrance to the estate, some distance from actual building operations, and consists of an attractive room containing a table on which stands a telephone. Above the telephone is a large printed notice inscribed as follows: "If you desire any information regarding the houses on this estate lift the telephone receiver." The line is connected to a switchboard in the builder's office, where there is someone always in attendance.

L.T.S. Sports Association.

Tennis Section.—The ladies' tournaments for the "Agnes Cox" and "Pink" Cups are now in full swing. In the former, Accounts Branch Section,

A.R.6 and Clerkenwell are ready to play their semi-final, whereas Ravensbourne v. A.R.9 and Toll "A" v. A.R.1 have still to play for that position. Owing to the large number of competitors the ladies' singles for the Pink Cup has not progressed so rapidly, but it is hoped to be able to report the result of the 5th round in the next issue of this *Journal*. The finals in both competitions will be played on the C.S. courts at Chiswick, on Saturday afternoon, Sept. 17.

It is gratifying to learn that Miss Head (Accounts Branch, A.R.1) and Miss McGlade (Trunks) won the Civil Service Ladies' Handicap Championship.

London Telephone Service Horticultural Society.

This society, which was formed only last year, already numbers over 800 members. The first annual exhibition was held on July 18, and proved a great success. The exhibition was opened by Mr. Pink, who, in well chosen phrases, gave encouragement to the efforts that had been made.

There were nearly 300 entries for competition and the judges found their task no mean one in view of the quality of the exhibits. It is interesting to find so much enthusiasm both in headquarters and the exchanges in horticulture.

The competitors sent their exhibits to the Royal Waterloo Hospital for Children and Women, and warm appreciation was expressed by the hospital staff.

Amongst the prizewinners in the 12 classes of *Flowers* were H. J. Hamilton (2 firsts 2 seconds and 1 third), H. C. Rendlesham (2 firsts and 1 second), H. A. Bishop (1 first, 2 seconds, 1 third), E. Jacob, C. Jolly, M. S. Scriven, G. Frier, C. Maffey, J. Hinshelwood, F. Mears (all first prizes).

Fruit and Vegetables.—First prizes: M. Redding, H. A. Bishop, V. Taylor, P. E. Grant, C. A. Holt.

Preserves.—First prize: —. Cowper.

Ladies' Section.—First prizes: G. R. Akehurst and A. L. Bull.

Photographic Section.—First prize: H. A. Bishop.

The thanks of the Society are due to the unremitting efforts of the energetic Secretary, Mr. Adams, and many other members for their assistance.

Personalia.

Resignations on Account of Marriage.

Telephonists.

Miss L. M. Tanner, of Abercorn.	Miss K. N. Whitaker, of Mayfair.
" V. D. E. Pryor, of Amherst.	" N. Richardson, of Mayfair.
" M. H. Stickings, of Brixton.	" M. E. Keen, of Mayfair.
" C. M. Segger, of Bishopsgate.	" E. G. Eagle, of Monument.
" K. I. Turner, of Buckhurst.	" W. N. Thresh, of Museum.
" J. M. Williams, of Croydon.	" —. Harding, of New Cross.
" A. H. Stringer, of Croydon.	" L. M. W. Ferris, of National.
" I. Preece, of City.	" M. Harben, of Putney.
" W. Miles, of City.	" D. M. Griffiths, of Park.
" D. Passenger, of City.	" E. M. Ellison, of Park.
" D. J. Finer, of Clerkenwell.	" J. M. Gray, of Paddington.
" E. A. Waterson, of Clissold.	" L. G. Burbridge-King, of Riverside.
" N. F. Prime, of Central.	
" A. F. L. Langford, of Central.	" W. Z. Asgill, of Regent.
" H. I. Benjamin, of Central	" E. J. M. Brooks, of Regent.
(Observations).	" J. S. Mantell, of Ravensbourne.
" G. D. Wilson, of Central.	" N. F. E. Smith, of Royal.
" V. M. Plumridge, of Emberbrook.	" K. W. Hatt, of Richmond.
" V. A. Larkins, of Finchley.	" E. M. Hughes, of Romford.
" H. A. E. Gower, of Grosvenor.	" I. M. Bryant, of Streatham.
" A. F. Brown, of Gulliver.	" G. L. M. Davies, of Streatham.
" C. M. Richardson, of Greenwich.	" M. J. White, of Sutton.
" M. Helmsley, of Grangewood.	" E. K. Chambers, of Sutton.
" G. E. Milligan, of Grangewood.	" M. E. Bossom, of Tudor.
" V. Hooper, of Hop.	" H. E. Macdonald, of Tandem.
" E. M. Smith, of Hop.	" W. Connolly, of Tandem.
" P. M. Wauchope-Watson, of Hop.	" W. G. Strassen, of Tandem.
" D. M. Whiting, of Holborn.	" E. E. A. Mitchell, of Tandem.
" G. I. E. Purkiss, of Kingston.	" I. L. Jones, of Trunk.
" A. A. Luff, of Kensington.	" C. F. Teulon, of Trunk.
" P. G. A. Francis, of Lee Green.	" E. E. Killeen, of Trunk.
" G. M. Vickerstaff, of Lee Green.	" E. M. Gavin, of Trunk.
" G. M. Holmes, of London Wall.	" K. Bewley, of Terminus.
" D. Keen, of London Wall.	" H. Phillips, of Terminus.
" K. B. Geary, of Langham.	" I. W. Polley, of Tilbury.
" D. Oram, of Molesey.	" L. L. Withrington, of Toll "A."
" M. P. Hearn, of Molesey.	" M. F. Ansell, of Victoria.
" E. M. Bunny, of Metropolitan.	" E. F. Cornwell, of Walthamstow.
" L. M. Salmon, of Metropolitan.	" C. Bater, of Western.
" P. R. Packham, of Metropolitan.	" M. A. Langford, of Wallington.
" C. O'Brien, of Mayfair.	" C. Cumber, of Wimbledon.
" B. D. Wayth, of Mayfair.	

A BRIEF CHRONOLOGY FOR STUDENTS OF TELEGRAPHS, TELEPHONES AND POSTS.

BY HARRY G. SELLARS.

(Continued from page 204.)

- 1928, Jan. 26... London-Canada telephone service extended to include all parts of Great Britain. Calls not accepted for places further west than Hamilton, Ontario.
- 1928, Jan. 30... Transatlantic wireless telephone service extended to Holland.
Hardman Lever Telegraph Committee reported.
Louis Hirschauer, Augustin and Talon invented a system for transmitting letters consisting of an aerial torpedo running by its own power along an electrified line, suspended at a height of forty or fifty yards, and travelling at a speed of 220 to 280 miles an hour.
Committee composed of General Ferrié (French Army), Colonel A. G. Lee (British Post Office), Professor Vallauri (Italian Navy), Dr. Koormans (Holland), and Herr Jaeger (German Post Office) studied question of erection of a wireless telegraph station at Geneva for the use of the League of Nations.
- 1928, Feb. 6 ... Paris—Havre—New York cable communication (3,750 miles) opened.
- 1928, Feb. 8 ... Post Office Underground automatic tube railway for the conveyance of letters and parcels brought into use.
Successful demonstration of wireless television by Messrs. John L. Baird and O. G. Hutchinson between London and New York.
- 1928, Feb. 10... Transatlantic wireless telephone service extended to Germany.
- 1928, Feb. 16... Joint session of the Institution of Electrical Engineers, London, and the Institute of Electrical Engineers, New York. Proceedings carried out and speeches transmitted between the two cities by means of wireless telephone and loudspeakers. Speakers:—Archibald Page (U.K.), Baneroff Gherardi (U.S.A.), Dr. F. B. Jowett, U.S.A.), Sir T. F. Purves (U.K.), Gen. J. J. Carty (U.S.A.), and Sir Oliver Lodge (U.K.).
- 1928, Feb. 18... Automatic telephone working introduced at Leicester.
- 1928, Feb. 20... Transatlantic wireless telephone service extended to Sweden.
- 1928, Mar. 4 ... Transatlantic telephone basic charges to U.S.A., Canada and Cuba reduced from £15 to £9.
- 1928, Mar. 8 ... First wireless telephone conversation took place between London and Vancouver.
- 1928, Mar. 15... Anglo-Luxembourg telephone service opened.
- 1928, Mar. 19... Hardman Lever Report on Inland Telegraph Service presented to Parliament.
Short-wave beam wireless telephone communication established between Paris and Algiers.
- 1928, Mar. 28... Transatlantic wireless telephone service extended to France.
Rene Bertrand, of Paris, produced musical sounds by manipulating Hertzian waves.
Italian Government acquired "a system of telegraph and radio-telegraphy combined with a method of typewriting adjusted to guarantee security of communication," the invention of Manrico Compare.
- 1928, Mar. 31 ... Post Office surplus for previous year, £6,200,000. Paid in salaries, £38,524,000 (including bonus).
£13,485,747 spent on telephone and telegraph construction.
Reported that of 14,136,000 words exchanged during the last 12 months between England and Australia, the beam wireless secured 7,131,000, the Pacific Cable 3,050,000 and the Eastern Telegraph Company 3,920,000.
Pacific Cable Board receipts showed a decrease on the year's working of £80,017 owing to the competition of the Beam wireless service between Britain and Australia.
- 1928, April 1 ... Pacific Cable Board's communications and Imperial Atlantic cables taken over by Imperial and International Communications, Ltd., formed by merging Eastern, Eastern Extension, Western and Marconi Wireless Telegraph Companies. A lease of the Post Office Beam wireless stations granted to the company for 25 years.
- 1928, April 11 ... Sale of Pacific cable (Canada to Australasia) to Imperial and International Communications, Ltd., for £516,486.
Canadian telephone service extended to the Continent.
Baird Television patents bought by N. Feldstern and H. Z. Pokress, on behalf of a group of American financiers.
Cinema pictures transmitted by wire between New York and Chicago.
Telephoto system for transmission of pictures inaugurated between London and Manchester.
- 1928, April 29 ... Transatlantic telephone service open from 11.30 a.m. to 2 a.m., an extension of two hours.
- 1928, April 30 ... Inland C.O.D. service extended to packets sent by registered post and to consignments sent by rail to any part of Great Britain served by four main railway groups and their steamers.
- 1928, May 10 ... Telephone conversation took place between London and Java—cable to Amsterdam and thence by short-wave wireless.
- 1928, May 16 ... Short-wave wireless telephone trials conducted from Geneva by landline to Kootwijk and thence broadcast.
- 1928, May 24 ... Anglo-Spanish telephone service opened. Charge, Barcelona 12s., Madrid 14s. 3d.
Music transmitted from Melbourne by short-wave wireless received on a train travelling between London and Edinburgh.
- 1928, May 25 ... Telephone service inaugurated between England and Gibraltar.
Telephone kiosks to call aid in case of accidents, similar to fire alarms, introduced at Orleans, France.
- 1928, June 11 ... Anglo-Portuguese telephone service opened (via Madrid). Charge to Lisbon 17s. 6d.
Marconi experimented with a "swinging Beam" wireless system, in which the direction of transmission can be changed quickly and at will.
Second trans-Atlantic wireless telephone circuit opened—wavelength 32 metres.
Simultaneous telephone and telegraph experiments conducted on the short-wave beam wireless service between London and Canada.
- 1928, June 15 ... Anglo-Kenya wireless telegraph service opened.
- 1928, June 16 ... Canada-Australia Beam wireless telegraph service opened.
Service for transmission of pictures by wireless from London to New York extended to large cities as far west as San Francisco.
- 1928, June 28 ... Anglo-Saar territory telephone service opened (via Paris). Charge 7s. 9d.
- 1928, June 29 ... Transatlantic telephone service extended to Denmark.
Home of André Marie Ampère, at Polymieux, near Lyons, purchased by Sosthenes Behn (well-known in American telephone circles) as a perpetual memorial to the great scientist.
- 1928, July 1 ... Transatlantic telephone services extended to Mexico.
- 1928, July 5 ... Direct telephone service opened between Paris and Belgrade.
- 1928, July 6 ... Imperial Wireless and Cable Conference held its last meeting.
Sub-committee dealing with the question of postal cheques reported.
Transatlantic telephone service extended to Norway.
- 1928, July 7 ... Severe magnetic storm affected cable and wireless telegraph systems.
- 1928, July 13 ... Contracts for carrying mails signed by the Postmaster-General and the Cunard Steamship Company, and the Oceanic Steam Navigation Company. Payments increased and contracts to last for five years.
- 1928, July 18 ... Transatlantic telephone service extended to Switzerland.
- 1928, July 24 ... Second International Congress of Radiology opened at Stockholm.
Experimental two-way radio-telegraphic picture service opened between Germany and Argentine.
- 1928, Aug. 1 ... Temporary "through" telephone circuit opened between London and Paris Plage for seasonal traffic.
Prof. Esau described, in Bremen, his experiments with electrical waves of 3 metres and under, with which he claimed to have killed mice and rats, arrested tuberculosis in mice, and cicatrised bleeding wounds.

(To be continued.)

THE Telegraph and Telephone Journal.

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SEPTEMBER, 1932.

No. 210.

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SUNDERLAND AUTOMATIC SCHEME.

At 2 p.m. on July 9 the period of service of the C.B. No. 1 and magneto exchanges at Sunderland and Boldon respectively was brought to a close and simultaneously with the passing of the old there came into being the new Sunderland area automatic system.

Sunderland has had an interesting history telephonically and it was in this town that the telephone was first introduced to the North of England early in the year 1880. The United Telephone Company experimented with various types of switchboards between that period and 1901, commencing with a 25-line William's sliding spring-peg switchboard followed by a type of switchboard, named Irish's board after the designer, and leading up to what was then the last word in telephone practice, namely, the installation of a C.B. switchboard on Aug. 3, 1901. This is the switchboard which has now gone out of service and it was the third of its type to be opened in the kingdom. The new automatic system once more places Sunderland in the van of telephone progress and the fine new buildings and equipment should give excellent service for many years to come.

The equipment at the new exchanges is of the standard Strowger step-by-step type operating on a mixed four- and five-digit system. Sunderland is the main or parent exchange in the automatic exchange area, Bishopwearmouth and Boldon being Satellite exchanges. The initial capacity of each exchange in direct exchange lines is as follows:—

Sunderland	(	Sunderland	3,900
		Bishopwearmouth	400
Boldon			500

At the outset the range of numbers for each automatic exchange is:—

Automatic Exchange.	Exchange Name shown in Directory.	Range of Numbers.
Sunderland	... Sunderland	... 2,000-5,599 and 56,000-56,299
Bishopwearmouth	Sunderland	6,100-6,499
Boldon ... ..	... Boldon ...	... 7,100-7,599

Three of the four remaining manual exchanges in the Sunderland local fee area, namely East Herrington, Hylton and Whitburn, will continue to work as manual exchanges for some time and Ryhope, the fourth, will be converted to rural automatic working shortly.

The automatic switchboard is accommodated at Telephone House, Sunderland. It consists of a C.B.10 type suite of 14 positions for dealing with traffic from signal-in circuits, dialling-in circuits, subscribers' O lines, service P.B.X. (92 lines), rural party line (93 lines), and R.A.X.'s.

A suite of 4 positions is provided for enquiry traffic.

Although at the time of writing these notes only two days have elapsed since the transfer, that critical period, the first week-day busy hour rush has passed and been dealt with at the automanual board and via the switches with smoothness and without fuss and it can safely be said that the all-important work leading up to the transfer has been well and truly done.

From observations made on the service and from contact with members of the public the subscribers have taken well to the new service and the work of instruction and publicity given to the conversation has been time well spent.

A feature of the instructional work was the installation of a demonstration set at Messrs. Binn's Store, as well as at the G.P.O. Messrs. Binns entered wholeheartedly into the arrangement and distributed attractive cards to their customers inviting them to attend demonstrations.

The Sunderland automatic equipment was installed by Messrs. Eriesson, who share largely in the satisfaction of a job well done.

T. Mc. L.

(Illustrations on page 263.)

The Telegraph and Telephone Journal.

PUBLISHED MONTHLY IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICE, UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL.

<p>Editing and Organising Committee - - -</p>	}	<p>Col. A. A. JAYNE. J. STUART JONES. W. D. SHARP. W. H. U. NAPIER. J. W. WISSENDEN.</p>
<p>Managing Editor - -</p>		<p>W. H. GUNSTON.</p>

NOTICES.

As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at the G.P.O. North, London, E.C.1. The Managing Editor will not be responsible for any manuscripts which he finds himself unable to use, but he will take the utmost care to return such manuscripts as promptly as possible. Photographs illustrating accepted articles will be returned if desired.

VOL. XVIII.

SEPTEMBER, 1932.

No. 210.

LONG DISTANCE TELEPHONY.

The valuable and instructive paper on this subject by Mr. J. F. Darby, which has been reprinted in the current and preceding issues of this *Journal*, will be familiar to those of our readers who were present at the Traffic Officers' Conference last June, but to the large number who were not and to our colonial and foreign readers, it will be particularly interesting in view of the important developments of trunk telephone practice which are now proceeding. The paper deals with the problems to be faced in the introduction of the demand system of trunk working. This system, which as our readers know was introduced between London and Birmingham in November last, has since been extended to the trunk service between Birmingham and Manchester and Bristol in March, and between London and Edinburgh and Glasgow in April. The complete success of the system is evidenced by the figures given in Mr. Darby's articles and fully justifies the general extension which is being pressed forward with all speed.

The past year has in fact been a remarkable one in the annals of the British trunk service. The successful application of the "zero-speech" device, with its reproduction of speech at full strength, its suppression of echoes, and elimination of oscillation in circuits is a great achievement, and has been described as the greatest advance in land-telephony since the introduction of repeaters. The 75 "zero" transmission loss circuits cited by Mr. Darby have now grown to 80, and it is expected that they will reach 150 by the end of the year. London, it will be seen, is

connected by such circuits with Aberdeen, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, and Newcastle, and will shortly be so connected with Newport, Exeter, and Plymouth; Glasgow has "zero transmission loss" circuits to Birmingham, Edinburgh, Leeds, Bristol, and Liverpool, and they are in use between other large provincial cities. Wider extensions of these circuits will take place early in the new year.

This simultaneous improvement in the transmission quality of service to a pitch never attained before, and the steady extension of the no-delay or "demand" system of working under which connexion with distant towns is obtained in less than 2 minutes, should go far to render the trunk service of this country the finest of its kind. We may conclude with the final words of Mr. Townshend's paper on the subject in our March issue: "The optimum conditions of efficiency are here; it is for us all to see, and to keep on seeing, that they are used."

HIC ET UBIQUE.

THE Anglo-South African Telephone Service was extended last month to include Johannesburg, Pretoria, Kimberley, and Bloemfontein. This service has hitherto been restricted to calls to and from places in the southern portion of the Cape Province (including Cape Town and Port Elizabeth).

The charge for a call from London to these places is the same as that for a call to Cape Town, namely, £6 for the first 3 minutes and £2 for each subsequent minute.

A writer in the *Nottingham Journal* commenting on the enormous increase in the number of wireless licences, asks: "Why should not the Post Office permit all styles of telephone instruments to be bought and for the installation charge a fee, and either issue a license or charge a nominal sum for a stipulated number of calls?"

We wonder what use to anyone requiring telephone service a telephone would be without two wires running to the exchange, switchboard equipment, and the individual service of operators night and day. It is really extraordinary that in these days the delusion should still persist that a telephone instrument is all that is necessary to obtain public telephone service, and that the Post Office (in common with all other European and American telephone administrations) persists in charging exorbitant annual sums for the mere hire of this simple appliance. There is evidently still plenty of room for spade-work in our publicity department!

Truly, critics of the Post Office, if they wish to carry conviction, will have to obtain some nodding acquaintance with accuracy, however slight. Listen to the *Bolton Journal*:-

In Hull, where there was a privately-owned telephone service, the annual charge was only 17s. 6d., and that included 200 free calls. And the charge after 200 calls was only four-fifths of a penny per call.

The rate referred to is apparently the £5 10s. 0d. measured rate, including 500 free calls. The "privately-owned" service, moreover, is really run by wicked "municipal traders."

A private "broadcast" by Miss Gracie Fields, speaking from her dressing-room at the Palladium, London, to the audience of a Hove cinema, was recently made possible by the co-operation of the Post Office.

Miss Fields passed an ordinary call to the Hove number through Gerrard Exchange: the call reached Brighton over an ordinary Trunk circuit and was passed to the Hove cinema via the automatic switches. Upon the Manager of the cinema ascertaining that Miss Fields was speaking personally, he operated a switch, installed for the purpose by the Post Office engineers, which diverted the incoming speech through an amplifier and thence into the ordinary "talkie" apparatus of the cinema.

The arrangements, which are believed to be unique for the country, were highly successful and obtained favourable comment in the local Press.

We have received from local correspondents several letters of appreciation of the telephone service, which in many cases have accompanied quarterly account payments. The following are from the Brighton district:—

" . . . I would like to thank you for the courtesy and the efficiency of the Telephone Service, which seems to me to have been remarkable."

" . . . May I say that I very much appreciate the excellent service we get from — Exchange."

" . . . I think it only fair to the . . . operators to say that for a long time past I have been very promptly answered and connected. . . . People sometimes forget to praise."

" . . . bids me say that while he was very much put about over the interruption in the telephone service at . . . during this week, from noon on one day until nearly noon on the following day, he would like to express his appreciation of the manner in which subsequently the trouble was dealt with, not only in putting the service right but also in the laying of new wires to ensure that such a breakdown shall not occur in future. . . . would also like to record his recognition of the competence and the courtesy of the representatives who were sent over to . . . to deal with the breakdown."

Yours faithfully,

(Sgd.) . . .
Private Secretary.

From Scotland West:—

"Once again I should like to express my satisfaction at the efficiency of the service I have received from the Telephone Department. I am a confirmed hater of telephones and only the tact and amazing courtesy of your representative persuaded me to retain the instrument 2 years ago when I came here. I find, owing to the excellence of the service here, I am using the 'phone more and more. I get promptitude, civility, and accuracy, and I ask no more. The local Exchange folk seem to me extraordinarily efficient. I never get a wrong number and never have to wait, and I always get the utmost courtesy from the Exchange. I wish to place these facts on record. My prejudices have been overcome one by one."

From South Shields:—

"I have much pleasure in testifying that I have found the telephone to be a splendid help to business. Looking back on my business experience I can truthfully say that it has enriched me financially, been the means of ensuring quick deliveries, and saved me endless worry. I could not afford to be without it."

A Northern Postmaster sends us the following true story:

An old man who claims to have been a schoolfellow of Sir W. (a well-known public man) took the opportunity, the other week, to write to Sir W. reminding him of schooldays and congratulating him on attaining his 86th birthday. No doubt mixed with his feelings for Sir W.'s welfare was a hope that some monetary benefit would accrue to himself. He received a reply, but alas! it was merely a formal acknowledgment with thanks for his kind wishes. With a sigh of disappointment he folded the letter and was replacing it in the envelope when he saw on the cover the printed words "You are wanted on the telephone." With hope renewed he repaired at once to the Post Office, and it was only after a long explanation by one of the counter clerks that the old man was made to realize this was not a personal message from his one-time schoolfellow.

STOCKTAKING IN THE TELEGRAPH DEPARTMENT.

It is a commonplace to say that the men in the front line see least of the battle. What they do see on the telegraph front is probably dispiriting: mechanisation proceeds apace, circuits are suspended, traffic is falling, vacancies lapse. It may be well, therefore, with the help of such meagre statistics as are available, to try to take stock of the general situation, and discover whether any hopeful conclusions may be drawn from it.

During the year ended Mar. 31 last, inland telegraph traffic showed a decline of 6.57% as compared with that of the previous year. This in itself gives little cause for hopefulness: the only consolation that can be drawn from it is that it compares favourably with the 9.07% decline in the previous year. There is unfortunately no reason to suppose that we have reached rock bottom.

It would be interesting, though dangerous, to compare the flow of traffic at the various towns: but unfortunately no satisfactory data are now available. Perhaps at some future time the attempt may be made; but it has to be remembered that even "A" traffic is affected by artificial changes, such as the extension or reduction of the appointed office area; and any comparison of the natural flow of traffic is almost impossible.

A certain amount of information is available (though it is now rather out-of-date) as to the purposes for which the inland telegraph service is used by the public; it is based on a return of three days taken in May, 1927, and June, 1930, respectively. An increase is shown in the number of telegrams sent on social matters, which in 1930 amounted to 21% of the whole. The second largest category is "Fish and other food supplies" (20% of the whole), and here again there is a gratifying increase of some 13%. Altogether, there is no doubt that fish-traffic is bearing up well; fish is a primary food-product, the demand for which is not affected to any great extent by economic and industrial dislocation, and it would be tempting, but rather rash, to infer that in the absence of such factors, the use of the telegraph service is bound to increase. There is, as one might expect, an increase in the number of telegrams sent in connexion with the engineering industry, and a rather surprising increase in connexion with the textile industries. There is a large increase (nearly 50%) in "Miscellaneous,"—from which one may draw the hopeful conclusion that the telegraph service is used for an increasing variety of purposes. There are decreases under "Other commerce" (20% of the whole), the coal, iron, steel and shipping industries (6% of the whole), Stock Exchange business (5% of the whole—a decrease of nearly 100%), and racing and betting (4% of the whole). On the whole, the comparison is encouraging as far as it goes; but it does not go very far.

When we turn to finance, we are back again on firmer ground. The Commercial Accounts for 1931-2, which are not yet published, are likely to show a deficit on the telegraph service as a whole (including the overseas service) of £828,000 as compared with just over £1,000,000 in 1930-1. Telegraph men and women may take a melancholy satisfaction from the fact that the fall in the cost-of-living bonus saved the service £250,000, and a pleasurable disappointment from reflecting that this windfall is not likely to be repeated during the present year. This gain is more than offset by a fall of £260,000 in revenue from messages. Apart altogether then from the fall in wages and in revenue, there is a solid reduction of £182,000; and though the process may be unpleasant, we can survey the result with pride.

Few would seriously maintain that the telegraph service as a whole has become less efficient as a result of these economies; in fact, there is every reason to suppose that in this, as in other matters, efficiency and economy are two aspects of the same thing. During the present year—and for several years past—the transit-time at the individual offices throughout the country has been steadily decreasing: the average is now less than two-thirds of what it

was five years ago. Nor is there any reason to suppose that accuracy has suffered. The only available measure of accuracy is a record of public complaints: but as there is no special reason to suppose that the public has become more complaisant, a comparison of the number of public complaints during the month of April in 1931 and 1932 respectively, is probably a sound measure of the improvement of the service, provided that allowance is made for the fall of traffic in the meantime. In a comparison of proportions of complaints to traffic (i.e. on the hypothetical assumption that the traffic has remained constant), there is a reduction of 11.5% in the complaints about errors. Under the other headings there is an even greater improvement: perhaps the most gratifying is a reduction of 28.4% in those disturbingly mysterious cases of telegrams that are lost in transit.

Early in July the service of night telegraph letters was established on a much broader basis. During a single week before the service was extended some 200 night telegraph letters were sent throughout the whole country: during the last week in July this number had increased to over 1,000. In the near future we hope to give a stimulus to the sending of telegrams by manufacturers to advertise their products, by abolishing all redirection-fees on such telegrams: this has involved an amendment to the Statutory Regulations, and although those Regulations are fortunately not quite as unchangeable as the laws of the Medes and Persians, it is a formidable task to alter them.

The modernisation of the service is proceeding fast. The renewal of the Instrument Room and Phonogram Room at Leeds is completed, and the work at Liverpool, Glasgow, Birmingham, and Manchester is likely to be completed before, or shortly after, the end of the year. Throughout the country telegraphists are equipped with better instruments than ever before, and the records of achievement on the teleprinter show that the Telegraphist still keeps his pride of craft. The connexion between telegraph and telephones is becoming increasingly close, and the day is perhaps not far distant when all the main telegraph routes of the country will be by-products of the telephone lines. In the interesting borderland of telegraphy and telephony, it would be tempting to write of the new Teleprinter Exchange system: but the subject deserves, and will, we hope, receive an article to itself.

It is dangerous to prophesy; and very much depends on the revival of industry and commerce,—a factor which is outside our control. But of one thing we may be certain; if and when prosperity returns, the telegraph service will be better fitted to serve the nation than at any previous time in its history.

W. D. S.

A GLASGOW SCHEME FOR IMPROVING THE POST OFFICE SERVICE.

"STREET telephone kiosks," says a writer in the *Glasgow Evening News*, "should be fitted with a tip-up floor that ejects the occupant after *she* has had two minutes."

Apparently *he* is exempt from ejection!

No Women's Rights for him who in his ire
Such misogynic measures would require!

For *her* but two short minutes must suffice,
While *he* may ramble on at heart's desire!

For his selective and ejective plan

Will not insult the majesty of Man,
But lovely woman, tipped out like a sack
Into the street—imagine it who can!

O stony-souled Reformer, if you can't
Recall a mother's love, or if you vaunt

Disdain for pretty cousins, girl-friends, wives,
Have you at least no heart for your rich aunt?

W. H. G.

LONG DISTANCE TELEPHONY: DEMAND TRUNK WORKING.*

By J. F. DARBY (*Headquarters Traffic Section*).

(Continued from page 233.)

BIRMINGHAM DEMAND SYSTEM.

ATTENTION is now directed to the opening of the system at Birmingham. Traffic design data were sent to the Engineer-in-Chief in May, 1931, installation commenced in October, 1931, and the positions were opened for working in March, 1932.

As in the case of London (but for a much shorter period), the new sections were used at the outset for record work only. The demand system was then opened from Birmingham (7-mile circle) to London (*extended* London telephone area), Manchester (7-mile circle) and Bristol (5-mile circle). The service to Bristol was, however, extended to the Bristol "no delay" area a few days later.

The system has had, from the outset, certain advantages over the initial installation in London, viz. :—

- Common groups of circuits to London have been provided over both demand and delay positions, the equipments of which are of the new pattern.
- A complete trunk junction multiple is available over the new positions, thus eliminating the "drag" experienced by London with the reversal of calls via an intermediate position in connexion with the "over-plug" procedure.

One temporary disadvantage at Birmingham is the absence of pneumatic tubes for ticket circulation. These will not be available until this autumn, and hand circulation has had to be resorted to. The provision of the tubes will enable a substantial reduction, in the delay on calls handled at delay positions, to be effected.

Full details of the *results obtained* have been supplied in Mr. Findley's paper,† but certain outstanding features are indicated below. These percentage figures are based on an analysis of the whole of the traffic for the month of April last.

Calls completed on demand	92.5%
---------------------------	--------	-------

Calls completed on demand or a report given to the calling subscriber on a non-hang-up basis if "no reply" or "number engaged"	98.5%
--	--------	-------

Average time taken to set up demand connexions from the receipt of the calling signal at trunks (from April observation figures)	84 seconds.
--	--------	-------------

During April some 28,000 calls received this class of service.

It is mentioned that no additional circuits were provided (except two to Manchester to compensate the division of the group between demand and trunk signalling positions).

The time of completion (84 seconds) is lower than in the case of London and is no doubt due mainly to the simple "overplug" operation in Birmingham (direct via the junction multiple over the demand position) a feature, as already pointed out, not yet available in London. The percentage of demand calls at Birmingham which are originated at manual exchanges is 84 and these calls are, of course, all subject to the "overplug" reversal procedure.

* Paper presented at Conference of Telephone Traffic Officers, held in London in June, 1932.

† Paper read by Mr. G. F. Findley at the Conference.

It would seem that, from the experience gained at Birmingham, this procedure can be carried out mainly as an overlapping operation, thus confirming the experience in the United States, that the method adopted is efficient for checking the calling subscriber's number and obtaining switch-hook supervision. It should perhaps be pointed out that the "trunk subscriber" facility which it is hoped to develop extensively for big "trunk" users, will reduce the amount of "overplug" operations in an area.

As regards output of circuits (as in the case of London), an increase of at least 10% busy hour paid time can be claimed. At both centres it has not been uncommon to attain a figure of 40 minutes when the traffic fully rises.

The speed of answer at Birmingham is in the neighbourhood of 4 seconds—again comparable with that at London: it is an improvement on that given at Birmingham in the past.

One other item calling for comment is the speed of disconnection under demand working. From the time conversation ends until the circuit is cleared at *both* ends, the figure is 11.5 seconds—a much more satisfactory figure than that for normal trunk signalling working, the figure for which was 24 seconds for October-December last for the country generally. The figure for clearing at the originating end is approximately 7 seconds and this is the figure which determines the time a trunk circuit is held unavailable for another call.

It might be possible to improve still further this speed of disconnection by omitting the challenge "Have you finished," as is done in America in the case of *direct* calls. Having regard, however, to the fact that the controlling operator has to rely on a single lamp "clear," and that the reliability of such clears has by no means reached an entirely satisfactory standard it would, it is thought, be dangerous, at this stage, to omit the challenge.

MATTER ARISING OUT OF THE LONDON AND BIRMINGHAM WORKING.

The only case of alternative routing so far in operation on a demand basis is the circulation of London-Edinburgh traffic via Glasgow. The scheme is too limited and inflexible to enable conclusions to be arrived at regarding the effect on circuit loading, but one operating feature requires some further consideration. When it is desired to break down a London-Glasgow-Edinburgh connexion, the controlling operator in London is required (owing to both circuits being on a generator signalling basis) to ring the Glasgow operator and instruct her to clear the connexion to Edinburgh. It is found in practice that this procedure is, from time to time, overlooked.

The absence of the clearing signal at Glasgow has certain adverse effects. When bothway working is in force, the absence of a clearing signal will deny the intermediate exchange access to the circuits concerned, i.e., to London and to Edinburgh for new calls. (At the moment, as the circuits are worked unidirectionally, only the Glasgow-Edinburgh circuits are rendered inoperative for further calls from Glasgow.) The intermediate exchange will, therefore, suffer a definite disadvantage in connexion with the availability of outgoing circuits. In addition, it is highly desirable, in the interests of "clean" operating, that circuits should be completely cleared before new connexions are made thereto.

In view of the difficulty that controlling operators will have in the future when alternative routing is in full swing and when group centres control calls via main trunk centres it is considered that on each connexion of this kind, at the commencement of the call, a small clip should be attached to the calling cord, or a ring placed over one of the cord circuit keys on the controlling position.

A point of some interest in connexion with the procedure for booking a trunk call arises from the observation returns for London and Birmingham—the latter show a figure for the "booking" time of approximately 10 seconds less than that for

the former. The information recorded is somewhat similar in both cases and the discrepancy appears to be due to the London operator after checking the particulars, item by item, as they are recorded, repeating the full particulars, at the end—a practice of long standing. In the case of Birmingham, this second verification is not being carried out and it seems that, in connexion with demand working, there is much to be said for the omission of the second verification.

Before the introduction of demand working at Birmingham, the percentage of trunk calls cancelled was approximately 5.5. The figure of cancellations for calls proper to be handled on demand during April was 2.3%. (The majority of these calls are, of course, cancelled after a call has failed initially owing to "no reply" or "number engaged"). A reduction of this magnitude in cancellations will have an important effect on trunk revenue as the scheme develops: a still more important aspect is the satisfaction to the public that must arise through the less need for the cancellation of calls. A further reduction in cancellations might be effected by the carrying out of "trunk offering" procedure on demand positions.

One of the results of demand service should be a considerable reduction in the monitorial work handled at separate enquiry positions at trunk exchanges: only work of a purely complaint nature, with directory enquiries and a limited amount of route and rate quoting items should, it is thought, remain. "Service" enquiry work consists for the most part of—

- (a) cut-off complaints,
- (b) duration of call enquiries,
- (c) cancellations,
- (d) "how long" enquiries.

The work under (a) will be reduced as operating methods and the setting up of connexions become simple and clearing signals reach a higher standard of reliability.

Item (b) can well be handled, in most cases, on the demand positions if subscribers are encouraged to pass requests for "duration" particulars when booking a call. Cancellations and "how long" enquiries must fall with the high percentage of calls completed on demand. It is quite practicable in the case of a "how long" enquiry for the demand operator to ascertain direct from the delay operator concerned the exact position with regard to a particular call. One of the items to be put on the credit side of demand working will, it is thought, be a reduction in the cost of "enquiry" staff.

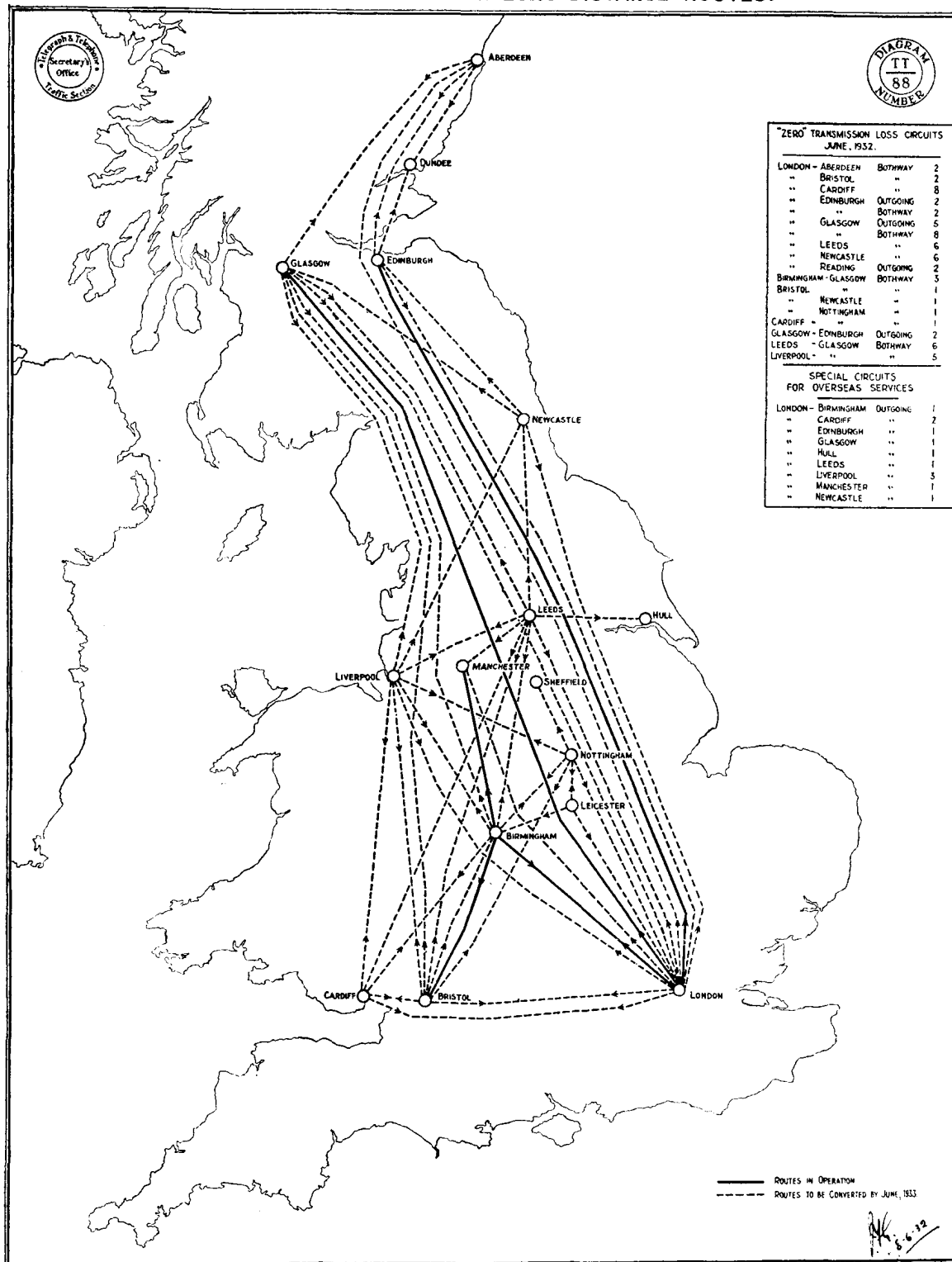
A matter upon which comment is, from time to time, made is the question of what effect demand working will have upon the staffing of an exchange. From the practical aspect it can be said both of London and Birmingham that no increase in staff has been involved and this perhaps has some significance when it is realised that approximately 25% of the booked traffic at Birmingham is now handled on a demand basis.

To consider the matter from a call valuation aspect, it is mentioned that the value at the moment in use at London and Birmingham is 12 units for a demand call. The value recently arrived at, by a committee of Traffic Officers, for a controlled trunk call was 15 unit calls and as this does not include the "booking" (which itself has a value of between 2 and 3) a value of 12 unit calls which *does* include "booking" provides a definite margin for the small percentage of more complicated traffic which will be handled in the future before the present staffing costs are exceeded. There will, it is thought, be a tendency for the busy hour staff to be increased with a corresponding reduction outside the busy hours.

GROUP CENTRES.

Within the next two years, the demand system should be in full operation at all zone centres (Fig. 2 illustrates the development of the system expected in the next 12 months) and the introduction at group centres will be the next stage. In preparation

DEMAND TRUNK WORKING ON LONG DISTANCE ROUTES.



(63) 138/726.150 H/32 Cp 521 C.E.R.L.P.

FIG. 2.

for this much activity has already taken place in connexion with accommodation aspects and equipment design. The latter falls under four heads:—

- (a) new automatic exchanges,
- (b) existing automatic exchanges,
- (c) new manual exchanges,
- (d) existing manual exchanges.

The equipment for (a), which includes the use of the "sleeve control" cord circuits on all positions, has now been standardised

and a decision has recently been arrived at to adopt the "single channel" method of working at group centre automatic exchanges (Paras. 12 (b) and 111 of the Report of the Commission to the United States, 1930, refer.). The system is, briefly, that the demand and O level (i.e., toll) positions are combined in one suite and a common team of trunk and toll operators undertake the work. To avoid a degradation of the Toll service by the inclusion of the high value trunk calls, an increase in the number of the repetitions of signals associated with each O level circuit will be made. (For zone centres, the demand work will be segregated from

the Toll traffic by the use of the code TRU or 94, as the case may be).

Design work in connexion with items (b), (c) and (d) above is proceeding.

Comment has been made in some quarters on the additional equipment and staff required at group centres in respect of demand working. In this connexion it must be borne in mind that the control of certain trunk traffic is being *devolved* from the zone centres and that there will be a corresponding relief given to the zone centres concerned. There should, in fact, be some saving in costs from such devolution in view of the simplification which will result. An example is given below indicating the number of trunk operators handling a call, say, from Newtown to Ingrebourne (London area) under—

- (a) present system, with control at the zone centre,
- (b) demand system, with control at Newtown.

Under the present system the—

- Operator (1) at Newtown calls the
- Operator (2) at the Birmingham "Newtown" position, who makes connexion to
- Operator (3) at the Birmingham zone records. This operator records particulars and passes the ticket by
- Operator (4) (a runner) to
- Operator (5) at the Circulation position, who inserts the "circulation" and again passes the ticket by
- Operator (6) (another runner) to
- Operator (7) at the Birmingham "London" position. She in turn calls
- Operator (8) at London and also calls, via a transfer circuit,
- Operator (9) at the Birmingham "Newtown" position, who calls
- Operator (10) at Newtown, the originating exchange.

Under the demand system—

- Operator (1) at Newtown calls
- Operator (2) at Birmingham inward position, who connects to
- Operator (3) at London.

(Mention of the local operators is omitted in both cases.)

The circulation of trunk tickets within the switchroom (from demand to delay and filing positions) is a problem which requires to be tackled at all trunk control centres. At the zone centres, the pneumatic tube fully justifies its cost in minimising circulation delay and also in reducing "floor traffic"—an important point in connexion with the efficient running of an exchange. In the case of group centres, pneumatic tubes may not be warranted and may be inconvenient to instal and maintain. The alternative is the provision of a light "rail" system with small blocks fitted with clips running on the rails, projected by hand. The arrangement is fitted on a level with the cornice of the switchboard. The system was seen working in America (para. 76 (b) of the Report of the Commission to the United States, 1930, refers.); it was not only efficient but neat in appearance. It is suggested that a trial should be made at a suitable centre.

OPERATING PROCEDURE AND TRAINING.

The present re-organisation of the long distance system involves a complete re-modelling of operating procedure and this is being built up, step by step, as the system is developed. It is only possible, however, to lay down the broad outlines of operating procedure. The finer technicalities can never be written—these are acquired by training and experience. It seems likely that, as the system is developed at the various centres, differences in practice will spring up. One centre will perform one operation very efficiently, another centre may highly develop another, and so on. It is essential that these operating practices should be co-ordinated

and the best method adopted for each step in the handling of a call. This, it is considered, can only be done by an officer spending a considerable time at one centre and then at another, examining the working and assisting in training the staff. As new demand centres are opened, this officer could assist in the training and I put forward the suggestion for consideration that a Trunk Travelling Supervisor should be appointed to carry out this work throughout the country.

SERVICE ASPECTS.

In the building up of the demand system, officers of all classes have been concerned—administrators, accountants, power, transmission and telephone equipment engineers, headquarters and local traffic officers, and operating staffs—each pursuing his or her own particular aspect.

There is, however, one common objective that all are striving to attain, viz., *Service to the Public*; by "service" I mean a system of which reliability and speed, with a promise of reduction in costs, are the outstanding features and it would seem that, with the Demand system, we are attaining this object.

Attention is particularly directed to the service results obtained. In view of the fact that the Birmingham scheme is the larger and more complete of the two at present in operation it can perhaps be regarded as the more representative of normal demand conditions. The working from Birmingham to the extended London area is by no means of a simple nature, it embraces typical connexions of most classes—calls to and from large and small P.B.X.'s, calls to large local exchanges—manual and automatic, and calls to rural exchanges reached via indirect routings. The Birmingham subscriber has access, on a *demand basis* (apart, of course, from the no-delay services available), to nearly *one million* telephone stations in the London, Manchester and Bristol areas.

It is true that the Birmingham system does not yet include "trunk to trunk" connexions; however, having regard to the very extensive "no-delay" areas in this country, connexions which necessitate the use of more than one trunk (i.e., delay basis) route are extremely rare. It is thought that the inclusion of a small percentage of rather more complex calls when the system is more fully extended will be compensated to a very large extent by the additional operating aids which have yet to be provided.

Having regard to all the circumstances, it is considered that the standard of service for the country generally when demand service is fully developed should approximate closely to the standard of service now being attained—a service which, I think, reflects credit on the department and on those who operate it.

APPENDIX A.

VISIBLE INDEX FILES.

Accommodation is provided on all new trunk positions for a Visible Index File (see Fig. 3) which is similar to the specimen American Kardex File illustrated in Appendix 8 of the Report of the Commission to the United States, 1930, except that our file has capacity for 40 instead of 25 cards.

The first two cards in the file give the *computed charges* for the charge letters E to W for 3 up to 12 minutes' duration for *ordinary* and *coin box* calls respectively. (The upper portion of Fig. 3 illustrates the charge card for ordinary calls.) These cards will be common to all outward positions in trunk exchanges. The remaining cards have to be specially compiled for each trunk exchange.

The main body of the file shows the charge letter, terminal trunk centre and primary routing for about 1,000 exchange names. (A specimen card from the London Trunk Exchange File is illustrated in the lower portion of Fig. 3.) Two columns are allotted for the

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of telephone stations in the Post Office System at July 31, 1932, was 2,088,031, representing a net increase of 2,725 on the total at the end of the previous month.

The growth for the month of June is summarised below :—

Telephone Stations—	London.	Provinces.
Total at July 31, 1932	779,650	1,308,381
Net increase	346	2,379
Residence Rate Stations—		
Total	248,104	324,683
Net increase	—	730
Call Office Stations (including Kiosks)—		
Total	8,460	29,581
Net increase	64	117
Kiosks—		
Total	3,249	10,349
Net increase	47	129

The total number of inland trunk calls for the month of May, 1932 (the latest statistics available) was 10,464,701, representing an increase of 142,454, or 1.4% over the total for the corresponding month of the previous year. International calls in May numbered 92,130 as compared with 95,271 in May, 1931.

Further progress was made during the month of July with the development of the local exchange system. New exchanges opened included the following :—

LONDON—Bayswater (automatic) ; Epsom (manual replacing automatic) ; Northwood (reconstructed manual).

PROVINCES—Adel, Hunslet, Bishop Wearmouth (automatic) ; Horsforth, Boldon, Sunderland (automatic conversions) ; and the following rural automatic exchanges : Allhallows (Chatham), Bradford-on-Tone (Taunton), Brierley (Barnsley), Corby Glen (Grantham), Cotgrave (Nottingham), Cholsey (Wallingford), Castle Martin (Pembroke Dock), Dunsfold (Godalming), Darvel (Ayrshire), Dingestow (Monmouth), Fordham (Colchester), Gedney Drove End (Long Sutton), Greatham (Stockton-on-Tees), Garn Dolmenmaen (Portmadoc), Hintlesham (Ipswich), Kilkeel (Co. Down), Kirkpatrick Fleming (Annan), Llananno (Llandrindod Wells), Llanstephan (Carmarthen), North Crawley (Bedford), Portscatho (Cornwall), Peat Inn (Cupar), Rockingham (Uppingham), Sherburn Hill (Durham), Sawtry (Peterborough), Tresillian (Truro), Wisbech St. Mary (Wisbech) ;

and among the more important provincial exchanges extended were :—

Lincoln, Newton Abbot (manual) ; Hartlepool, West Hartlepool (automatic).

During the month 71 new overhead trunk circuits were completed, and 85 additional circuits were provided by means of spare wires in underground cables.

CIVIC VISIT TO NEW SUNDERLAND AUTOMATIC EXCHANGE.

THE successful conversion of the Sunderland Telephone Area to Automatic Working on July 9, 1932, was signalised by the visit of the Mayor and prominent public and business men of Sunderland to the new exchange on July 14, 1932. The guests were received at the Exchange by Mr. D. T. Dickie, the Head Postmaster of Sunderland, who, on taking the chair at the inaugural proceedings, expressed appreciation of their presence, and assured

them that they would be interested in viewing the most up-to-date telephone installation in the country.

The District Manager, representing the commercial side of the Telephone Department, said that their aim was to sell telephone service, and that to do this most efficiently the Department had in Sunderland installed the very latest and best equipment. He expressed the thanks of the Department for the forbearance of the Sunderland subscribers during the difficult time which had preceded the conversion to automatic working, and also paid tribute to the work of the female staff during this period. He was happy to say that none of the staff would be placed out of employment as a result of the transfer as it had been possible to disperse them to other exchanges.

Mr. F. G. C. Baldwin, M.I.E.E., Superintending Engineer, then welcomed the guests on behalf of the Engineering Department, and gave some interesting historical information in connexion with the part Sunderland had taken in telephone development. He mentioned the early activities of the Northern District Telephone Company under Mr. C. B. Clay, and added that Mr. Clay would have been present that afternoon but for ill-health. Mr. Baldwin then gave a short description of the Sunderland system and briefly explained the control exercised over the switches at the exchanges by the subscriber when manipulating the dial. He referred to the success which had marked the transfer to automatic working at Sunderland and stated that as a result of the test of the lines after the transfer, only 7 faults had been revealed, one of which was due to a bent penny in a coin box. Some amusement was caused by Mr. Baldwin producing the penny and asking the Mayor to accept it as a memento of the occasion. Mr. Baldwin also asked the Mayor to place the first signature in the Visitors' Book.

The party then divided into groups, each of which, under the guidance of a member of the Engineering Staff, toured the building. In the Auto-manual room the groups were shown round by Asst. Traffic Superintendents. On returning to the reception room the Postmaster-Surveyor of Newcastle addressed the Company and said the holding of a function of the character of that proceeding was an indication of the Department's efforts to exhibit their services and to induce the business community to take advantage of the facilities provided by the Post Office. He mentioned several directions in which the Post Office was endeavouring to help the business community and the general public by providing efficient communication services.

A telephone message was received by the Mayor of Sunderland, on a specially provided telephone from the Lord Mayor of Newcastle, in which the latter said, "It is one of the outstanding occasions of my year of office that I have the pleasure of congratulating you, Mr. Mayor, on the inauguration of the Automatic Telephone System, for Sunderland can claim to be the pioneer town in the North of England in the use of the telephone as a means of communication. I trust that the installation of the Automatic System will be the beginning of a new era of prosperity, and this wish I am quite sure is cordially endorsed by every citizen of Newcastle-on-Tyne."

The Mayor suitably replied to the congratulations and then, addressing the company present, expressed appreciation of all that had been done for the visitors and shown to them. He voiced the opinion that Sunderland could now be proud of the fact that once again it was in the forefront of telephone development. He referred to the impending retirement of the Head Postmaster, and as a memento of Mr. Dickie's association with Sunderland presented him with a copy, signed by the Mayor and Town Clerk, of the petition to His Majesty the King for the issue of Letters Patent to raise Sunderland to the dignity of a city.

Mr. Alex. Cameron, Chairman of the Sunderland Chamber of Commerce, also spoke, expressing his appreciation of the ability and knowledge of the telephone system evinced by the Engineering Staff who had shown them round the building. He referred to the early development of the telephone service in Sunderland, and in that connexion recalled personal recollections of Mr. C. B. Clay.

SCOTLAND (WESTERN DISTRICT) NOTES.

ON Saturday, June 25, 1932, a very pleasant outing of the Staff took place. "Entraining" in an Alexander's Sunshine Saloon Coach, the party were taken by a route in which the beauty of the countryside was very appealing. After an hour's journey, Aberfoyle, which was the rendezvous for the afternoon, was reached. The party broke into groups and enjoyed a hiking expedition on a small scale, both before and after tea. On the invitation of the Tea Club Committee, high tea was purveyed for the company in the Clachan Temperance Hotel, Aberfoyle. Aberfoyle proved an excellent centre for such an outing, in that an extensive view of the surrounding country of mountain, moor and fen could be obtained. The return journey passed all too quickly with the time being profitably occupied in community singing. The outing was voted a great success.

Miss Jean H. Cox, who had been Girl Probationer in this District Office for the past few years, was, on the occasion of her promotion to the Telephonists' Class, presented by her colleagues with a parting gift, which took the form of a golfing outfit. Miss Cox left the District with the best wishes of all the members of the Staff.

TELEGRAPHIC MEMORABILIA.

It is pleasant reading to see, in the Annual Report, recently issued by the Advisory Council of the Science Museum, South Kensington, London, that more than three-quarters of the electrical instruments exhibited at the Faraday Centenary Exhibition at the Albert Hall, London, last year, have been presented or lent to the Museum Authorities. Furthermore, certain manufacturers of apparatus have brought their exhibits absolutely up to date by providing the museum with "examples of the latest types of instruments."

Among the working models acquired by the museum is a complete electrical generating, transforming and switching plant made by the British Electrical & Allied Manufacturers' Association.

And things are not what they seem!—One is amazed at times, when looking up at the funnels of some of the huge Atlantic liners, to be told that they are each large enough to permit of an ordinary full-gauge locomotive passing through them, and that with plenty of room to spare. The new White Star motor liner *Georgic* has so far economised space as to use one of its funnels for the ship's wireless room. It contains full accommodation for the operators and for the complicated apparatus which a modern liner now carries as its normal equipment. In this case there is a main transmitter for medium and long waves, a 1½ kw. valve installation which transmits by i.c.w. on wave-band 600-850 metres and by c.w. on wave-band 1,875-2,750 metres. This to cover all telegraph communication up to about 2,000 miles. Short-wave transmitters are also provided while in addition provision is made for receiving on wavelengths not covered by the ships' transmitters, such as are used by stations transmitting news, time-signals, &c. The Marconi direction finder is also in this same funnel-room. In a photograph taken by the *Electrical Review*, before the writer as he scribbles these lines, the loops of the "finder" are seen to peep out just above the top of the funnel, the fixed aerial system being mounted on the roof of the funnel-cabin.

It is scarcely necessary to emphasize the fact that the entire wireless system is "thus adequately screened from interference by the ship's electrical equipment, the funnel proving a first-class metallic screen, in addition to the normal screening of the apparatus itself." Entrance to the room is by a door on the upper deck, practically cut out of the funnel, while daytime lighting is obtained by port-hole windows practically let into the same.

Shall the British Post Office, lock, stock, and barrel, be divorced from Government control?—According to the Political Correspondent of the *Daily Telegraph*, "the Special Committee, consisting of Viscount Bridgeman, Lord Plender, and Sir John Cadman, the report presented to Sir Kingsley Wood firmly advocates the retention of complete State control." This is, of course, not to say that various suggestions affecting the Post Office organisation will not be put forward. The full report will be awaited with keen interest by all concerned with the future efficiency of the many public services which the Post Office carries out.

Retirement.—On the 4th ult., upon reaching the age-limit, there retired from the Telegraph Service, Mr. F. S. J. O' Shaughnessy of the Cable Room, C.T.O. The best wishes of all grades go with "Shok" into his well-earned retirement. Not the least of his virtues was his unflinching good humour, added to the fact that his experience covered every important phase of telegraph needs and duties, including an excellent grasp of the technicalities of modern mechanical telegraphy inland and abroad.

Obituaries.—On the 5th ult., at Brighton, a well-known Assistant Superintendent of the C.T.O. of twenty years ago, passed suddenly away in the much-respected person of Mr. John Morgan. In his earlier days he was attached to the old Scottish Division and was made Assistant Superintendent in 1897, from which position he retired in 1912. Genial in manner and temperament many will

remember him as a staunch devotee of the theatre—a good judge of a play. The funeral took place at Lewes, Messrs. E. W. Gray and L. W. Powell, late of T.S., being amongst the mourners.

Elsewhere, notably in the *Overseas Telegraph*, rich, though none too rich, tribute has been paid to the loss sustained by the unexpected death of Mr. Joseph G. Smith, Overseer (retired), and formerly of the Cable Room Supervising Staff, C.T.O., London. Let the following excerpt from the press of his own neighbourhood also pay its quota of appreciation to the unselfish service of our much esteemed "Yakob." Thus then writes the editor of the *South London Press*: "Our staff loses an old friend! Every Tuesday morning for as long as any of the editorial staff could remember, there used to arrive in the *South London Press* office, a report from Mr. Joseph Smith of the Dulwich Grove Fellowship meetings. Mr. Smith had been connected with Dulwich Grove Congregational Church for more than 35 years, had retired from the Government Telegraph Service in 1929 upon reaching the age-limit, when he received the King's medal, &c., for long service. Quite unexpectedly he died after a stroke at his home on July 16. The Rev. G. B. Dibden, who conducted the funeral service to a crowded church, in a moving address epitomised the very real measure of our friend's selfless labours when he said, 'In the matter of service no one could excel him. His interest never flagged.' It is no mere platitude for the words of an ancient book to rise to one's memory, 'Well done, good and faithful servant'!"

One by one the living links with the telegraphic past are broken, as was notified in the *Southend-on-Sea Standard*:—"On July 12, suddenly, at 10B, Southborne Grove, Charlotte Catherine Anne Jackson, in her 81st year, the dearly loved and devoted wife of William Francis Jackson, late T.S.F., C.T.O., London." Mrs. Jackson (*nee* Pownall) was born in the year of the Great Exhibition in Hyde Park, and one of that early band of women employed in the Telegraph Service, gaining her first experience in the Electric Company's service in Telegraph Street as far back as 1866. "T.S." is still the code for its successor the C.T.O., London. She continued with the Telegraphs on their transfer to the State in 1870, and in 1876 married Mr. H. T. Miller. Due to adverse circumstances she joined the Post Office Service on the Temporary Staff in 1890, and supported the entire burden of her husband and children for the next eight years, when Mr. Miller died. In 1910 she married Mr. W. F. Jackson, a widower, and himself also an old telegraphist but one who transferred from the Submarine Telegraph Co. to the Post Office in 1889, and in which service he rose to the rank of Asst. Superintendent Foreign Telegraphs, retiring at the age-limit on Aug. 1, 1914. It would not be appropriate here to relate the many interesting telegraphic episodes which this Darby and Joan have seen, but the matter is to receive attention at an early date.

Countries.—AUSTRALIA.—At the end of May the total number of wireless licences in the Commonwealth was 363,772, an increase of 6,339 as compared with April. Of the total, 139,397 are held in the State of Victoria and 138,329 in New South Wales.

BELGIUM.—It is understood that the Consultative Broadcasting Commission has decided upon the use of five international common waves between 200 and 207 metres for the simultaneous operation of six or seven 50-w. stations *before* sunset and five stations of the same power *after* sunset, without guaranteeing non-interference with foreign stations using the same wavelength. When the Commission was established there were twenty-eight private transmitting stations in Belgium: all the unauthorised ones have since been closed.

CANADA.—The Committee of the Canadian House of Commons has completed a unanimous report on their investigations in the matter of the control of broadcasting. The report, according to the *London Times*, virtually endorses the scheme of the Canadian Radio League and recommends that broadcasting be treated as a national monopoly and placed under the control of a Federal Commission of three or five members, vested with wide powers.

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here, notably in the *Overseas Telegraph*, rich, though ich, tribute has been paid to the loss sustained by the death of Mr. Joseph G. Smith, Overseer (retired), and of the Cable Room Supervising Staff, C.T.O., London. Following excerpt from the press of his own neighbourhood is a quota of appreciation to the unselfish service of our friend "Yakob." Thus then writes the editor of the *don Press*: "Our staff loses an old friend! Every morning for as long as any of the editorial staff could remember used to arrive in the *South London Press* office, from Mr. Joseph Smith of the Dulwich Grove Fellowship. Mr. Smith had been connected with Dulwich Grove Congregational Church for more than 35 years, had retired from the Cable Telegraph Service in 1929 upon reaching the age-limit, and received the King's medal, &c., for long service. Quite suddenly he died after a stroke at his home on July 16. The Rev. D. D. Diben, who conducted the funeral service to a crowded church, gave a moving address epitomised the very real measure of his selfless labours when he said, 'In the matter of service I could excel him. His interest never flagged.' It is no mere words or the words of an ancient book to rise to one's memory, but a good and faithful servant'!"

By one the living links with the telegraphic past are broken, as testified in the *Southend-on-Sea Standard*:—"On July 12, at 10B, Southborne Grove, Charlotte Catherine Anne, in her 81st year, the dearly loved and devoted wife of Francis Jackson, late T.S.F., C.T.O., London." Her son (nee Pownall) was born in the year of the Great War in Hyde Park, and one of that early band of women in the Telegraph Service, gaining her first experience in the Company's service in Telegraph Street as far back as 1876. "S." is still the code for its successor the C.T.O., London. Married with the Telegraphs on their transfer to the State in 1876 married Mr. H. T. Miller. Due to adverse circumstances she joined the Post Office Service on the Temporary List in 1900, and supported the entire burden of her husband and for the next eight years, when Mr. Miller died. In 1910 she married Mr. W. F. Jackson, a widower, and himself also an old telegraphist but one who transferred from the Submarine Telegraph Service to the Post Office in 1889, and in which service he rose to the position of Assistant Superintendent Foreign Telegraphs, retiring at the end of August, 1914. It would not be appropriate here to mention many interesting telegraphic episodes which this Darby have seen, but the matter is to receive attention at an

figures.—AUSTRALIA.—At the end of May the total number of wireless licences in the Commonwealth was 363,772, an increase of 139,397 compared with April. Of the total, 139,397 are held in Victoria and 138,329 in New South Wales.

U.K.—It is understood that the Consultative Broadcasting Commission has decided upon the use of five international common wavebands between 200 and 207 metres for the simultaneous operation of even 50-w. stations before sunset and five stations of the order after sunset, without guaranteeing non-interference with private stations using the same wavelength. When the Commission was established there were twenty-eight private broadcasting stations in Belgium: all the unauthorised ones have now been closed.

Canada.—The Committee of the Canadian House of Commons has issued a unanimous report on their investigations in the matter of the control of broadcasting. The report, according to the *Times*, virtually endorses the scheme of the Canadian Broadcasting Board and recommends that broadcasting be treated as a public monopoly and placed under the control of a Federal Board of three or five members, vested with wide powers.

Naturally the present world-wide financial situation has to be considered in this matter, so that the Committee does not recommend any immediate large programme of development involving a heavy outlay. It suggests that it should be left to the Commission to frame a policy with regard to existing stations, which might be taken over for part or full time, and to arrange for the gradual development of additional facilities as financial conditions improve. The Commission will be financed out of licence fees, and lastly but not least, "the plan of the B.B.C. is to be taken as a model!"

CHINA.—*Radio-Telegraph Traffic with the U.S.A., &c.*—The International Telephone and Telegraph Corporation announces that an agreement has been concluded, says the *Electrical Review*, between the Minister of Communications of China and the Mackay Radio and Telegraph Company, for the exchange of radio-telegraph traffic between China and the U.S.A., Hawaii, and the Philippines. This development, together with the existing services to Honolulu and the Philippines, gives the Mackay Company a complete trans-pacific service in addition to its services to South America and Europe. A further agreement has been concluded between the Ministry of Communications of China and the China Electric Company, a subsidiary of the International Telephone and Telegraph Corporation for the erection of four radio-telephone transmitting and receiving stations for communicating within China, one to be in Shanghai and the other three at other important centres, not yet decided upon. In addition to these an international radio-telephone station is to be built at Shanghai "so that the rest of the world can be connected to more than 100,000 telephones in use in China."

Radio Beacons for China.—The successful operation of the Marconi automatic beacon station installed at North Saddle Island, near Shanghai in 1930, has led the Chinese authorities, says the same reliable source, to equip two other important navigational points with similar apparatus. The sites of the new beacons, it is understood, are to be at Shawshean Island, near the mouth of the Yang-tse-Kiang and Gutzlaff, also on the important shipping routes to Shanghai and the Yang-tse-Kiang, which will be fitted with beacons of 7.00-w. and 5.00-w. power respectively. The apparatus is to be specially designed and constructed for use under tropical conditions.

EGYPT.—The agreement between the Egyptian Government and Marconi's Wireless Telegraph Co., Ltd., relative to the public telephone service between England and Egypt, which was inaugurated on June 22, was signed by the British Postmaster-General as third party.

GERMANY.—*World-Radio*, referring to the growing tendency of the countries of the world to place Broadcasting under State instead of Private control, says:—"The decision announced officially on July 29 last to abolish the form of privately- and municipally-owned companies in Germany, and to place the service wholly under Government ownership, follows close upon the conversion of Norwegian organisation from private enterprise to State control. *Radio Licences.*—On July 1 the number of receiving licences issued was 4,119,531, of which 412,177 were issued free to the unemployed, blind, or maimed.

GREAT BRITAIN.—*The Teleprinter.*—A teleprinter service will be made available by the General Post Office—probably by the time these lines are in print. This service is to be operated in conjunction with the public telephone exchange organisation. These machines will deal with any message to be typewritten between the offices of any two subscribers to the Telephone Service, at any distance from each other. The Teleprinter machines will be hired in a similar manner to the hiring of telephone instruments. *Television.*—It seems only a week or two ago that the Baird Television system was reported as producing "excellent synchronisation" on a screen 4 ins. by 9 ins., but still with a "pronounced flicker." On the 15th ult. it was reported by the *Daily Telegraph* that a series of demonstrations of the same system at a well-known West End store, "on a screen 3 ft. by 7 ft., was heard and seen distinctly by large audiences." *Radio Licences.*—The number of

wireless licences issued by the Post Office up to the end of July exceeded 4,800,000. *Radio Exports.*—The total value of wireless goods exported from Great Britain for the six months ended June 30 last, was £558,808 as against £469,265 in the corresponding period of 1931. *Loudspeaker nuisances.*—The Cardiff City Council has recently made a bylaw which would appear to cover every and any case of public annoyance due to the abusive use of broadcast wireless and "prohibits the operation in or in connexion with any shop, business premises or other place adjoining a street or public place, of any loudspeaker or gramophone in such a manner as to cause annoyance."

GREECE.—The new Marconi coast station near Athens, says the *Electrical Review*, has already proved its usefulness in the Eastern Mediterranean, and ships wishing to communicate with the Greek capital no longer have to rely on the assistance of intermediary stations. The installation incorporates a 3-kw. valve transmitter arranged for working on either continuous or i.c. waves. The main aerial can be used for reception as well as transmission, or, alternatively, direction-finding equipment may be used.

HEDJAZ-NEJD.—Reuter's Cairo correspondent, in announcing the progress made with the First Wireless Stations erected by the order of King Ibn Saud of the Hedjaz Nejd, remarks that the work was commenced about two years ago when the king asked the Marconi company to erect a few stations in his country. The company's first difficulty was to find a competent Egyptian Moslem engineer and to train him in the art of erecting wireless stations, as only a Moslem would be permitted to enter the holy city. The man fulfilling all conditions was discovered and trained and has now returned to Egypt after directing the erection of eight wireless stations of which one was Riad, the capital of Nejd, and one in Mecca itself. The ninth station is to be completed this autumn.

SOUTH AFRICA.—*Broadcasting.*—An Advisory Committee has been appointed to investigate broadcasting in the Union and to make recommendations to the Postmaster-General upon such subjects as programmes, electrical interference, extensions, and developments. A new broadcasting station is to be erected at Cape Town by the African Broadcasting Co. to replace the existing station. *World Radio* adds that complaints of the inaudibility of the present station are the cause of this drastic step about to be taken. Negotiations for the purchase of a suitable building have actually commenced. *A Telegraph and Telephone Commission.*—A Commission of three has been appointed to enquire into the relations between the Post Office and the Railways and Harbour Administration as regards Telegraphy and Telephony. The object, it appears, is to ascertain the necessity or otherwise of having two separate systems of electrical communication and the practicability of arranging for one system to serve the two administrations, or alternatively, how the requirements of the two can be provided more economically.

SWEDEN.—Happy Sweden! In the State Telegraph Administration's report on the Telegraph, one reads with an envious thrill for these present times—that, "The Telegraph Department's SURPLUS, which amounted to 25.1 million kronen in 1930, or 7.87% of the average capital outlay, rose to 26.2 million kronen in 1931 per cent." The equally satisfactory position of the Telephones will no doubt receive attention elsewhere in the *T. and T. Journal*. From New York, through the agency of Reuter, we learn that there are certain indications outside the United States that the International Telephone & Telegraph Co. is likely to acquire a considerable interest in the Ericsson Telephone Co. of Sweden. Commenting on this the *Herald-Tribune* says, "If these negotiations are completed, the Ericsson Co. would be practically placed under the control of the International Telephone Corporation."

SWITZERLAND.—The Paris correspondent of the *Daily Telegraph* reports that Monsieur Dussand claims to have devised a new system of Television. M. Dussand affirms that experiments with his method have already been carried out at the Geneva University. The paper, which M. Dussand has sent to the French Academy of

Science, contends that the new system is based on the principle of registering images electrically on gramophone records and reproducing them by means of ordinary television apparatus.

U.S.A.—We learn that the number of licensed amateur stations in the United States increased by 40% during the past year, and there are now, according to the *Electrical Review*, 31,859 amateur radio stations in the country compared with 22,739 last year. The U.S.A. covers an immense area, but manifestly with an increase of roughly nine thousand new amateurs per annum, none too well controlled, one is led to believe, such conditions can hardly be permitted much longer without protest. In fact, if Dame Rumour be not the lying jade which she is frequently judged to be, serious consideration is already being given in scientific quarters to the matter. *A New Transatlantic Radio Link.*—Direct radio-telegraph communication between the United States and Hungary is now possible, according to New York information, and this as the result of arrangements made between the Mackay Radio & Telegraph Company. The Hungarian terminal is to be in Budapest, traffic at the American end being dealt with by the Mackay radio station at Sayville, Long Island. It is understood that all classes of telegraph service will be available in both directions.

Radio Duplex on the same length?—The monthly French *Universal Review of Post and Telecommunications*, in its July issue, announces that for some weeks past, experiments have been made in the United States with the simultaneous transmission by two powerful radio stations on the same wavelength, and that no small measure of success has been achieved.

WEST INDIES.—The *Electrical Review* informs us that the Western Union Telegraph Company has announced that by arrangement with the connecting lines in the West Indies, direct through working has now been established between New York and Santiago de Cuba, New York and Kingston (Jamaica) and New York and San Juan (Porto Rico). These new arrangements are to supplement the direct through working between New York and Havana (Cuba) which has been in existence for some time. It is claimed that these arrangements should improve communication between Great Britain and Ireland and the important centres above-mentioned.

Three-quarters of a Century Ago!—The railways are up in arms against the Bill now before Parliament by which the General Post Office authorities wish to make further provision for the conveyance of mails by railways.—The *Daily Telegraph*, July 13, 1857.

J. J. T.

NORTH MIDLAND DISTRICT NOTES.

Leicester Pageant and Trades Exhibition.—It was a happy idea on the part of the Leicester business community to hold, concurrently with the very successful Pageant of Leicester, a display of Industries for which the city is famous; and a very public-spirited action was manifested in affording a space for the exhibition of those Post Office communications to which we may say with due modesty no little of the commercial success of Leicester has been, and is, due.

Within the space allotted every effort was made by the Engineering, Contract and Telegraph and Telephone Staff to make an impressive show with a view to meeting the Postmaster-General's wishes for development of the Services.

It was noticeable that the Post Office display, with its working models of Automatic Apparatus, the Teleprinter (over which the public were invited to send messages), the 1,000-mile telephone circuit and the other interesting exhibits, was one of the most popular attractions of the Industries represented. The old and the new were prominently contrasted when two ladies in costumes representing the Elizabethan and Tudor periods were seen conversing on the 1,000-mile telephone circuit referred to.

The posters, some of which were kindly loaned from other Districts and adapted, in some cases, by the help of the Nottingham Arts Club, made a very effective show, together with the large illuminated model of an Automatic Dial in the centre of which was that charming lady we have come to know under the title of "Make Life Easier—Take the Telephone," &c.

A number of orders for exchange lines and hand micro-telephones was obtained and a lively interest was taken by persons and firms to whom a Circular letter of invitation had been sent, as well as the general public, in the display.

Telephone Advertising literature was stocked and distributed in profusion and widespread publicity and good relationships were undoubtedly effected.

Wellingborough Hospital Carnival.—In connexion with the Hospital Carnival, very effective Telephone Publicity work was carried out by members



LEICESTER DISPLAY OF INDUSTRIES. TELEGRAPH AND TELEPHONE EXHIBIT.

of the local Engineering Staff. The display took the form of various decorated tableaux manned by characters in costume depicting the Doctor, Fireman, Policeman, Butcher, &c. Large-size models of the new Hand Micro telephone and the standard Pedestal Instrument were displayed effectively together with a Switchboard and Telephone Operator and the Engineering Utility Van was fully equipped with a miniature overhead Pole Route and other accessories. The display was unique inasmuch as suitable dialogue demonstrating the



POST OFFICE EXHIBIT AT LEICESTER. ANOTHER DISPLAY.

advantages of the telephone in the home in varying circumstances was amplified by means of loudspeakers to the multitude of onlookers throughout the whole course of the procession.

The display was a very attractive feature of the Carnival and the promoters are to be congratulated on their ingenuity and the originality introduced into the tableaux which were commented upon favourably by the local Press, and which aroused considerable interest amongst the general public. Publicity of this kind cannot fail to assist the business of selling telephone service and it may be thought well to organise similar functions elsewhere.

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MANCHESTER AUTOMATIC SYSTEM: CONVERSIONS TO AUTOMATIC WORKING.

PRE-TRANSFER VISITS AND DEMONSTRATIONS.

By J. J. GRAHAM, Assistant Traffic Superintendent, Manchester.

THIRTEEN exchanges in this District have been converted to director automatic working during the past 2 years, and the arrangements made for the pre-transfer visits to subscribers and the public demonstration set, or sets, may prove of interest to other Districts who have yet to experience such work. The conversions were made as follows: Ardwick, Collyhurst and Moss Side, June, 1930; Blackfriars, June, 1931; Blackfriars second cut, October, 1931; 3rd cut, December, 1931. Sale and Longford, December, 1931. Stockport, Denton, Heaton Moor and Woodley, January, 1932; Ashton-under-Lyne, Gatley and Pendleton, June, 1932. A total of approximately 19,000 subscribers have been transferred to date.

The visiting was performed in the case of the first two transfers by sorting clerks and telegraphists (P), in the case of the December, 1931, transfers by temporary force recruited from the employment exchange, and in the case of the January transfers by sorting clerks and telegraphists (P) and temporary force. The visiting in the June, 1932, transfers was performed by temporary force, part-time night operators and four sorting clerks and telegraphists who had been employed on such work for the previous transfers. The temporary officers were of a very good type composed generally of clerks from commercial offices thrown out of work owing to the trade depression. A course of instruction was prepared and the first week's employment of the visiting officers consisted of lectures, visiting the auto-manual exchange, auto switchroom, demonstration room and receiving dialling practice on telephones installed specially for the purpose in the Traffic Office.

The apparatus installed in the Traffic Office for instruction purposes was as follows: $5 + 20$ D.C. switchboard, a $2 + 4$ cordless switchboard, 25 and plan numbers connected as extensions on the P.B.X.'s as follow: 1, 1A, 4, 7A, 8, 8A, 10, and 11. It was possible to dial from one P.B.X. to the other, and the visiting officers were thus able to receive a sound instruction in dialling, P.B.X. operating with through clearing, and a fairly comprehensive knowledge of the different installations in the shape of plan numbers.

The instruction on this apparatus proved invaluable as it included practically every type of installation likely to be met with, except, of course, the larger types of P.B.X.'s. In these cases arrangements were made for the visiting officers who were to demonstrate to such subscribers, to receive special oral instructions before leaving the office, and to get into touch with the Traffic Officer in charge should any difficulty arise during the demonstration. The visiting officers were provided with an official attaché case, telephone directory, one copy of each of the letters which had been sent to the subscribers regarding the transfer, copies of forms Tp. 6, 7, and 8, instructions for operating various types of P.B.X.'s, mimeographed instructions regarding the demonstration, showing the numbers to be dialled for the various tones and the instruction cards applicable to all type of installation, and also mimeographed special instructions regarding P.B.X. subscribers.

Whilst the foregoing shows generally the arrangements made, it would perhaps be helpful to show the particular arrangements made in the case of the January transfers which had the benefit of our previous experiences.

The exchanges due for conversion on Jan. 30 were rather a mixed selection. Stockport was a non-director automatic, Heaton Moor and Denton magneto and Woodley a C.B. hypothetical on Stockport auto-manual board. It should perhaps be mentioned that various schemes were considered for giving the Stockport subscribers a demonstration, but none was found practicable. The visiting officers could only give the subscribers instructions regarding dialling the codes of various exchanges, and when TOL, TRU, &c., should be dialled. Special emphasis was made of the fact that the various dialling-out codes for different exchanges and telegrams, in force under the non-director system, would not apply after the transfer to director automatic working, except the dialling out code "456" for Great Moor Exchange.

Following the experience of our first transfer in June, 1930, it has been the practice to have postmen attached to the traffic staff during the period of the visiting in order to sort the cards into "walk" order and to associate the relative instruction cards, except in the case of P.B.X. subscribers. This arrangement is highly satisfactory and facilitates the visiting by eliminating "dead" mileage.

Two Stockport postmen were attached for the Stockport, &c., transfers in January, and these men were able to prepare walks for the Stockport subscribers and the majority of the Heaton Moor subscribers.

It transpired, however, that the Heaton Moor Exchange area included parts of four other postal districts and the arrangement adopted in these cases, and in the cases of Woodley and Denton exchange areas, which included two postal districts each, was as follows:—

If sufficient A copies of form TE. 394, showing the apparatus fitted and dial speed test performed, were received from the engineers and the

visiting officers had sufficient work in hand for two or three days, the relative cards Tf. 66 were forwarded to the various Postmasters to be sorted into walk order, approximately 12 subscribers in each walk. In cases where the number of forms received from the engineers included only small numbers for these "out" districts, or when time did not permit of a wait of two or three days for the despatch and return of the cards from the Postmasters, two to six visiting officers were sent to the various postmasters with the cards in bulk. The cards were placed in walk order at the Post Offices in a few minutes, and after the visiting officers had been given any necessary directions as to routes, &c., they carried on with their visiting.

The cards returned by the visiting officers were kept in separate batches, such as evening visits, faults awaiting clears, miscellaneous, including subscribers away from home, &c., and were dealt with as the circumstances demanded. The cards in respect of the completed visits were checked and particulars of faults, discrepancies, dialling tops supplied, &c., extracted. The cards were then sorted into numerical order to facilitate searching, should any enquiries arise. The cases where subscribers wished to have the demonstration in the evenings were kept until the last week, and four late duties, 1.30 p.m. to 9.15 p.m. were worked by the visiting officers to clear them up.

In cases where subscribers had been called upon two or three times on different days and it had been possible to gain attention, two or three attempts were made to gain their attention by telephone. If this was unsuccessful a letter was sent explaining what had already been done to gain their attention, and pointing out that as they would only be able to use their telephone under automatic conditions after a certain date, perhaps they would telephone or write, stating a convenient time for the demonstration to be given. It has usually been possible to clear up the majority of such cases by these means.

A new feature for the demonstration officers to clear on completion of the demonstration, was tried for the January transfers. Hitherto the demonstrator had to flash to gain the attention of the operator to clear, but as the dialling impulses and the engaged tone also caused the supervisory signals to flash, occasional delays in clearing were experienced.

Final selector numbers on the new automatic exchanges were wired to lamps and jacks, or a cord with which was associated a drop indicator, depending upon whether the old exchanges were C.B. or magneto. When these final selector numbers were dialled the attention of the demonstrator operator was gained and the subscriber's line was quickly cleared. This arrangement proved a decided improvement compared with the visiting officer having to flash, and speeded the work considerably.

Somewhat similar arrangements were made in the case of the June, 1932, transfers. The visiting for Ashton was performed from Ashton, and the Gatley and Pendleton visiting was controlled from Telephone House. These three exchanges were all magneto, and the fitting of units in the case of P.B.X.'s (and also in certain circumstances in the case of plan numbers) necessitated some departure from the standard method of obtaining connexion to demonstration. By arrangements with the engineers, a mutually satisfactory working procedure was evolved and no difficulty experienced.

On the day of the transfers four to eight visiting officers, depending upon the size of the District, number of subscribers, &c., are brought on duty at the time the exchanges are due to be changed over. One officer is kept in the office as a stand-by in case any subscriber may be found in difficulties. The other visiting officers patrol the call offices and kiosks, fix forms Tp. 14 on the inside of the doors, make test calls and ensure that the various appropriate instruction cards are fixed. These officers are also instructed to telephone the Traffic Officer in charge every hour, so that they may be sent to any subscriber in their particular district should the necessity arise.

A few officers are employed, the week following the transfer, on re-visits to all the larger P.B.X. subscribers, and patrolling kiosks.

Prior to the transfer, special instructions are sent to all post offices regarding the methods to be used in passing calls, ordinary and official, demands for telegram services on service lines, jointly used call office and telephone-telegram lines, with and without extensions, instructions for coin collectors, &c.

All the officers employed on visiting have been extraordinarily keen and have performed their work in a satisfactory manner.

The following particulars indicate to some extent the zeal displayed:—

Name of Exchange.	No. of Requests for Re-visits during the Week following the Transfer.	"O" Level Traffic, as a percentage of Total Traffic, third week-day after the Transfer.
Sale	2	3.5
Longford	Nil	4.7
Stockport	Nil	4.1
Heaton Moor	1	4.8
Denton	1	2.7
Woodley	Nil	4.2
Ashton-under-Lyne	9	3.6
Gatley	2	2.1
Pendleton	3	5.4 *

* Early closing day. Figure inflated owing to requests to verify "No Reply."

The systematic visit to every subscriber in an exchange area serves many useful purposes. Points of difficulty are cleared regarding the operating of the smaller type of P.B.X., where an operator is not employed, occasionally extensions can be suggested, and not infrequently subscribers are found not understanding thoroughly the use of their installation, particularly type plan 1a.

The issue of the new instruction cards bearing either the fire, police and ambulance numbers, or the slip TE 284 advising subscribers to ascertain these numbers, appears to make subscribers realise their responsibility in this direction.

Usually grievances of a few subscribers are brought to light, and very often, a tactful word or explanation by the Traffic Officer in charge results in the misunderstanding being cleared up and a satisfied subscriber, instead of a subscriber who "considers the telephone service is all right, but . . ."

Demonstration Room.—The demonstration set for the Stockport, Heaton Moor, Denton and Woodley transfers was installed in a hall in the Stockport Public Library. The room was well lighted and heated and provided with plenty of seating accommodation. The demonstration set was well patronised by the public and the local Director of Education was also written to inviting the senior standards of school children.

Approximately 600 senior school children, in charge of masters, visited the demonstration set during the period, and as several of the classes had later to write an essay on their visit, the greatest enthusiasm prevailed. The Juvenile Employment Bureau which, in Stockport, holds classes for persons between the ages of 16 and 19 who are out of work, were also very interested and sent a party of 60.

The majority of the subscribers visiting the demonstration room appeared to be particularly interested in the registration of calls. Such visits have a great educational value for subscribers and will, no doubt, tend to reduce the number of disputed local accounts.

As multi registration is now in force in this District, it is hoped that future demonstrations will include cases of two and three registrations in order to educate the public further in the Department's methods of recording calls.

Consequent upon the visits of subscribers to the demonstration room and visits to every subscriber by the demonstrating officers, orders were received for H.M.T.'s, extensions, &c.

Except in the case of the June, 1932, transfers such particulars were not included in the staff salesmanship scheme.

MANCHESTER NOTES.

It was with profound regret that we received the news of the death of Mr. R. Cole, Assistant Traffic Superintendent, on July 19. Mr. Cole was drowned whilst bathing at Portrush, where he was spending a holiday. He had just entered the water at a dangerous point when he was swept off his feet and carried under. Gallant attempts at rescue were made by several spectators on the beach, but unfortunately they were of no avail. Mr. Cole was a prominent athlete and was well known in local tennis and rugby circles. He was only 22 years of age and was to us a fine young man with the promise of a successful future. His personality will live in our memories for all time. We who worked with him knew his character and knew if emergency came he would act as a very gallant gentleman.

After many unsuccessful attempts Civil Servants in Manchester have at last acquired a sports ground.

The ground is situate in Newton Heath, which is only a short distance from the centre of the town and provides for cricket, hockey, football, bowling and tennis. Football and hockey teams have entered for the Manchester Junior Competitions and by next year it is hoped to compete in the Senior Leagues.

The membership is increasing daily and Civil Servants who have not yet enrolled may obtain full particulars from the various representatives.

Night Telegraph Letter Service.—The recent extension of the area in which night telegraph letters are available has already resulted in an appreciable increase in their numbers. This is encouraging; for as the knowledge of the public extends greater use will undoubtedly be made of the convenience. In this respect a good deal of publicity can effectually be carried on by the simple process of telling your friends.

"Telex" Service.—For some time general preparations have been in hand for the introduction of "Telex" working in the Manchester District. It is anticipated that the new service will be inaugurated here about the middle of September.

REVIEWS.

"The Nomogram." By H. J. Allcock, B.Sc., and J. Reginald Jones, M.A. Published by Sir Isaac Pitman & Sons. viii + 209 pp. Price 10s. 6d. net.

All readers of the technical press will be more or less familiar with the diagrams which are published from time to time by means of which, given the numerical values of certain factors in a problem, the numerical value of some other factor can be obtained. Such diagrams are called "nomograms." They are, in effect, graphical methods of solution of mathematical equations, and when a large number of solutions of the same equation with different data are required, they are extremely useful.

The present book, which is the first of its kind to be published in English, deals with the general theory of nomograms, the various classes into which they are divided and the methods by which a nomogram can be constructed to give the solution of any particular problem. It is well arranged and the ground is very fully covered. We can confidently recommend it to anyone who is engaged on work in which computations suitable for the application of nomographic methods of solution are of frequent occurrence.

"Acoustical Engineering." By W. West, B.A., A.M.I.E.E., of the Research Staff of the Post Office. Published by Sir Isaac Pitman & Sons. xi + 338 pp. Price 15s. net.

In recent years the subject of acoustics has developed from being a rather neglected branch of pure science into a most important section of everyday engineering. The development has been so rapid that little information on the subject is generally available, and the appearance of the book under review, which embodies not only the standard theories but also the result of the most recent work performed at the Post Office Research Laboratories at Dollis Hill, and the laboratories connected with other similar organisations, should therefore be welcomed by all who are by the nature of their work brought into contact with acoustical problems.

After an introductory chapter in which are described the notation used in the book, the various physical constants involved and the transmission unit, there follows a chapter dealing with the analysis of plane waves. The next chapter deals with mechanical vibrating systems, and the following one with acoustical and mechanical impedances and their application to plane waves.

Diverging waves are next dealt with, followed by discussions on resonance phenomena, the distortion of sound and transient phenomena. Then follow three chapters dealing with telephone transmitters, telephone receivers, including loudspeakers, and various electrostatic and electromagnetic acoustical instruments.

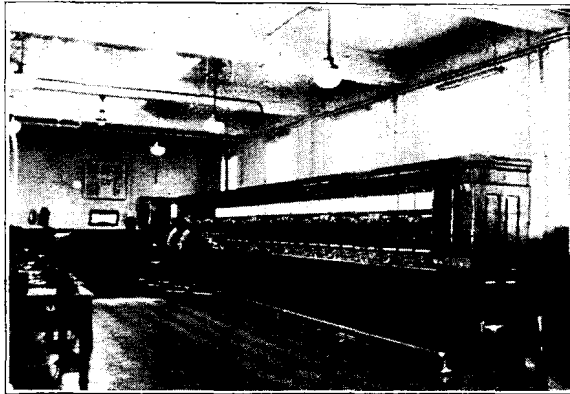
In the following chapter are described the various instruments and methods by which acoustical measurements are made. The next two chapters deal with the absorption of sound by solid materials and with architectural acoustics, and the following one with physiological acoustics. The last chapter describes the various methods used for the measurement of noise and the testing of articulation. There are three appendices which contain some mathematical investigations on wave propagation, &c., which could not conveniently be included in the text.

The book concludes with a number of useful examples with solutions.

It will be seen that the ground is thoroughly covered. The treatment of the subject is good throughout, while the printing and general get-up of the book are admirable. We can fully recommend it to all those interested in the subject.

SUNDERLAND AUTOMATIC EXCHANGE.

(See page 249 and 257.)



A AND B SUITE. SUNDERLAND AUTOMATIC EXCHANGE.



DEMONSTRATION SET AT MESSRS. BINNINGS', SUNDERLAND.

GLASGOW DISTRICT NOTES.

Resignations on Account of Marriage.—Miss E. P. Hanley, Bell Exchange, and Miss S. H. Kean, Central Exchange.

On Money.—In the world of affairs, of iron and steel, brass and copper, steam and electricity, machinery, organisation and effort, it is not love that makes the world go round, but money. (One of the arguments appearing in a pamphlet written before 1912 to persuade the Government against taking over the Telephone Service.)

You will hear every day the maxims of a low prudence; you will hear that the first duty is to get land and money, place and name.—(Emerson.)

On a good foundation, a good edifice may be reared; and the best foundation and moat in the world is money.—(Cervantes.)

Money, which sweetens all things.—(Pepys.)

What a charming reconciler and peace-maker money is.—("Vanity Fair.")

Who steals my purse steals stuff!
'Twas mine—'tisn't his—nor nobody else's!
But he who runs away with my Good Name,
Robs me of what does not do him any good,
And makes me deuced poor.

(Iago paraphrased by Barham.)

It is wonderful how the possession of wealth brings out the virtues of a man; or, at any rate, acts as a varnish or lustre to them, and brings out

their brilliancy and colour in a manner never known when the individual stood in the cold grey atmosphere of poverty.—("Barry Lyndon.")

"You don't despise money, do you Kelly?"

"Me?" said Kelly. "I can lick the man that invented poverty."—(O. Henry.)

In former years I used to keep a little gold by me in order to ascertain for myself exactly the amount of pleasure to be got out of handling it; this being the traditional delight of the old-fashioned miser. There is something very stimulating in the feeling that all the world over these same yellow discs are the master-keys that let one in wherever one wants to go, the servants that bring him pretty nearly everything that he wants, except virtue—and a good deal of what passes for that. I confess, then, to an honest liking for the splendours and the specific gravity and the manifold potentiality of the royal metal, and I understand, after a certain imperfect manner that . . . a miser is not the prosaic being we are in the habit of thinking him. He is a dreamer, almost a poet. You and I read a novel or a poem to help our imaginations to build up palaces, and transport us into the emotional states and the felicitous conditions of the ideal characters pictured in the books we are reading. But think of him and the significance of the symbols he is handling as compared with the empty syllable and words we are using to build our aerial edifices with! In this hand he holds the smile of beauty and in that the dagger of revenge.—(O. W. Holmes.)

There can be no more effective way of interesting a man in any scheme than by making it worth his while, and if the foremen knew that all odd sections of unknown spare wire brought into use meant money in their pockets, I am certain they would give the matter their best attention.—(N.T.Co. Paper.)

And having food and raiment let us therewith be content. But they that will be rich fall into temptation and a snare, and into many foolish and hurtful lusts, which drown men in destruction and perdition. For the love of money is the root of all evil.—(1 Tim. vi.)

WESTERN DISTRICT NOTES.

THE Western District is still forging ahead and development continues to be very gratifying. August has been a very heavy month for the Equipment Section, the programme including not less than the opening of two new C.B. exchanges at Newton Abbot and Yeovil respectively and the closing of the magneto exchanges. Two manual exchanges replaced by rural automatic exchanges and the opening of six new rural automatic exchanges.

In the case of Newton Abbot, a few days after the transfer there was a ceremonial opening, about 80 visitors accepted invitations to inspect the new exchange, and among the several prominent persons present was Miss Beatrice Chace, the well-known Dartmoor novelist. The visitors were much impressed by all they saw, which, beside the exchange, included a display of subscriber's apparatus, the internals of a multi-coin box, a multi-coin box call office and some specimens of cable joints. A Contract Officer was in attendance and it is interesting to note that some new orders were secured on the spot. After each group of visitors had been conducted round the exchange and exhibits they were entertained to tea in the operators' retiring room, which had been very tastefully arranged as a café by a local firm of caterers. The visitors were unanimous in admiration of all they saw, but declared that it was beyond them. All agreed they would never make a complaint again. Incidentally the exchange is a perfect model and reflects the greatest credit on all concerned.

In the case of Yeovil a ceremonial visit is to be made next month, when the new post office will also be opened.

A new post for Assistant Traffic Superintendent has been created, and to fill it we welcome Mr. H. Smart, who has been transferred from Glasgow.

The influx of visitors to holiday resorts is this year very heavy, but the Operating and Traffic Staffs have risen to the occasion and the usual high standard of service is assured.

Sic vos non vobis.

F. J. F.

GUILDFORD DISTRICT NOTES.

Promotion.—We were delighted to hear of Captain F. C. Taylor's promotion to the position of Contract Manager, First Scale, at Birmingham. Captain Taylor was Contract Manager here for 2½ years, and during that time he spared no efforts to popularise the telephone in Guildford and district. Before leaving to take up his new position at Birmingham Captain Taylor was the recipient of a handsome grandmother clock, gold sleeve links and briar pipe, presented by the District Manager on behalf of his colleagues in the District. Appropriate speeches were made by Mr. Weller, Contract Officer, Cl. I, Mr. Hood, Staff Officer, Mr. France, Traffic Supt., W. Ballam, Contract Branch and Mr. Garrood, District Office.

Captain Taylor's post has been filled by Mr. Hickman-Clark, from St. Albans, to whom we extend a cordial welcome.

LEEDS DISTRICT NOTES.

AUGUST is the month of holidays, but their incidence in the North might be described as more "wholesale" than in the South, and they have a definite effect on the preparation of standard records due for compilation in the months of July and August. The holidays, which usually cover the period of a week, are known variously as feasts, fairs, tides, wakes, &c., and are spread over the latter part of July and the whole of August. Each city or township, big or small, is a law unto itself and is not dependent in any way on the arrangements of its neighbours. The Bank Holiday, unless it happens to be part of the general holiday week, is not observed by business communities. The remarkable point seems to be the utter deadness of the township during its week. Practically all shops, factories and mills close down and everyone who can manage it goes to the seaside, principally to Scarborough, Bridlington, Blackpool or Morecambe. In consequence, just to quote one effect, it is regularly necessary in the West Yorkshire district to take the July operating statistics return a fortnight before the specified dates.

The following towns and dates which are arranged in couples of one large with an adjacent small, are examples of the varying periods of holidays:—

Huddersfield	...	...	...	July	18-23
Brighouse	...	...	...	Aug.	15-20
Wakefield	...	...	...	"	15-20
Osselt	...	...	...	May	1-6
Halifax	...	...	...	Aug.	8-13
Hobden Bridge	...	...	...	July	11-16
Keighley	...	...	...	"	25-30
Cross Hills	...	...	...	Aug.	8-13
Bradford	...	...	...	"	15-20
Shipley	...	...	...	"	1-6
Dewsbury	...	...	...	July	25-30
Cleckheaton	...	...	...	Aug.	29-Sept. 3

The Leeds Telegraph Messengers' Annual Sports were held at Headingley Cricket Ground on Wednesday, Aug. 10, before an excellent attendance.

While the sports were highly successful the "picce de resistance"—as last year—was the cricket match, Ladies Telegraphs v. Ladies Telephones. Telephones avenged themselves handsomely for the narrow defeat sustained at the hands of Telegraphs last year by scoring 101 for 5 wickets and disposing of their opponents for 62 runs. For Telephones Miss Boston scored a brilliant 46—including 6 fours. Miss Haiste was top scorer for Telegraphs with 18. The form of Telephones in all departments of the game was superlative. The sportive spirit evinced by both sides and the quality of the cricket displayed was the subject of much favourable comment by the old service cricketers around the rope. Well done both sides! We look forward to another of the same next year.

The entries for the racing events showed a large increase over those of former years. Teams representing Bradford P.O., Keighley P.O., Leeds Engineers, Leeds Sorters, Leeds Motor Drivers and Leeds Postmen hotly contested the relay race which was won by Leeds Engineers (Messrs. Bent, Conyers and Lean). It is hoped that other offices in the District will be able to participate in this and other open events next year.

The results over the principal event were as follow:—

100-yds. *Championship for Leeds Sportsmen's Cup.*—1st, G. Poulter; 2nd, A. Reed; 3rd, E. Evetts.

Potato Race.—1st, J. Newton (Bradford); 2nd, W. Conyers; 3rd, G. Stanton.

800 yds. *Championship for G. W. Smith's Cup.*—1st, H. Briggs; 2nd, W. H. Christie; 3rd, H. Brennan.

50 yds. *Sack Race.*—1st, S. Coates (Bradford); 2nd, W. Conyers; 3rd, H. Ramsden (Wakefield).

Half-Mile Open Event for G.P.O. Employees.—1st, E. W. Bent; 2nd, R. Palmer; 3rd, S. Firth.

Wheelbarrow Race.—1st team, S. Coates and J. Newton (Bradford).

400 yds. *Championship for the Stock Exchange Cup.*—1st, H. Briggs; 2nd, G. Poulter; 3rd, A. Reed.

75 yds. *Ladies' Race.*—1st, L. M. Hall; 2nd, R. McManus.

100 yds. *for Men 45 years and over.*—1st, F. Murray; 2nd, A. Fox.

220 yds. *for the Joseph Pickersgill Cup.*—1st, N. Briggs; 2nd, G. Poulter; 3rd, J. R. Siddle.

At the conclusion Col. Jayne, D.S.O., O.B.E., M.C. (Postmaster-Surveyor), after a few introductory remarks by Mr. Mansell (Chief Telegraph Superintendent), welcomed the visiting Postmasters and other officers and friends and expressed his pleasure at seeing the success of the visiting competitors. He hoped that the visiting contingent would be still larger and more representative at the next gathering of the kind.

Mrs. Jayne was then asked to present the prizes to the winners of the various events—a task which she performed with much grace and evident pleasure.

Mr. Hunter (assistant Postmaster) closed a very enjoyable evening by proposing a vote of thanks to Mrs. Jayne, Col. Jayne and the organisers of the meeting.

Mr. Sutcliffe, the Leeds Exchange Superintendent, was the central figure in a pleasurable little function which took place in the Traffic Section of the District Manager's Office on Aug. 12. The occasion was in connexion with his forthcoming marriage.

A presentation of a dinner service coupled with all the good wishes of his friends in the Section was made to him. It is understood that the exchange staff also recognised the event and testified to the good feeling that exists between it and the Superintendent by the gift of a tea service. All in all it would appear that Mrs. Sutcliffe will start off with a well-filled china cabinet.

Our heartiest congratulations are tendered to Captain J. E. Fletcher, A.M.I.E.E. (Sectional Engineer), Leeds External Section, on the occasion of his promotion to Asst. Superintending Engineer, Newcastle-on-Tyne, which took effect from Sept. 1, 1932.

Capt. Fletcher was able to claim a long acquaintance with the N.E. District, having spent nearly 20 years in it, first as Assistant, and then as Sectional Engineer; this long period only being broken from Oct. 26, 1926, to Oct. 31, 1928, when he was in the South Lanes. District as Executive Engineer in the Technical Section.

On Aug. 5, prior to his going on annual leave before taking up his new duties at Newcastle direct, he was presented with a clock of the grandmother type, by his colleagues and staff, as a token of the esteem in which he was generally held. A large and pleasantly informal gathering, at which Mr. D. W. Scutt (Sectional Engineer) West Yorks Internal Section, was Chairman, was held in the Sectional General Office. A representative number of all grades of the Sectional and Headquarters staff were present.

The presentation was made by the Superintending Engineer, Mr. J. W. Atkinson.

Capt. Fletcher, in reply, remarked somewhat humorously that if all the good things spoken of him that afternoon were true, the Leeds Section must have been entertaining unawares a paragon of virtue. While thanking everybody for their generous praise and good wishes for his future, he could not help feeling that it would be advantageous if a little more social intercourse could be arranged, so that both staff and other officers would learn to know one another better, and this he considered would be for the general good of all concerned.

The proceedings terminated by Captain Fletcher taking an individual farewell of all present.

Congratulations are tendered to Mr. S. Horrox, Unestablished Draughtsmen in the Superintending Engineer's Drawing Office, on his success in the recent examination for the position of Assistant Traffic Superintendent. Mr. Horrox took up his new duties on Aug. 15. Before leaving, his colleagues presented him with a silver cigarette case as a token of their regard, and extended to him their best wishes for his future in his new sphere of work.

It is interesting to note that the Head Postmaster concerned was able to satisfy the writer of the following letter:—

"Sir—Madam,

"I took a licence out for a receiving set before I got married which expires in December. I have got a set of my own now and I went to the local Post Office to get a licence and I have to notify you first as the other one was in my name."

FOR OUR ADVERTISERS.

ALL enquiries should be addressed to the Department of Overseas Trade, 35, Old Queen Street, London, S.W., except where otherwise stated, quoting reference number in all cases. Supplies, &c., required by:—

Australia.—Melbourne. Sept. 26. City Council. Totally enclosed metal-clad 6,600-volt switchgear (A.X. 11435). Sept. 27. Vitreous resistances (A.X. 11412). Oct. 4. Posts and Telegraphs Dept. Switchboard and instrument plugs (A.X. 11427). Instrument cords (A.X. 11428). Oct. 11. Condensers (A.X. 11436). Sydney. Sept. 26. Miniature-type control gear for Pymont power station (A.X. 11436). Oct. 11. Condensers (A.X. 11436). Oct. 25. Telephone receivers and parts (A.X. 11452), also telephone transmitters, &c. (A.X. 11453). Oct. 10. City Council. Metal-clad switchgear, &c. (A.X. 11467).

Egypt.—Cairo. Sept. 24. Ministry of Interior. Ice-making plant at Minich, Zagazig, Fayoum, Keneh and Assouan (A.X. 11424). Sept. 20. Steel poles, armoured cables, &c. (A.X. 11415). Sept. 24. Four 25-k.v.a. transformers (A.X. 11429).

The Greek Radio Market.—Department of Overseas Trade report states Greek Market will probably offer good opportunity for sale of radio apparatus in future.

Reports on radio apparatus trade in Egypt, Ref. A. 11401, and Turkey, Ref. A. 11403, have been issued to firms on its special register by the D.O.T. United Kingdom firms interested in these markets should apply for copies at D.O.T., address as above.

J. J. T.

LONDON TELEPHONE SERVICE NOTES.

Contract Branch Notes.

DURING the month of July there was a net increase of 891 stations. An initial order has been received from Shell-Mex, Ltd., at their new building in the Strand, for 301 extensions, most of which are removals. Mac Fisheries have placed an order for 81 extensions.

Other recent orders obtained include :—

Standard Telephones & Cables, Ltd.	...	...	20	Extensions.
Centuries Club, Ltd.	...	...	54	"
Anglo-American Oil Co.	...	...	37	"

Exhibition time in London has commenced and will continue almost without interruption until almost Christmas. By the time these notes appear the Radio Exhibition will be over, but others will follow at frequent intervals.

In September there will be exhibitions of the following trades :—

Confectionery	...	...	Aug. 31 to Sept. 8
Bakers	...	...	Sept. 3 " " 9
Builders	...	...	" 14 " " 28
Grocers	...	...	" 17 " " 23
Motor Show	...	...	" 13 " Oct. 27

For some time past a gradual improvement in the use of the special telephone facilities afforded exhibitors has been noticeable, but the returns show that there is still a big margin for expansion. It is hoped that this favourable field for development will be fully explored and every effort made to improve on previous results.

We are pleased to record the following recent promotions of members of the Contract Branch: Mr. W. F. Taylor, Principal Clerk to Assistant Controller; Messrs. C. W. Muirhead and J. Hinshelwood, Staff Officers to Superintendents; Mr. W. C. Child, Higher Clerical Officer to District Contract Manager, South East Office; Mr. J. T. Hepburn, Clerical Officer to Higher Clerical Officer, Western Office.

The progress of the Staff Salesmanship Scheme is indicated by the following figures :—

	Total No. Ordered since Sept., 1931.	Orders Received Month ended Aug. 15, 1932.
Exchange lines	955	79
Extensions	882	95
Private lines	11	2
Plugs and sockets	144	16
Hand-Microphones	4,250	458
Extension bells	348	44
Miscellaneous	464	50

Salesmanship Incidents, London Telephone Service.

Risks and Compensations.—The order recently went forth to dig deep into the canvassing field. A canvasser was engaged on calling from house to house in a rather poor locality. In spite of having just drawn three blanks he proceeded to knock at the fourth door. Rain was beginning to fall and there was every appearance of a storm. The knock was replied to by the vigorous barking of a dog. Suddenly the door was opened by a vast expanse of "shirt and braces" who demanded in a choice collection of adjectives what the . . .

At this moment things began to happen rapidly. The dog, still barking, flashed out into the street with "shirt and braces" in hot pursuit. The door slammed to and rain came down in sheets. After sheltering a few minutes the canvasser was about to withdraw when the infuriated "shirt and braces" panted back, without the dog, to find the door closed, and rain still falling heavily.

It transpired that the dog, a valuable animal, did not belong to the householder. He had no key to open the door, was now thoroughly soaked, and demanded of the canvasser what he was going to do "abaht it." Meanwhile fragments of advice were being offered from neighbouring windows, and had not "shirt and braces" responded to an invitation to try and force an entry from the back it is probable this tale would never have been told. The question is asked how would you capitalise a situation like this?

Of course, if "shirt and braces" had had telephone service the call may not have been made and the whole trouble avoided. The value of the telephone to assist in recovery of the dog would have been immensely useful. But what a heaven-sent opportunity to hold a mass meeting in such a locality to expound the virtues of the telephone service. Nevertheless, these supposed indifferent localities have some profitable pickings.

The writer knew a man without service who lived in one of these unattractive areas for 2 years, when he moved to a rather better district. Immediately he was approached by a canvasser and an order was obtained without difficulty.

And after all—"If none endeavour there would be an end to discovery."

The following conversation took place recently over the telephone :—

"I haf bought a business in Aldgate and I vant my telephone removed from Whitechapel to Aldgate. It is not far. Vat vill it cost me?"

"The removal charge, sir, is 25s."

"Vat! pay 25s. for a 1d. tram ride! Ach, no! I vill take it myself."

A Contract Officer relates the following recent experiences :—

"After a not very interesting morning interviewing people I suddenly observed a man smilingly entering an attractive looking house nearby.

"He received me pleasantly and I discovered that the telephone I saw was the only one he had and that an extension might be very useful to him. But I had reckoned without my host's sense of humour. 'I'm a commission agent,' he said. 'There are nine special clients to be obtained in the next 10 minutes. If I get no wrong numbers I will think over the extension business.' 'Can I make the calls?' I asked. 'Very well,' he said. I completed the nine calls in 4 minutes. 'That's queer,' he remarked, 'all on the same horse. If she wins you get no extension.' 'What's the odds?' I queried. 'Twenty-eight to one,' he replied. 'Right, I'll lay a shilling against the extension with hand-microphone for a year at the same odds.' 'Agreed,' said the commission agent.

"In 20 minutes an agreement was signed, and the subscriber was asking me how I knew what 'laying off' meant. 'I see now that you were bound to win—in any event.' 'No,' said I, 'you win, you get a telephone which may prove to be priceless.'"

"I recently interviewed a titled lady about an extension I thought she ought to have.

"She opened the door herself, a pale-faced, wan-looking figure. 'To-day I will show you where,' she said, and led the way up interminable stairs, pausing for breath at odd intervals, rustling her silks and occasionally glancing at me with queer, large grey eyes.

"Eventually, on the top floor, she paused at a door and said 'In this room—pray precede me.' The sight that I encountered when I stepped into the room was remarkable. A large four-poster took the centre of the room, round which was grouped an assortment of chairs, china, hassocks, bed linen, mattresses and curtains in indescribable confusion, covered with dust and spiders' webs, which sometimes reached up to the ceiling. Everywhere there was a litter of letters and papers, torn and decayed with age.

"As she closed the door I realised for the first time that I was alone with a mad woman, who had brought me, a stranger, to escort her whilst she gazed on some tragedy of bygone years. She now started gibbering and in a ghostly voice begged my pardon that her room was a little untidy. In an endeavour to stave off any unpleasantness I made some commonplace remark about an extension. It was like a spark to dry timber: 'Telephone! Telephone!' she screamed. 'HE didn't like the telephone. How dare you come in his room.' She then proceeded plainly to show me that life would be more pleasant outside that house. But a slight move on my part towards the door was so obviously unwelcome that I just stood and thought about it all. How could I distract her attention for long enough to permit of my escape.

"An inspiration. I dashed to the window. 'Look, look, a wedding,' I cried. Over she came and started peering eagerly down at the road. Noiselessly I reached the door and as I passed outside I heard her chuckling and saying 'Your funeral comes next, my pretty dear, and then you'll . . . I heard no more but sped down stairs and out to the fresh air before my absence was noticed.'"

L.T.S. Sports Association.

Tennis.—"Agnes Cox" Cup, Ladies' Doubles. This competition is now nearing the final stages. A.R.1 Accounts Branch, the cup holders, have won their semi-final by beating A.R.9.

Clerkenwell have still to play A.R.6 for a place in the final.

The final will be played at Chiswick (C.S. Courts) on Saturday, Sept. 17.

"Pink" Cup.—Ladies' Singles.—The fifth round is still in progress.

Last year's finalists, Miss Wilson, A.R.1, and Miss Parker, Maryland, are still in the running, and Miss McGlade, Trunks, has reached the semi-final.

This final will also be played at Chiswick, on Saturday, Sept. 17.

Annual Distribution of Prizes.—This social event will be held in the Cornwall House Refreshment Room on Wednesday, Nov. 2.

A further announcement in this connexion will be made later.

London Telephonists' Society.

The programme for the new session promises to be specially interesting and attractive; the meetings provide several novel items, and new features have also been introduced into the competitions which have been arranged.

Some of the most outstandingly successful items of past meetings have been those contributed by members of the society themselves, and this feature has been specially borne in mind in preparing this season's programme.

The bills announcing full details will be exhibited at the exchanges by the time these lines appear in print, and all the exchange staffs should

take an early opportunity of studying them and of joining the society, whether they have previously been members or not.

Special attention is drawn to the fact that for this year we are meeting in the Refreshment Club, Cornwall House, which, with its recent extension and redecoration, will provide more cheerful surroundings than the Lecture Hall at the City of London Y.M.C.A., and will afford the additional advantage that members may, if they wish, have tea there before the meeting commences. It is also hoped, by providing opportunities for a little music and dancing, to strengthen the social side of the society's activities.

To all our old friends we extend a hearty welcome; we hope that the coming season may see their numbers considerably augmented by the enrolment of new members, to whom we offer an equally cordial greeting, and express the desire that they, with us, may participate in a very enjoyable and successful session.

Personalia.

Resignations on Account of Marriage.

Telephonists.

Miss R. M. Thompson, of Wanstead.	Miss A. A. Cocks, of Battersea.
" G. E. Shorey, of Rodney.	" M. Radcliffe, of Toll "A."
" E. H. Read, of Pollards.	" D. M. Godfrey, of Toll "A."
" D. M. Woodall, of Primrose.	" E. A. Sweetman, of Clissold.
" D. M. Parker, of Central.	" F. M. Rider, of Clissold.
" G. Cook, of Central.	" A. L. Eford, of Toll "B."
" M. Jones, of Central.	" F. J. Rayner, of Toll "B."
" R. I. G. Davis, of Central.	" L. W. Carter, of Toll "B."
" N. L. Lemmon, of Central.	" L. B. Giorgi, of Hampstead.
" I. A. Ticehurst, of Central.	" R. C. McSweeney, of Gerrard.
" A. D. Slater, of Central.	" E. K. Chambers, of Sutton.
" E. L. Hart, of Central.	" E. A. Hanger, of Reliance.
" M. E. M. Richardson, of Park.	" D. E. Evans, of Chislehurst.
" J. E. Clarke, of Chiswick.	" A. L. Handley, of Riverside.
" M. L. Causbrook, of Wallington.	" H. M. Barrett, of Cunningham.
" C. M. Mayhew, of Monument.	" J. M. Hogg, of Temple Bar.
" V. A. White, of Monument.	" D. B. Burgess, of Willesden.
" A. E. A. Watson, of Putney.	" D. R. Egerton, of Bishopgate.
" D. M. Galliford, of Richmond.	" E. K. Hazell, of Bishopgate.
" I. Chapple, of Richmond.	" I. F. Spill, of Bishopgate.
" F. N. Breens, of Hop.	" H. M. House, of Purley.
" C. A. McCutcheon, of Hop.	" F. E. Bates, of Purley.
" E. A. N. Cull, of Clerkenwell.	" C. M. Sheldon, of Mayfair.
" F. E. N. London, of Clerkenwell.	" K. M. Francis, of Victoria.
" M. Martin, of Kensington.	" H. P. Pritchett, of National.
" M. L. Pratt, of Tandem.	" W. N. Harvey, of Mountview.
" E. A. Barkway, of Tandem.	" V. Firth, of Terminus.
" D. Cordy, of City.	" G. R. Coates, of Museum.
" N. V. B. Turner, of City.	" L. A. M. Fryer, of Trunk.
" B. E. M. Meacock, of Hounslow.	" M. T. Cant, of Trunk.
" I. M. Skinner, of Holborn.	" O. L. Pointing, of Trunk.
" K. I. Dawson, of Greenwich.	" E. M. Cook, of Trunk.
" V. R. Stent, of Royal.	" G. O. Goff, of Trunk.
" K. M. Hutchison, of Royal.	" K. A. Alderton, of London Wall.
" D. M. Matthews, of Croydon.	" E. Mayo, of Grangewood.
" E. D. Moore, of Battersea.	" E. A. Gregory, of Bushey Heath.
	" G. E. S. Olrog, of Prospect.

POSTMASTER-GENERAL AT BENENDEN.

NURSES formed a guard of honour at the National Sanatorium, Benenden, on July 20, when a visit was received from the Rt. Hon. Sir H. Kingsley Wood, the Postmaster-General.

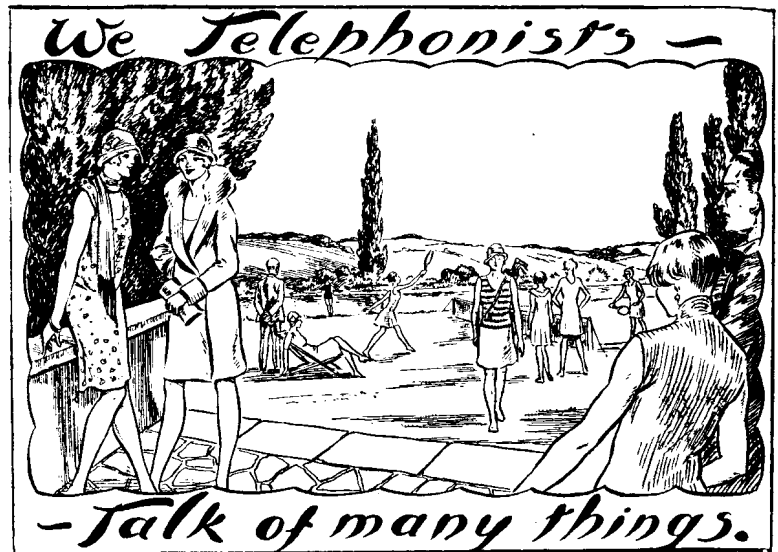
Sir Kingsley was received by Mr. W. O'Shea, Chairman of the National Sanatorium Council, Mr. F. C. Goss, Vice-Chairman, Mr. G. W. Davis, M.B.E., Hon. Treasurer, Messrs. A. Trollope and F. E. Durrant, Hon. Secretaries, Dr. H. Spurrier, Medical Superintendent, Dr. S. Hall, Assistant Medical Officer, Miss E. A. Richards, Matron, and Mr. R. E. V. May, Steward.

He made an inspection of the men's and women's wings, chatting with the patients on his way. Sir Kingsley visited the cubicles and later the farm buildings, recreation room, nurses' and maids' quarters, kitchen, boiler-house, X-ray room and gardens.

Sir Kingsley said he had come down because he knew that so many officers of the Post Office had received excellent treatment at Benenden, and desired to see for himself the conditions under which they were living at the present time.

Mr. O'Shea, in thanking Sir Kingsley, said the National Sanatorium Association had from its inception had a Post Office connexion, and when established 25 years ago it was intended to be one of a chain of similar institutions throughout the country for the benefit of the workers.

The Sanatorium accommodates 150 patients. During his visit Sir Kingsley conversed with a man who was there 21 years ago and has just returned for temporary treatment after performing his duties in a Post Office for the whole of that time. The grounds cover 350 acres, and 60 beds are maintained by the Post Office Sanatorium Society.—(*West Kent Messenger*.)



Dear Editress,—Have you seen our new Programme? What's that—you don't know what Programme I mean? Oh but, I say, really—I mean to say—there's only one Programme that can possibly interest anyone. But really—I say, could you or anyone else think of anything in the wide world in September except the Telephonists' Society? I mean to say—of course—perhaps Mr. Ramsay Macdonald or Greta Garbo *do* think of something else, sometimes—but—well, really—we telephonists: can you imagine us thinking of anything else? But, of course, I haven't told you what our Programme *is*, yet, have I? How stupid of me—but really, if you don't know all about it already, what can I begin with? I mean to say, it's *all* so topping that—well really, I don't know where to begin. Do you remember that subscriber who wrote in to the Controller and told him that his service was atrocious and I ought to be sacked? I ought to be sacked, mind you—not just one of the others, but *me*! Well—of course you'll hardly believe me—but he's coming to one of our meetings and he's going to tell us all what he really thinks of us. Oh—and I mean to say, that the cream of the joke is that we shall be able to answer him back! We telephonists! I mean to say—after he has said all the rude things he's *sure* to say, *we* can join in and tell him how good we are, and how we look after him, and all that sort of thing. But really, Editress dear—don't you think that will be too awfully topping? Oh, and then—one of the Engineers—you know who they are, don't you? The people who put all the faults on our lines so that the subscribers will grumble at *us*—well, I mean to say, one of these Engineers is going to stand up and tell us what he has done to help us! To *help* us!! As if that wasn't about the outside edge! I mean to say—but then, one of *us* is going to tell him what he *might* have done—and that will make him feel pretty small, I guess. I expect he'll get *hundreds* of his silly old engineers to back him up—but then you see—I mean to say—there are *thousands* of us telephonists—so we ought to get to our own back, don't you think so?

There's lots more I *could* tell you—only I haven't another sheet of paper here—I used the last one to draw a picture of that subscriber when he sees all us telephonists facing him—the girls here thought it was a scream; one of them was so excited she forgot to put her key back and the subscriber heard her laughing! She got a P. 18 for that—so now she's coming to the meeting to have her revenge on that subscriber.

O but—really—I nearly forgot one *awfully* important thing: you *must* be a member before you come to the meetings—so—I mean to say—*dear* Editress you *will* join, won't you—we are *all* going to—and then you look out for the yellow bill with the Programme on it—it will tell you ever so much more than I can—and then, Editress dear, you will thank me—thank me for having told you about joining *our* Society—the one we telephonists have for our very own.

Good-bye, Editress dear—I must fly—I'm due back in the switchroom in two minutes.—Yours to a speaking-key,

PENELOPE PLUGPUSHER.

Beach Pyjamas.

What a lot of nonsense has been written about Beach Pyjamas—so much, in fact, that the little more I propose to write won't be noticed. First of all they were heralded with delight; columns of print were erected in their honour: they were bathed in gallons of ink and photographed by the acre. Then when everybody was quite out of breath through singing praises to the bifurcated creation and was settling down in a palpitating silence to prepare for the next yell—along comes Mrs. Grundy. She looked up her dictionary and found that a pyjama was night wear and she was *furious*. What that good woman sees with her eagle eye, thinks with her unswollen mind and says with her sweetly modulated voice is amazing. I wouldn't

care about her seeing, thinking and saying if it didn't cause the whole bally circus to revolve again. The defence and the prosecution both leap to their feet and at each other's throats; they yap and snarl and shout "'Tis: 'tisn't" at the top of their voices. Violent letters appear in the Press and then there's more columns, gallons and acres. Leagues are promoted for the Suppression or Extension of Beach Pyjamas and Watch Committees are harried into making solemn pronouncements. Pathetic pleas are advanced on behalf of the Beach Pyjama Makers and we are asked how these poor people are to support themselves and their families if Beach Pyjamas are abolished. Nobody appears to care a hoot as to how they supported themselves before Beach Pyjamas were invented nor what happened to the Ancient Society of Woad Makers when Nudism went out of fashion.

What's the matter with Beach Pyjamas, anyway? Of course, most of them are ludicrous—either of themselves or because of their wearers—but then most new dress fashions are when they first burst upon a startled world like a joyful eyeful. All Beach Pyjamas are more decorous than most evening dresses, many of which would bring the blush of sunburn even to a sub-normal Grundy. We have now reached the stage at which Beach Pyjamas may not be worn when taking tea in the lounge. Well, why not? Probably because it's all part of the dress fetish—that particular set of clothes must be worn on particular occasions. It is obviously absurd to try to play a good game of tennis in a frock-coat, topper and spats—not because "it simply isn't done," but because it's inconvenient. I can eat an ice whilst wearing an open-necked shirt, but if that ice happens to form part of a seven-course dinner I must shut up my neck in a stiff collar, wear a boiled shirt and a dress suit before I can open my mouth. One obviously doesn't wear tramping shoes on a dance floor or a ball-dress whilst hiking—again primarily as a matter of convenience. Convention in dress, as in other things, is convenience which has outlived reason.

Eventually, of course, Beach Pyjamas will cease to be a novelty, interest in them will wane, and in consequence no one will want to wear them. Until then, take my advice and wear them—but for ludsake don't say I said so.

PERCY FLAGE.

Miss Birdie Twilfit on Cruise.

[We have received a letter from Miss Twilfit. She is cruising at present. Extracts from her letter are given below.—Ed.]

I mean anyone who is anyone in these days is cruising, don't you think so? I mean the three remarks one hears nowadays haven't you noticed are "I have cruised," "I am cruising" or "I am about to cruise." I mean it's just like a French exercise really. . . . Of course, it's fearfully thrilling, I mean, being on a simply gigantic liner simply miles away from land. I think it's perfectly wonderful where all the ocean and so forth goes when the tide goes out if you know what I mean. You know there always seemed to be about the same amount of sea round the boat whenever I looked and I never saw the sand once. It must have been low tide at night I suppose. I mean, don't you think? . . . Of course, I mean really, I'd been told all about the Bay of Biscay; about it's being rough and about the ship rolling and tossing and pitching and so on and so forth but well, I mean really, I—Oh my dear: yes for days: perfectly dreadful. You know really it ought to be called the Bay of Sickbay. . . . It's all really quite enjoyable of course, if it were not for the appalling mismanagement of everything. I mean lots of things were too perfectly dreadful—but I suppose one can't expect anything else. I mean the whole show is run by men. For instance, three times a day a cornet player comes along and plays a tune. Well, I said, I mean this is not too bad but I should have thought the company could have provided a band. I mean, after all, we're paying. Anyway, on the first day after he'd finished his little piece I clapped and gave him a wee tip. Everybody laughed so I joined in. Well I mean, one wants to be sporty, doesn't one, really. Then someone said "That's the bugle for lunch." Well I mean, I was furious. So frantically stupid, don't you think. I mean why don't they use a gong or even use the hooter thing on the chimney. And then we always had to go downstairs for meals. You would think, wouldn't you, I mean really, that now and again they would arrange for a picnic on the beach. And then about sleeping: I mean really, it's bad enough, don't you think, to have to go to bed on a shelf, but I do think they ought to stop the engines at night. I said to the conductor "I mean really, it's most fearfully disturbing; why, at home we even turn the wireless off at night." He was awfully decent about it and said he'd speak to the chief engine driver, but nothing was done. Then I mean the sports: there was deck tennis, and I'd taken my racquet. Now I mean it's too perfectly absurd: one can't play tennis, I mean, can one, don't you think, with rubber rings. I mean I said to the sailor well one must have some tennis balls, but he said "It's played with rings," so I just said: I've been playing tennis for years, my man, and you can't tell me, I mean. . . . And there's quoits and a game played with wooden discs and a hoe. But I mean really it's perfectly useless to try to play games really because the conductor just won't keep the ship from rolling about. I mean he must know how perfectly stupid it is. . . . You know, I mean, really these naval men tell you all sorts of things, but of course they didn't catch me, no not once. I mean they were so patently absurd. I mean the chief engine driver said the ship was driven by turbines which turn screws. Just as though I didn't know, I mean really, about turbines being a sort of fish at banquets, and screws being put into wood to hold things and so on. And then I said about how did they find their way at night and the conductor said by compass. So I said pooh, rot,

a compass is for drawing circles and squares and things and for bisecting. I mean, when I said bisecting he knew he was speaking to an educated woman and he hurried off. I mean, I may be a woman but I can see a joke, but, well really, if you see what I mean, don't you think it was. . . . It was awfully funny about the swimming pool. You know I mean quite lots of people went in and they swam round and round like goldfish in a bowl. I sunbathed: I mean lots of people, don't you think, don't know the difference between a bathing costume and a swimming suit. I mean one dripping hag said to me "Afraid your costume will shrink," so I just said ever so sweetly "I've never worn it in the rain." Cat . . . ! It's rather exciting going ashore down the fire escape. But I mean the people are rather trying really and don't speak English. I mean it's so awkward really. And they're not at all obliging. I mean you would think they'd take a penny stamp on a postcard, wouldn't you. Well I mean I said the card is going to England and it's a perfectly new stamp so it stands to reason, I mean, really that you ought to take it. And their money: I mean they try to palm off all sorts of foreign coins and some with holes in them, but I said: no, you can't cheat Miss Twilfit. Well, I mean, I do hate to be done, don't you, I mean really.

Contributions to this column should be addressed: The Editress, "Talk of Many Things," *Telegraph and Telephone Journal*, Secretary's Office, G.P.O. (North), London, E.C.1.

RETIREMENT OF MR. R. BAXTER, CARLISLE.

48 YEARS' SERVICE IN THE POST OFFICE.

AN interesting gathering took place on Aug. 5 at Carlisle Post Office, after closing hours, when Mr. Robert Baxter, late Asst. Superintendent (Tels.), of Carlisle, who retired last May after 48 years' service in the Post Office, mostly in the Carlisle area, was presented with a cheque by his former colleagues and associates in all departments of the service. Mr. David Wilson, Preston, and Mr. James Short, London, who were formerly in the telegraph department at Carlisle, were also associated with the parting gift to Mr. Baxter. Mr. J. T. Shepherd, Chairman of local branch of U.P.W., occupied the chair, and the cheque was presented, on behalf of the subscribers, to Mr. Baxter by Mr. J. Pierce, the Postmaster, who said he was away on leave at the time Mr. Baxter retired, but it gave him gratification to be present on this occasion to hand over the cheque to Mr. Baxter, who he believed intended to purchase some furniture with it.

Mr. Baxter's service in the Post Office dates from July, 1884. On his retirement last May he received from the Postmaster-General an expression of appreciation of his 48 years' faithful service to the State.

He has served in the surveyor's department and in the postal, telegraph, telephone, and engineering branches, and also as a district charge clerk. He holds ten technical certificates, including the City Guilds of London Institute honours awards in telegraphy and telephony.

During his term he has known at Carlisle seven surveyors and eight head postmasters, and has worked in conjunction with eight engineers and five district managers. Mr. Baxter is the sixth officer of his rank to have had charge of the local telegraph work since the State acquired the service in 1870.

For some years prior to the Great War, Mr. Baxter was a Reservist for coastguard duty, and on the outbreak of hostilities he volunteered for military duty. He was then serving in the capacity of Assistant Traffic Superintendent at Leeds, from which city he was called to perform duties connected with the training of the Royal Field Artillery in signalling. During this period he trained upwards of 500 officers, non-commissioned officers and men, principally in the East End of London and in the Aldershot Command. The training consisted of operating, cable-laying, observation work, and technical lecturing.

Mr. Baxter had some interesting details to give regarding the busiest and lightest traffic loads passing through the Carlisle Post Office. The "peak" was experienced by him during 1919 and the slackest was during the present year. The comparative loads were 7,000 telegrams a day in 1919, but only 1,300 in February this year.

In 1919, he said, the working circuits and staff were 29 and 40 respectively, and in 1932, 8 and 13 respectively. In his view the falls in the figures have been due to the condition of trade, and to telephone and omnibus services reducing the demand for telegraphing. He believes the telegraph service is passing through conditions comparable with those of the railway service.

CONVERSION OF JOHANNESBURG (S. AFRICA) TO AUTOMATIC WORKING.

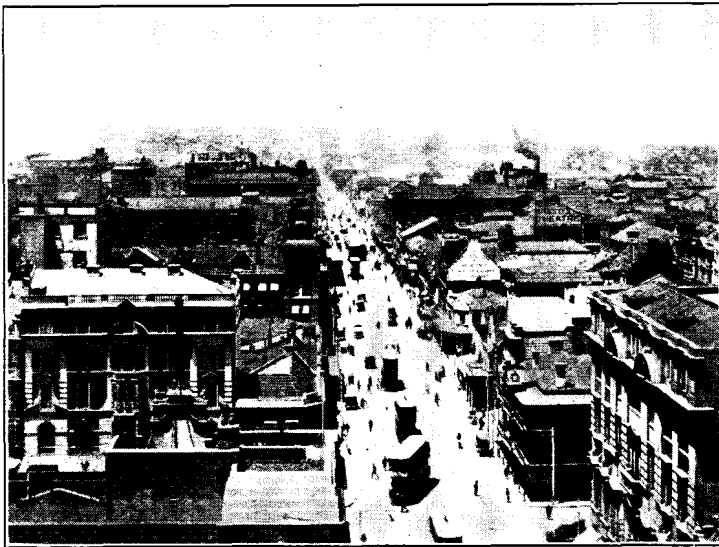
JOHANNESBURG, the largest city in S. Africa, owes its existence to the discovery of gold in the Witwatersrand reefs in 1885. The town is named after Johannes Rissik, Surveyor-General of the Transvaal at that time, the date of its foundation being September, 1886.

From about 3,000 in 1887 the population has increased to upwards of 350,000, and the first seventeen years of Johannesburg's history teemed with incident in which figured several world-famous men, including Cecil Rhodes, the Empire builder; Dr. Jameson; Paul Kruger, last President of the Transvaal Republic; Barnato, Robinson, Bailey, the Joels, and others who rose to fortune on its golden prospects.

The city, proper, covers about 6 square miles, whilst on the Rand, and also dependent on gold-mining, are three other towns with separate municipalities, Germiston, 9 miles east; Boksburg, 15 miles east; and Krugersdorp, 21 miles west of Johannesburg.

So modern and industrious a community calls for the very latest in telephone service, and some time back the Department of Posts and Telegraphs of the Union of S. Africa decided to equip the Johannesburg telephone area on a Strowger director automatic basis resembling that now being installed throughout the Greater London, Manchester and Birmingham areas in Great Britain.

The existing main telephone building is in the centre of the city in Von Brandis Square, and, prior to the commencement of its conversion to automatic working, the telephone network embraced 26 exchanges of various capacities.



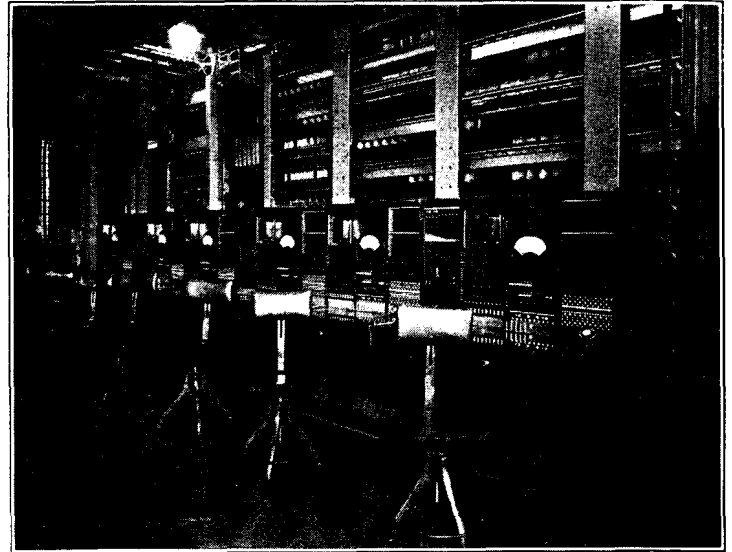
COMMISSIONER STREET, JOHANNESBURG.

The first six exchanges to undergo conversion to Strowger director working and which were cut over to public service on March 26, 1932, are City, 10,000 lines; Hillbrow, 5,200 lines; Auckland Park, 1,400 lines; Kensington, 2,500 lines; Rosebank, 3,500 lines; and Parkview, 2,400 lines, ultimate capacity. Similar equipment is in process of manufacture and installation for Jeppe, 4,100 lines; Germiston, 1,400 lines; Turffontein, 3,000 lines; and Orange Grove, 3,300 lines.

A further 17 exchanges in the area are planned for conversion, bringing the total ultimate capacity to 60,000 lines, and the Department of Posts and Telegraphs, having decided to standardise on Strowger automatic equipment for the area, aims at complete

conversion to the new principle by 1949. As the area changes from manual to automatic operation, exchange names will gradually fall into desuetude, and two digits, known as "Characteristics," take their place in the directory listings.

Unlike the dials associated with the London Director system (on which the letters of the alphabet appear, in groups of three,



TEST DESK. JOHANNESBURG CITY AUTOMATIC EXCHANGE.

associated with the numerals) those fitted to the telephones for use on the Johannesburg network will bear numerals only. Preliminary dialling of the "Characteristics" routes the call to the required exchange through the medium of the Director, and the subsequent dialling of the wanted subscriber's number picks out and connects with his line and causes ringing current to be sent out to ring his bell. The characteristics chosen for the exchanges above enumerated are:—

City	33	Kensington ...	25
Hillbrow	44	Rosebank ...	42
Jeppe	24	Parkview ...	41
Germiston	51	Turffontein ...	32
Auckland Park...	31	Orange Grove ...	45

City and Hillbrow are main exchanges, City having Auckland Park and Kensington as satellites, whilst Rosebank and Parkview are satellites to Hillbrow. Generally speaking, external traffic to or from a satellite passes through the main exchange with which it is associated. Junctions exist, however, between City and Rosebank and Parkview, which latter are satellites to Hillbrow, and these junctions will be used to carry traffic incoming from City.

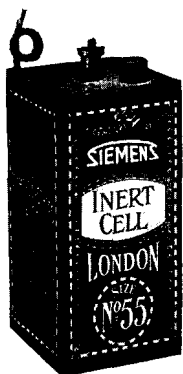
Central is the main exchange in the area, and all special manual boards are located there. In addition it is a main switching centre or tandem exchange. Dialling-in facilities are provided for certain of the outlying manual exchanges to give their operators direct access to automatic subscribers. For the purpose of multiple metering of calls, the area is divided into zones, and the operators' positions in the main manual exchange in each zone are equipped with dials. In the case of Central, with its greater volume of traffic, key-sending equipment takes the place of dials and expedites handling. Calls from automatic to manual subscribers will be under the control of the calling subscriber until the main manual exchange is reached, when connexion is completed by the operator in the usual way.

The system employed at Johannesburg is known as Strowger line-finder director, and operates on six digits, two of which are exchange characteristics. The system differs from earlier installa-

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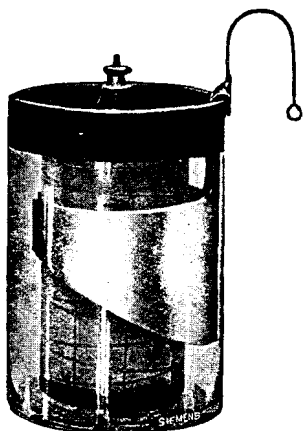
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The Disability Benefits may be included as in the case of Policies for larger Sums Assured, provided that premiums do not extend beyond age sixty.

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Age next Birthday	Sum Assured payable at age 60 or at previous death.		Sum Assured payable at death only, but premiums terminating at age 60.	
	Net Quarterly Premium	Equivalent net weekly deduction	Net Quarterly Premium	Equivalent net weekly deduction
20	4/3d.	4d.	3/7d.	4d.
25	5/1d.	5d.	4/3d.	4d.
30	6/4d.	6d.	5/1d.	5d.
35	8/0d.	8d.	6/3d.	6d.
40	10/8d.	10d.	8/1d.	8d.
45	15/1d.	1/2d.	11/0d.	11d.
50	£1/4/1d.	1/11d.	16/9d.	1/4d.

Premiums for higher Sums Assured proportionate.

Rates for other ages and for other classes of Assurance quoted on application.

The foregoing rates provide that should the Assured be compulsorily retired under the Superannuation Acts through ill health the sum Assured under these Policies will immediately become payable, and, should he be placed on reduced pay through prolonged ill health payment of premiums would be temporarily waived.

Still lower rates are charged if the Disability Benefits are not included.

Attention is drawn to the fact that Assurances of £50 payable only at death, may be effected through the Civil Service Provident Society, either with or without profits, and that proceeds of Assurances issued through this particular Society are payable to a Nominee immediately on proof of death without production of Probate of Will.

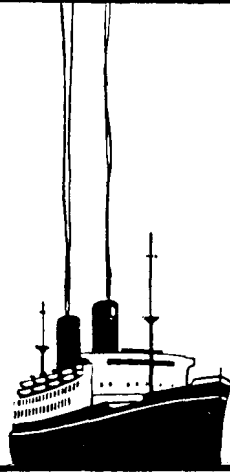
Further particulars of all Assurances may be obtained from:

Your Office Representatives of the Society.

The Secretary,
 Civil Service Insurance Society,
 34, Victoria Street, S.W.1.

or from the:—
 North British and Mercantile
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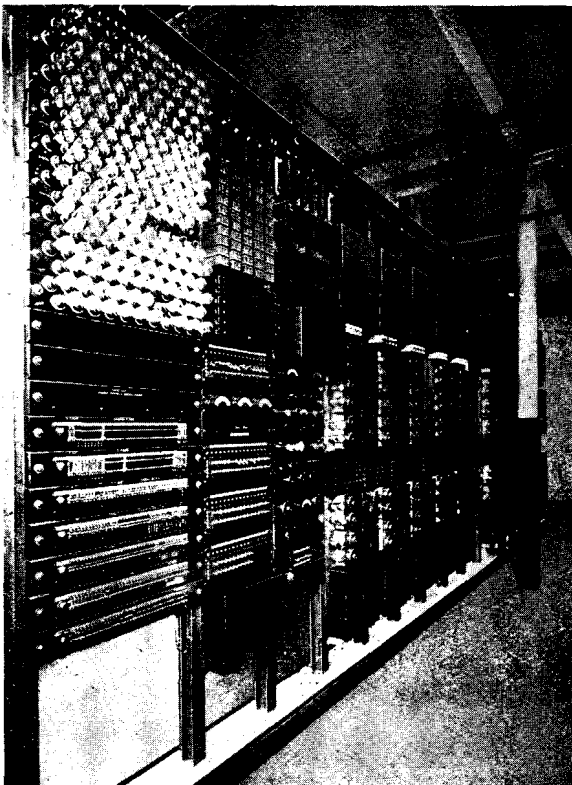
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G.E.C. TELEPHONIC REPEATER EQUIPMENT

THROUGHOUT Great Britain the maintenance of commercial standards of speech transmission over long-distance lines of communication depends upon the efficiency of G.E.C. Equipment. The photograph reproduced here illustrates two-wire repeater and control bays installed in one of the principal repeater stations on the British Post Office trunk network.

**THE GENERAL ELECTRIC CO., LTD.
TELEPHONE WORKS ——— COVENTRY**

TELEPHONE NO. 4111.

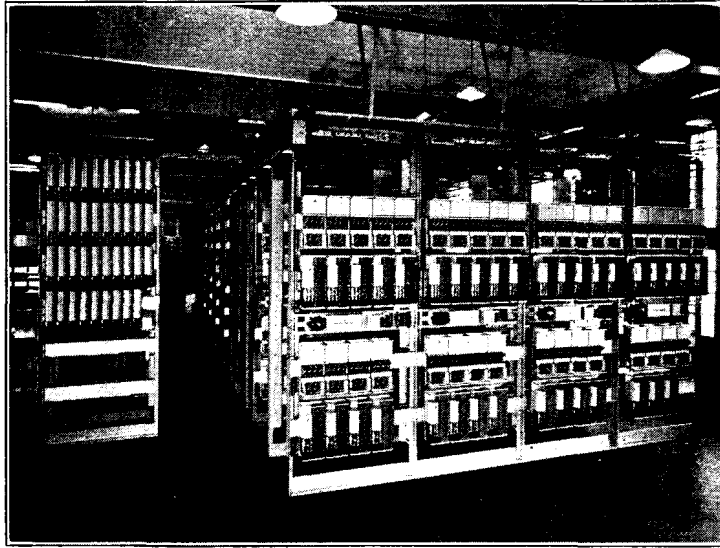
TELEGRAMS: SPRINGJACK, COVENTRY

LONDON OFFICE: MAGNET HOUSE, KINGSWAY, W.C.2

BRANCHES AND AGENCIES THROUGHOUT THE WORLD

tions elsewhere in that practically all the switching mechanisms are of the two-motion selector type, based on the original Strowger switch.

The cut-over was effected without a hitch, and the Department of Posts and Telegraphs is to be congratulated upon its enterprise in bringing one of the most important telephone areas in the Union



GENERAL VIEW OF SWITCHROOM. JOHANNESBURG AUTOMATIC EXCHANGE.

into line with other leading countries in modern telephone switching practice. We learn that not long after the cut-over was completed, Mr. T. Pearson, Divisional Engineer, who was the Departmental Officer responsible for the arrangements, died very suddenly, to the great loss of all ranks of the Department with whom he was extremely popular.

A BRIEF CHRONOLOGY FOR STUDENTS OF TELEGRAPHS, TELEPHONES AND POSTS.

BY HARRY G. SELLARS.

(Continued from page 248.)

- 1928, Aug. 1 ... Eastern Telegraph Company purchased Direct West India Cable Company and took control of the Halifax and Bermudas Cable Company, the Cuba Submarine Telegraph Company and the West India and Panama Telegraph Company.
Postmaster-General issued an order that stamps are to be affixed to telegraph forms by counter clerks.
- 1928, Aug. 2 ... Karolus, of Leipzig, exhibited a telephotographic apparatus capable of transmitting at least eight pictures a second, each composed of eight thousand light points.
Post Office Departmental Whitley Council suspended.
Anglo-Continental telephone service extended to all places in the first and second Norwegian zones.
- 1928, Aug. 9 ... Cable ship *Dominia* left to survey route between Azores and Newfoundland with a view to laying a ten-channel cable.
Anglo-Italian telephone service opened. Charge to Milan 9s. 6d.
- 1928, Aug. 14 ... "Pilot cable" for shipping, invented by French engineer Loth, demonstrated successfully at Corunna.
- 1928, Aug. 18 ... Radio Corporation of America authorised by U. S. Government to establish direct wireless communication with Liberia.
- 1928, Aug. 23 ... Wires of the American Telephone and Telegraph Company, which were previous used by the Western Union Telegraph Company, thrown open to the Postal Telegraph Company.
- 1928, Aug. 26 ... London and Bombay placed in direct cable communication by means of the "regenerator" relay system.
- 1928, Aug. 27 ... Decision given in favour of Loewe Radio Company, who charged the Marconi Wireless Telegraph Company with abuse of valve monopoly rights.
Swiss Government demanded complete control of League of Nations wireless station at Geneva, only permitting exclusive use by the League in case of actual war.
- 1928, Aug. 29 ... "Catapult Air Mail" introduced between Great Britain and the United States. An aeroplane leaves the ship with the mails before her arrival in New York and saves one day's transit time.
Prince of Wales and Duke of Gloucester visited Rugby Radio station and ascended one of the 820-ft masts.
- 1928, Aug. 30 ... Anglo-Spanish telephone service extended to Ceuta, North Africa.
Wireless telephone experiments took place between England and Australia.
Wireless medical code introduced for transmission of messages from ships carrying no surgeon when medical attention is desired.
Civil Service Superannuation Rights Association issued a writ to test the legality of the Treasury system of variable pensions on retirement and the Treasury's right to take only 75%, instead of the whole, of the cost of living bonus in calculating the amount of pension and lump sum allowed by the superannuation statutes.
- 1928, Sept. 1 ... Cable of special alloy laid for Western Union Telegraph Company between Azores and Newfoundland.
- 1928, Sept. 4 ... German Government purchased German rights of the television apparatus invented by the Hungarian inventor Denes de Mihaly.
- 1928, Sept. 5 ... Postal Telegraph Company of America inaugurated a public photo-telegraphic service between eight of the largest cities.
- 1928, Sept. 8 ... British Post Office officials (Mr. L. Simon, Assistant Secretary, Inland Telegraphs; Mr. J. Stuart Jones, Controller, Central Telegraph Office; Lt. Col. A. G. Lee, Assistant Engineer-in-Chief; Mr. G. T. Archibald, Inspector of Telegraph Traffic; and Mr. A. E. Stone, Assistant Engineer) left for America to study telegraphic methods in that country.
Fire in a cable tunnel on Victoria Embankment, London, interrupted about 2,700 telephone and telegraph circuits.
- 1928, Sept. 11 ... General Electric Company, of New York, transmitted a drama by wireless television and a telephone over a distance of three miles.
Conference of principal wireless maritime companies held at San Sebastian, Spain. Committee formed to pool experience and specialised wireless knowledge for the benefit of the companies represented.
- 1928, Sept. 17 ... Private call on the transatlantic wireless telephone service between London and New York lasted 95 minutes and cost £285.
- 1928, Sept. 20 ... International Telegraph Conference at Brussels adopted by 46 votes to 1 a proposal by France which accepted real and artificial words of ten letters as code, with the restriction that artificial words must include one vowel in the first five letters, two vowels in a word of six to eight letters, and three vowels in a word of nine or ten letters. Artificial words not complying with these conditions would be charged at the rate of five letters to a word. Conference decided that "charges for code telegrams should be two-thirds of the ordinary rate for extra-European countries and three-quarters of the ordinary rate for European countries.
- 1928, Sept. 22 ... British National Radio Exhibition opened at Olympia, London.
- 1928, Sept. 24 ... Post Office used "flying boats" experimentally for carrying mails between Liverpool and Belfast.
Post Office engineers tested the Baird system of television. J. L. Baird demonstrated "television" in colours before the British Association at Glasgow.
Post Office introduced electrically driven mail vans experimentally in London and Leeds.

Wireless Beacons established on the Mersey Bar, Coningbeg, and Spurn lightships, and on land at the Skerries, Round Island and the Casquets.

Pitcairn Islanders presented with a wireless transmitting set.

Post Office decided to lay a telephone cable to the Isle of Man and another from the Isle of Man to Belfast.

Average number of French Post Office cheque operations exceeded 130,000 daily.

Radio Corporation of America applied to the Federal Radio Commission for permission to extend its service to thirty principal cities.

- 1928, Oct. 1 ... Charge for telegrams to Irish Free State from Great Britain raised to 1s. 6d. for twelve words, and 1d. for each word over twelve.
- 1928, Oct. 4 ... Belgian Cabinet resolved to reconstitute the country's telegraphs and telephones as an independent department with its own budget and with restricted power to float loans.
- 1928, Oct. 5 ... Wireless telephonic communication established between Java and Buenos Aires via Kooten and Nauen.
- 1928, Oct. 14 Transatlantic telephone service extended to Spain. King Alphonso, in Madrid, and President Coolidge, in Washington, conversed over a wireless and cable circuit 6,500 miles long.
- 1928, Oct. 15 Transatlantic telephone service extended to Danzig. Cable for effective telephone conversation between United States and England perfected and construction under consideration.
- 1928, Oct. 16 Representatives of principal maritime nations met in London to revise the international code of signals and to compile editions in seven languages.
- 1928, Oct. 17 Radio University opened at Leningrad. Site on the Thames Embankment, near the Temple, purchased for £310,000 for the purpose of erecting, at a cost of £500,000, a building to house the Eastern Associated Companies, the Marconi Company, the Imperial and Pacific cables and the Beam wireless installation. Wireless exhibition held in Belfast.
- 1928, Oct. 23 Petrovsky, of Leningrad, demonstrated a radio apparatus enabling ore veins to be detected by electro-magnetic waves. Its action was confirmed by boring.
- 1928, Oct. 24 Wireless telegram addressed to the planet Mars emitted via Rugby Radio station on a wavelength of 18,750 metres. No acknowledgment was received.
- 1928, Oct. 25 Post Office Museum opened at Bruce Castle, Tottenham.
- 1928, Oct. 29 Short-wave wireless telephone conversation from aeroplane in England heard in Cairo.
- 1928, Oct. 30 Experimental wireless transmission of still pictures carried out by British Broadcasting Corporation. Post Office telephone call cabinets installed at 262 Great Western Railway Company's stations. Building of additional transmitters to cope with the growing transatlantic wireless telephone service decided upon.
- 1928, Nov. 1 ... Two-way wireless telephone conversation carried on between Sydney and New York, via Java.
- 1928, Nov. 3 ... Transatlantic telephone service extended to Austria.
- 1928, Nov. 6 ... "All-Canadian" trans-Continental telephone line completed.
- 1928, Nov. 7 ... Post Office Telegraph Mission returned from America.
- 1928, Nov. 10 Chess match played by cable between London and Washington. Agreement signed by the Chinese Government and the Radio Corporation of America concerning the establishment of a direct radio-telegraphic circuit between China and the United States. A similar agreement signed by the Chinese Government and the Trans-Radio of Berlin for communication between China and Germany.
- 1928, Nov. 11 Armistice Day service at the London Cenotaph broadcast for the first time. Chancellor of the Exchequer stated that return to "Penny Postage" would involve loss of £6,750,000 to £7,250,000.
- 1928, Nov. 12 Transatlantic telephone service extended to Hungary.
- 1928, Nov. 13 Wireless telephonic communication opened between Spain and Cuba.

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- 1928, Nov. 14 William Harrison and Thomas Wood patented an apparatus for amplifying electric current.
- 1928, Nov. 15 First reading of Parliamentary Bill to authorise the sale of the telegraph undertakings established under the Pacific Cable Acts, 1901 to 1924, and the West Indian Islands (Telegraph) Act, 1924, and of certain submarine telegraph undertakings in the possession of the Postmaster-General.
- 1928, Nov. 24 Transatlantic telephone service extended to Czechoslovakia. First automatic wireless beacon (wavelength 1040 metres) for shipping and aircraft erected at Orfordness.
- 1928, Dec. 1 ... Austro-Egyptian radio-telegraphic service inaugurated.
- 1928, Dec. 6 ... Setting type by telegraph demonstrated in the office of the *Rochester Time and Union* (U.S.A.). Inventor, Walter W. Morey.
- 1928, Dec. 10 Radio-telephonic service opened between Germany and Buenos Aires. John Neale exhibited a wireless electrical device called a "Radiovisor," for lighting lamps, ringing alarm bells and controlling trains. Direct cable working commenced between London and Singapore.
- 1928, Dec. 13 Wireless news pictures received for first time by a ship in mid-Atlantic.
- 1928, Dec. 16 New York television broadcast received in Johannesburg. Wireless telephony used for first time for diplomatic purposes. Conversation between Paris and Buenos Aires regarding dispute between Bolivia and Paraguay. Imperial Telegraphs Bill passed. Wireless Beacon installed at Start Point, Devon. Legal decision against football competitions led to a loss of Post Office revenue of £36,000 a week. Soviet Inventions Bureau granted patent to engineer named Zlotnikov for a "master wireless clock."

(To be continued).