THE

Telegraph and Telephone Journal.

VOL. XIII. JUNE, 1927. No. 147.

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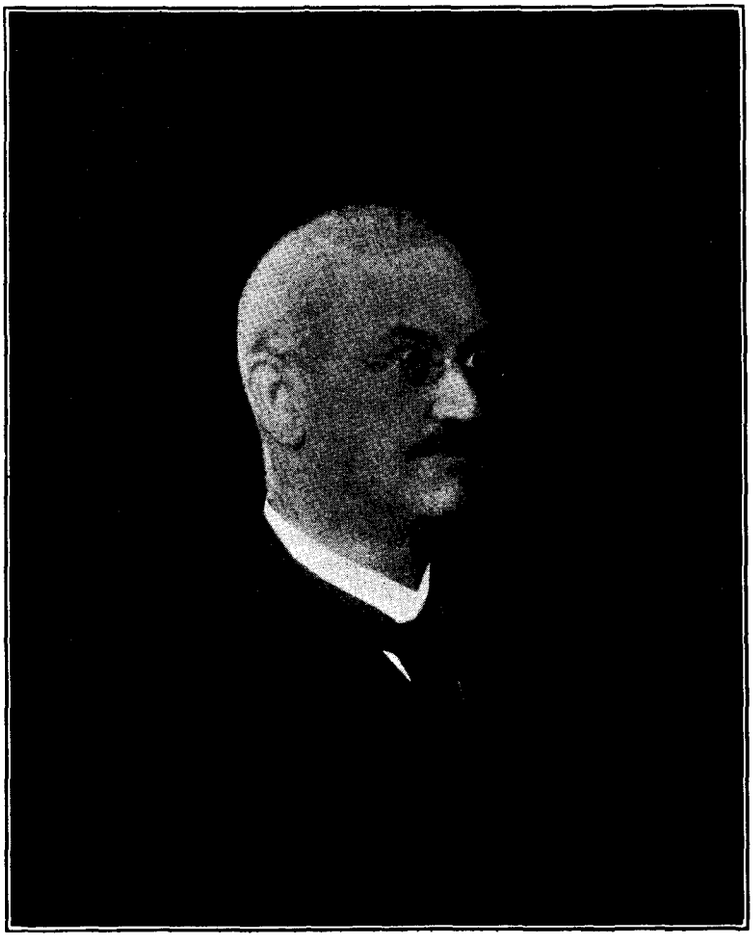
TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XLI.—

MR. R. T. VITY.

MR. R. T. VITY, the Postmaster of Preston, whose portrait we produce in this issue, was born, we believe, at Ambleside in Westmorland in October, 1868. At all events, if we are uncertain about the actual place of his nativity, there is no question that he is a dalesman in his origin, in his physique, and in his mental qualities. Mr. Vity entered the service at Kendal in 1886, and he has seen service at Blackburn, at Sheffield (where he was Superintendent of Telegraphs and subsequently Assistant Postmaster), at Doncaster (as Postmaster), then at Bolton and finally at Preston, to which town he was appointed in September, 1921. We say "finally" because Mr. Vity, when he decided not to go to Plymouth a year ago, presumably made up his mind to go no more a-roving.



Before Mr. Vity went seeking the flesh-pots of a Postmaster's career he was one of the outstanding men in the telegraph service. He possesses technical qualifications of a very high order, and was never happier than when imparting his knowledge to others. Mr. Vity's technical classes were well known; his reputation as a teacher stands high, and many men in the telegraph service owe their advancement to his enthusiasm for technical telegraphy.

He is an ex-Chairman of the Postmasters' Association, and is the Editor of the organ of that Association.

Mr. Vity is a big man in mind as in body, with a capacity for friendship which makes him one of the most charming of companions. He has been no mean athlete in his time. He is a keen bowler, and is probably still prepared to meet all comers from the Post Office in the Cumberland-Westmorland style of wrestling.

"LONDON CALLING."

LISTENING a month or so ago to a broadcast lecture given by an American business man, who had been visiting factories and business organisations in Europe to enquire into their methods, I was struck by a statement which he made to the effect that one business house, on analysing the time of its travellers, found that only 15% of that time was spent on interviewing customers. It appeared that the balance of 85% was lost in travelling, waiting for interviews and so on.

I thought that it might be interesting and possibly instructive if a similar investigation were made into the working day of the contract officers in London. As these are very busy men and it was undesirable to add to their office work—which already is far too heavy—a two days' record only was arranged for, but as this covered the activities of 73 men, it may be taken as fairly representative and conclusive.

There are four district contract officers in London, and as it may be interesting, even to one having no direct connexion with these offices, to compare the different figures obtained, they are set out below :—

	No. 1.	No. 2.	No. 3.	No. 4.	Average.	
	Hrs. Mins.	*Hrs. Mins.*	*Hrs. Mins.*	*Hrs. Mins.*	*Hrs. Mins.*	%
Office Work ...	1 42	1 7	1 33	1 26	1 28	18.9
Travelling ...	1 49	1 53	2 7	1 41	1 54	24.5
Waiting ...	39	51	39	38	42	9.0
Interviewing ...	3 24	4 3	3 51	3 29	3 42	47.6
TOTAL ...	7 34	7 54	8 10	7 14	7 46	100.

One striking feature of the figures is the closeness with which the various districts approximate to each other. For instance, under waiting time two districts show identical figures and a third is within a minute of the first two. There are, on the other hand, differences between districts in certain other items which can be accounted for by local conditions and which it is not proposed to enter into here as they would scarcely be of general interest.

It may be contended that the time spent on office work is excessive, and with this I am inclined to agree, but it must not be lost sight of that in London the number of cases of one kind and another handed to contract officers necessitating a report, however short, is very high. In one of the districts it is no less than 18 cases per man per day on the average.

On the whole I must confess to being agreeably surprised to find that practically 50% of the contract officers' time is spent on interviewing, more especially as the large number of cases handed to him means more time spent on travelling and less on interviewing than would be the case if he could concentrate on one street or circumscribed district on any one day.

As a matter of interest it may be mentioned that each contract officer's district in London was, at the time of the record, on an average approximately 6,000 acres, or nearly 10 square miles, which in such a highly concentrated area is a very high figure.

Someone may be constrained to ask, "After all, while these figures may be very interesting, of what practical value are they ?" That is a perfectly legitimate enquiry and the answer is, firstly that they have proved that a very satisfactory proportion of contract officers' time is being spent on the work for which they are employed, viz., interviewing ; secondly, that the analysis of the individual records has shown weaknesses which only such a record would have made apparent, and which will enable (*a*) adjustments to be effected in contract officers' areas to reduce travelling time, (*b*) arrangements to be made which may reduce the time spent on office work, (*c*) making of appointments, if this should be considered necessary, to reduce waiting time and so on. In addition it is always worth while for a chief to have concrete knowledge of what his staff is doing and if, as in this case, the facts can be obtained at no material cost, the little trouble involved is well worth while and tends to increased efficiency. W. F. T.

SERVICE ADVERTISING.

BY H. T. STEPHENS.

SUCCESSFUL advertising would to-day appear to be the mainspring or driving force of most business enterprises. Whether it be the charms of a seaside resort or the efficacy of someone's hair restorer, the claims are alike broadcast by advertisement in one form or another, and not only competitive enterprises, for we find monopolies such as Gas Companies, and the Electricity Departments of City Corporations urging the Man in the Street to make greater and yet greater uses of their services, for the obvious reason that the greater the output the less the unit cost of production.

So far as Post Office services (except Telephones) are concerned the Department can hardly be said to have entered the field, but at the Birmingham Section of the British Industries Fair (rumour has it that another section was held in a place called London) last year and this, something in the nature of an organised advertising effort has been attempted, and it has been suggested to the writer, who was in charge of the Post Office stall at the Birmingham Section of the Fair both years, that an outline of the scheme and its probable results would prove not uninteresting to many officers who were unable to see for themselves.

A centrally situated stand was provided by the Fair authorities with frontages in opposite directions, the one half being used as the official counter for dealing with live work and the other for propaganda work. The walls of the stand were decorated with a large number of hand-written posters designed and executed by members of the Birmingham Staff, each one featuring a different field of Postal, Telegraph, or Telephone activities. These posters, being neatly framed with oak veneer, imparted quite a bright cheerful appearance and enabled the stand to bear favourable comparison with those of the Birmingham Chamber of Commerce and the leading Steamship and Cable Companies which surrounded it. The principal attraction this year on the propaganda side was a telephone exchange, serving the subscribers in the Fair, which was worked in public. Two C.B.S. No. 2 boards were installed serving 65 subscribers and 10 call boxes. The work was mainly outward but four lines were reserved for incoming trunk calls. The number of calls originated was exceptionally high and the operators were busily occupied throughout each day, their work and the general attraction of the stall exciting so much public interest that on more than one occasion the management complained of the congestion caused thereby. Comments could be heard continuously, the tone, without exception, being complimentary, the more general remarks being "I didn't think telephone operators were such busy people. Next time I am kept waiting a few seconds, I must be more considerate," or, "I thought telephonists read books and did needlework whilst waiting for calls, but if this is representative of general working, I am afraid I have not been as appreciative as their work deserves."

On the propaganda counter literature for distribution was plentifully displayed and the works of a Hall multi-coin collecting

box and those of a stamp-vending machine were exposed for the inspection of those interested. A prominent notice announced that "Enquiries are invited upon any Postal, Telegraph, or Telephone matter which is causing doubt or difficulty." The enquiries made were comprehensive and very numerous. Many people wanted conversational details regarding the Air Mail and C.O.D. Services, quite a number asked for an assurance that interest on Saving Certificates is really free of Income Tax, an idea being current that although such interest may be omitted from Income Returns, when final repayment is desired, some deductions under this heading is made. Perhaps the most frequent applications of all were for particulars of Telephones for the Home, and the relative pamphlets were taken in greater numbers than any others. Several installation orders are expected as a direct result of these conversations.

One visitor was either so kindly disposed or so conscience stricken, that he explained the method by which he had found it possible to manipulate a certain "Hall" collecting box so as to get his call and, at the same time, to obtain the return of the money. Needless to say this matter has been brought to notice in the proper quarter.

On the Telegraph side there was an exhibit, for the first time in public, of a Creed Direct (Start-Stop) Printer which was used for the live work. This instrument, described by the makers as one for typewriting by telegraph, consists in outline of an ordinary typewriter transmitter, the messages being typed at the sending station and reproduced at the receiving office exactly like an ordinary sheet of typewritten matter. A roll of paper is threaded through the receiving instrument and all spacing is controlled by the sending station, the only function of the receiving officer being to tear off the sheet when the message is completed. Working speed is limited only by the typing speed of the sending operators and quite a satisfactory rate of working was maintained. The set in use was worked simplex to Birmingham H.O. and dealt with a fair traffic in ordinary and in press work, the former including cable and radio messages. The instrument was inspected with great interest by the local district managers of the principal Cable Companies who began to visualise a duplex set, with a typist transmitting, and a messenger boy tearing off the received messages. A prominent notice stated that such machines may be rented by the public.

During the opening hours of the Fair, before buyers became too numerous, the writer visited the various stands, introduced himself, tendered an envelope containing a collection of pamphlets, offered his assistance in any little difficulties which might arise in connexion with Post Office matters during the Fair, and invited enquiries on any service matters generally. These visits were quite well received, and the idea of the Post Office getting into step with modern business practice drew many comments of an appreciative character.

The turnstiles showed an attendance of 92,376 during the Fair, and such an opportunity to get in close touch with so many of the manufacturing and trading community does not, of course, occur frequently or at as many centres as would be desirable, but when and where such opportunities offer, propaganda work might well be introduced. The public generally appeared to appreciate the opportunity of seeing behind the scenes and were well satisfied with the efficiency with which the organisation functioned. Unless the Department thrusts itself in the limelight, there is a danger of its useful work in the nation's life being largely overlooked. An actual instance occurred in the Fair. On different days the Chairman of the British Fair exchanged telephone greetings with the Chairman of the Leipzig Fair, the Chairman of the Chamber of Commerce Berlin, and the Chairman of the International Chamber of Commerce New York. In each case 30 to 36 receivers were arranged in circuit round the Committee table, and all heard the conversations as clearly as an ordinary trunk call. As propaganda, these facts were supplied to all the news agencies, but in their zeal to advertise themselves, the Committee forgot to mention the part (and no mean part either) played by the technical staff of the Department. The thoroughly satisfactory way in which these long-distance conversations were arranged was something of which all concerned had every reason to feel proud, and the management was quite generous in its personal appreciation.

As may be expected, the daily round was frequently enlightened by incidents of an amusing nature, and perhaps the Editor will be good enough to find space for just a few. A lady, who appeared interested, was invited to make a "close up" inspection of the switchboard, and the pathway of a telephone call was clearly explained to her. On leaving she warmly expressed her thanks and added "I quite understand it all now, it is just the same as the adding machine my daughter works."

A gentleman from "ayont the Tweed" gravely took out his wallet, selected the last receipt for his telephone rental and offering it to the counter clerk said, "I thought, perhaps, if I satisfied you that I am a subscriber in my own town, I might be allowed to use the telephones in the Fair without charge."

A super-optimist arrived in the person of a London gentleman, who, on the eve of the opening day came to the P.O. stand at 4.35 *p.m.* and asked "Can you do anything to expedite the fitting of the telephone on my stand." The writer expressed his desire to be of assistance and added "I understand a fitter has called at your stand twice this afternoon but that his calls have been at inconvenient moments." "Yes," replied the gentleman, "that is so, but it will be quite convenient now, and I should be glad if you would just hurry him up, as I want to get a trunk call through to my firm in London, and they close at 4.45 *p.m.*" Sad to say, that with the best of will to oblige, this optimistic soul was doomed to disappointment.

Just one more story of the Canny Scot. A gentleman enquired the cost of a trunk call to Aberdeen and when told the charge (somewhere in the region of 7*s.* 6*d.*) replied "Oh! Well! Well! Well! I'll have a postcard."

It was hoped at the outset to have included a comment upon the propaganda matter provided by the Department, together with some suggestions for its improvement and some notes on the impressions formed and experience gained, but as space will not permit, this phase of the matter might, with the Editor's indulgence, be the subject of a subsequent article.

THE ART OF SUPERVISION.

THE science of the telephonists' work is taught in the Traffic Instructions issued by the Department. We know, however, that considerable practice is necessary before one who knows the science from the instructions can learn the art and become a good telephonist. Each part of the instructions must be practised at first separately or in sections, and afterwards as a whole, and gradually, with practice, facility in operation is attained, and the learner becomes first a telephonist, and then by degrees an efficient and capable telephonist.

The supervisor has learned the science of telephony from the instructions: she has also learned the art of operating and has had considerable experience in the application of the art for a number of years before she becomes a supervisor. She has passed through the work of a senior telephonist and learned to answer the queries and take up the complaints of subscribers, and she has thus acquired a point of view wider than that of an ordinary telephonist. Up to now, she has merely taken her part as a minor unit in the organisation of the exchange; now she is placed as a supervisor in charge of a number of telephonists, and from now onward she is supposed to apply the knowledge she has gained in the handling of calls, not personally, but in the supervision of others. And here is the point where a large number of supervisors fail, and where

great difficulty is experienced for a time by most. At the best, the supervisor realises that she is in charge of a number of telephonists working at a number of positions which belong peculiarly to herself, and she is definitely in charge of the service given to the subscribers on those positions. She feels herself responsible for the subscribers' service, the comfort, the happiness, the courtesy and ability of the staff under her charge, for the proper working of the apparatus, for proper co-operation between her own staff and the staff of the exchange, and the service as a whole. She senses her relation to a service which is one of the most important factors in the business and the social life of a large section of the community, and she is anxious both for the honour of her own section, of the exchange to which she belongs, and that of the London Telephone Service in its relation to the public.

At the best, the second class supervisor is the backbone of the telephone service, but to arrive at this best is an extremely difficult thing, and the ideal point of view is only attained by comparatively few.

The answer to the riddle of how this can be, is to be found in the lack of specific direction as to how one who has learned the science of supervision can acquire the art. Supervision is very interesting work, but in order to discover its interest, the supervisor must supervise.

Supervision is based on observation, and the power of observation can only be increased by practice in observing. The supervisor is supposed to practice the whole art of supervision based on the observation of all the operating points at once, but the art cannot be acquired in this way—it must be learned little by little, and it is within the powers of anyone who has been a capable telephonist to learn to be a good supervisor *if these instructions are carefully and methodically followed.* There is nothing new and wonderful in the method proposed, but its simplicity should not be despised, as experience has shown that, where followed, it has been always very effective. The method is to learn observation little by little, *taking one point at a time.*

Appended are a number of operating points which can be followed in a greater or less degree by a supervisor at the switchboard, and the idea is that she should take these points under observation one at a time as the principal point for observation during a definite period.

The power of observation is accumulative; if one learns thoroughly to observe one thing at a time one will gradually acquire the power to see more and yet more. Thus, if to-day a supervisor is observing particularly the answer to supervisory signals, tomorrow, when she is giving particular attention to the handling of cords, she will probably see also the point dealt with yesterday, and so from day to day the powers of observation will grow. But when the supervisor tries to see everything at once, without having stimulated her powers of observation by practice in seeing *one thing at a time*, the result is that she sees little, and the attempt produces weariness.

The various operating points must be divided into classes according to their importance, either general or particular. Some points such as calling and clearing and answer to supervisory signals are always important, but points which have not the same general importance may become vital on account of the weakness shown by the observation or other results, with regard to some particular exchange, section, or individual. The time given to observing a point should of course vary according to its importance.

It is a mistake, however, to spend too long at once on one point. It is better to increase the number of times that the point is dealt with rather than continue day after day giving special attention to one point. The unit of time for the observation of a point should be one day. The same point should never be observed particularly for more than two consecutive days. If the point is a very important one to the exchange it may be taken again after a day or two's interval, during which another point or points have been dealt with.

It is necessary to concentrate the attention on particular telephonists with regard to the point being dealt with, to know by actual observation that every one of the telephonists in the section concerned gives a prompt reply to supervisory signals and not merely generally to scrutinise the whole work of the section. Systematic supervision must be particular as well as general. A good supervisor learns to see a great deal in a section, but she only learns by giving particular attention at first to particular points and to particular officers. In course of time every operating point should receive attention.

The importance of this method of supervision is increased when it is organised and carried out by the supervisory staff of the exchange as a whole. The supervisor in charge should determine the point to be dealt with each day and she should arrange meetings of her supervisors from time to time so that the points arising out of the different matters observed and the application of the system should be discussed. The advantages of the combined work are briefly as follows:—The whole force of the exchange is concentrated on one point and this is more effective than when attention is given by separate individuals. Young supervisors and supervisors on probation are given something definite to do, and their progress can be gauged to some extent by the results obtained and the points raised by them. Each supervisor should keep a book in which she should note the results of observations, &c., on a particular point and the dates when the observation was made, and questions which arise in relation to it, giving a page or so for each point. When the same point arises again, she can then turn back to the previous observation and gauge whether progress has been made or faults, &c., eliminated.

It is not intended that this method should be adopted in a slavish way, or that the fact that a supervisor is concentrating on one particular point should absolve her from dealing with any other point which may arise, but whenever there is nothing else specific to do, she should concentrate on the point being dealt with.

If carried out in a proper way, the method proposed should help the supervisor in her immediate work: it should make her work easier and more interesting, and at the same time it should gradually teach her to observe every one of the important operating points.

All that has been suggested, vital as it is to the work of the supervisor, may be utterly spoiled if the attitude to the staff is a wrong one. Criticism should be given in a spirit of co-operation—of aiding the telephonist to do better rather than blaming her for doing badly. The attitude of the supervisor should not be that of a superior person, and while maintaining her own position, she should be sympathetic to the troubles and difficulties of the telephonist. She will remember from her own experience that encouragement is more effective in stimulating to improvement than condemnation and that to acknowledge good work is just as important as to point out bad work. The telephonist should be encouraged to realise that her work is the primary means for the development of her character and that her success as a telephonist has a vital bearing on her standing as a human being. The supervisor will realise also that the same applies to herself and to her work and that sympathy and proper human feeling must be developed in her before she can be a successful supervisor.

From the point of view of controlling staff the worst vice is pessimism. The optimistic supervisor helps to give her staff confidence in themselves and in things generally. Things may not be at their best to-day, but she remembers that this is only a temporary phase—a cloud over the sun. The sun is still shining and presently its light will pierce the clouds and light up all the dark places.

The best work can be given only by one who is happy in working. Such happiness results from the development of the individual in the work. To be able to produce the atmosphere which makes this possible is the hall-mark of the highest attainment as a supervisor.

J. W. KENNEDY.

AUTOMATIC TELEPHONY.

BY C. W. BROWN.

(*Continued from page* 150.)

III.

THE standard line switch bank has four levels when used in provincial areas and five levels when used in metropolitan areas, the extra level in the latter case is due to the scheme of metering calls which requires an extra contact per circuit from the line switch bank. The levels are designated respectively, positive, negative, private, homing, and in the case of the five level switch bank, a meter level. In each case the homing level consists of a segment, continuous except for a break at the home or normal position; the remaining levels each contain 25 insulated contacts. At the end of the bank, a set of "feeder" or "collecting" springs project radially towards the centre. The tips of these springs make a rubbing contact with the wipers at the point where they are fixed to the spindle, thus providing the necessary connexion between the permanent wiring and the wipers.

In front of the bank is situated the driving magnet and the spindle and wipers. A ratchet and pawl scheme of movement is provided, the actual movement taking place when the magnet is de-energised, this action is referred to as "reverse" or "back" and has the advantage that results from utilising the recoil of a spring to move the ratchet wheel, the range of control being fairly wide, as against the movement when it occurs due to the forward operation of the armature, when the power required for moving the wipers necessitates the full operation of the magnet armature.

The wipers are in pairs and the tips exert an inward pressure of approximately 20 to 30 grams on each side of the bank contact when in engagement, a satisfactory electrical contact is thus ensured. The private wiper has the tips flattened so that when passing from contact to contact, "bridging" of adjacent contacts

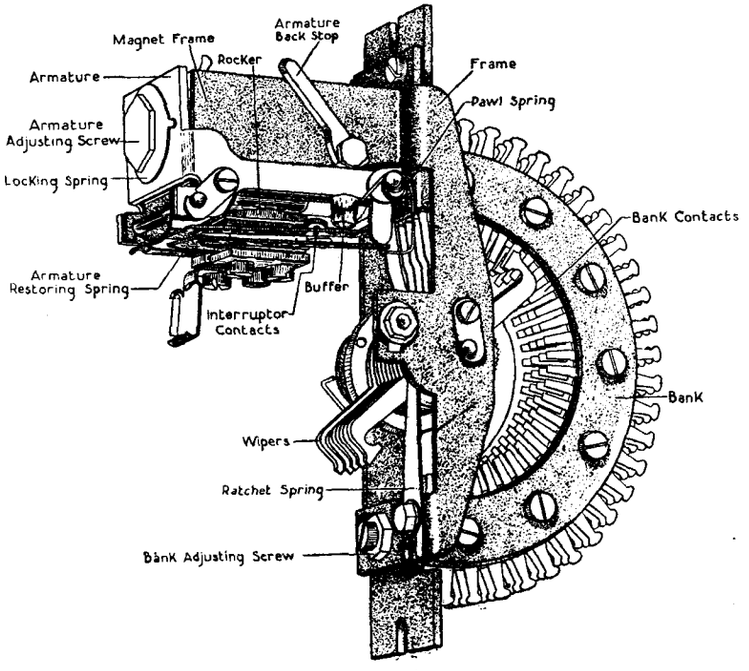


FIG. 1

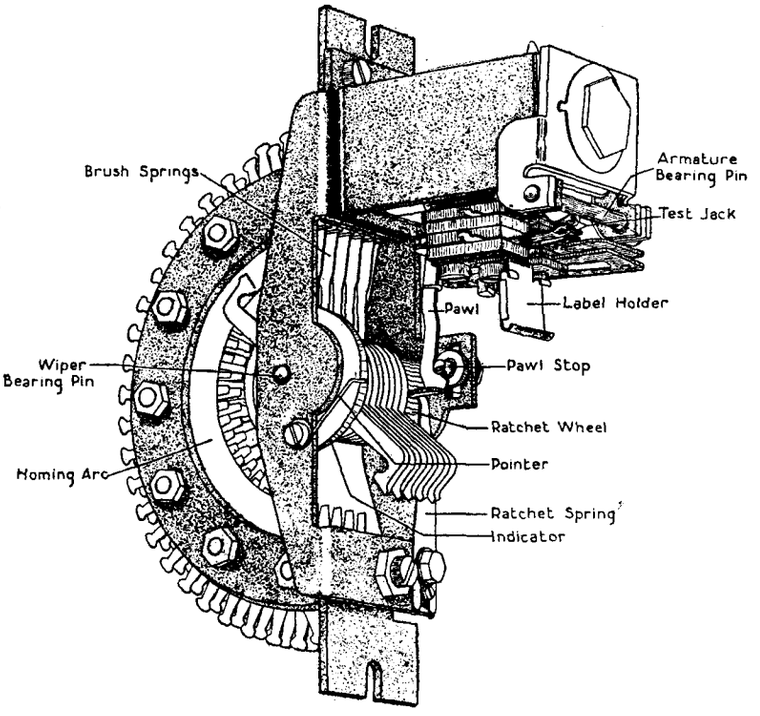


FIG. 2

occurs. The tips of the remaining wipers do not "bridge," the circuit requirements calling for the feature in the case of the private circuit only. This gives a guarding feature that prevents a caller from being extended to an engaged selector during "hunting."

The wipers each have two arms disposed at 180°, hence one half is always in the bank, thus reducing "hunting" time. A numbered indicator that moves with the wiper spindle is provided and moves against a fixed wire pointer, this enables the position of the wipers in the bank to be determined without difficulty. A small jack is also provided to which the positive and negative wires (wiper connexions) are joined. The jack is used for routine testing and speaking purposes. A label holder completes the item.

From Figs. 1 and 2 the parts indicated will readily be seen.

The need for a line switch having more than 25 contacts in the bank frequently arises. In order to retain the features of the standard line switch the scheme shown in Figs. 3 and 4 is adopted. The arrangement in effect consists of two 25-contact banks placed side by side, the wiper spindle carrying 8 wipers. It will be observed also that one arm of each of the wipers is cut off, the remaining halves being formed into two sets disposed at 180°, therefore while one set of wipers is in one bank (or one half of the complete bank) the remaining set of wipers is outside the remaining bank, thus, if the contacts in one bank are numbered 1 to 25 and in the other 26 to 50 in one complete revolution of the wipers 50 circuits can be reached. In Fig. 4 the "bridging" wiper (private) previously referred to can clearly be seen.

Messrs. Siemens Bros., in their system known as the No. 16 type, use a pre-selector which differs in many respects from the standard line switch just described. In moving the wipers over bank contacts a pawl is pushed into engagement with the ratchet wheel teeth when the driving magnet armature is energised. The interrupted currents for operating the magnet are provided by a motor-driven interrupter machine which serves a large number of

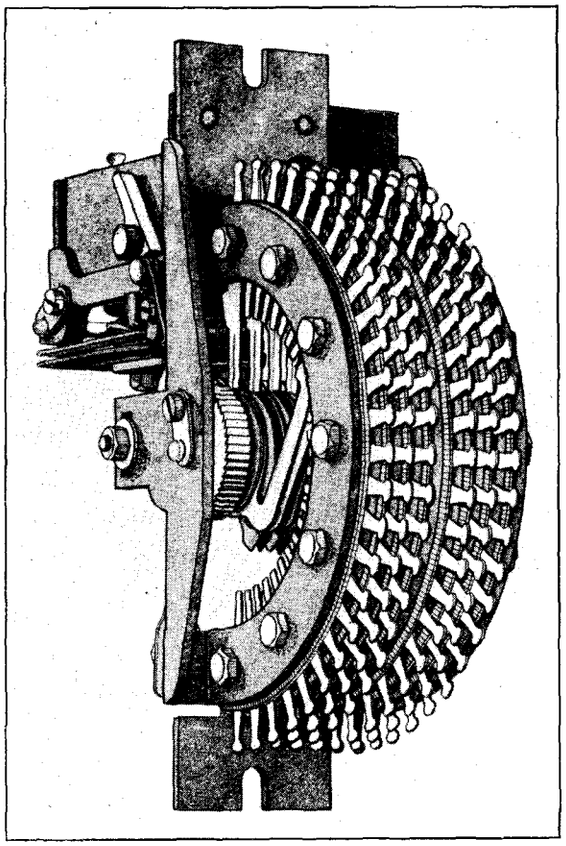


FIG. 3.

pre-selectors. This type of switch is a "forward action." Another difference occurs in the wiper arrangement; each of the wipers is provided with three arms, disposed at 120°, one of the arms is therefore always available for use as a pointer in conjunction with

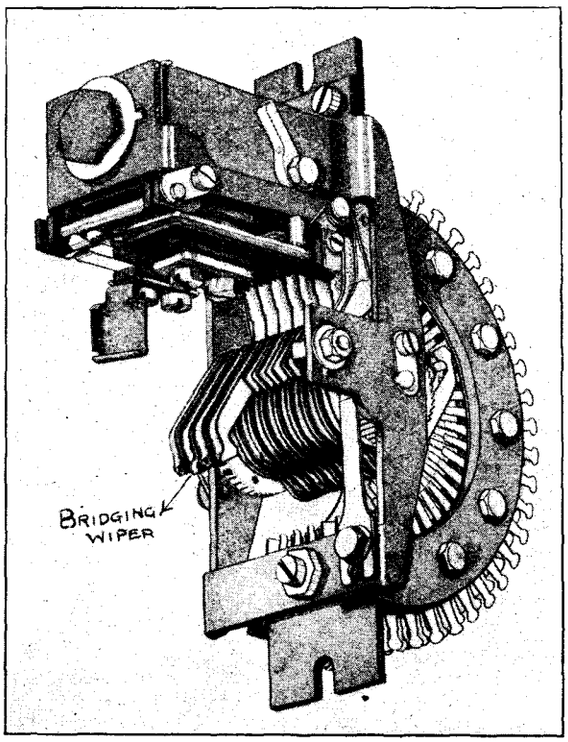


FIG. 4.

a curved number strip to indicate the position of the wipers in the bank. Fig. 5 shows the pre-selector.

There is another form of switch that is worthy of mention at this stage. It is known as a minor switch and operates on the "forward" action principle. The number of steps made by the wipers is 10 and the wipers upon release return to the normal position back through the bank. Two magnets are provided, one for stepping the wipers forward and one for returning the wipers to the normal position. During stepping a spring is wound up, a restraining detent (or dog) preventing the

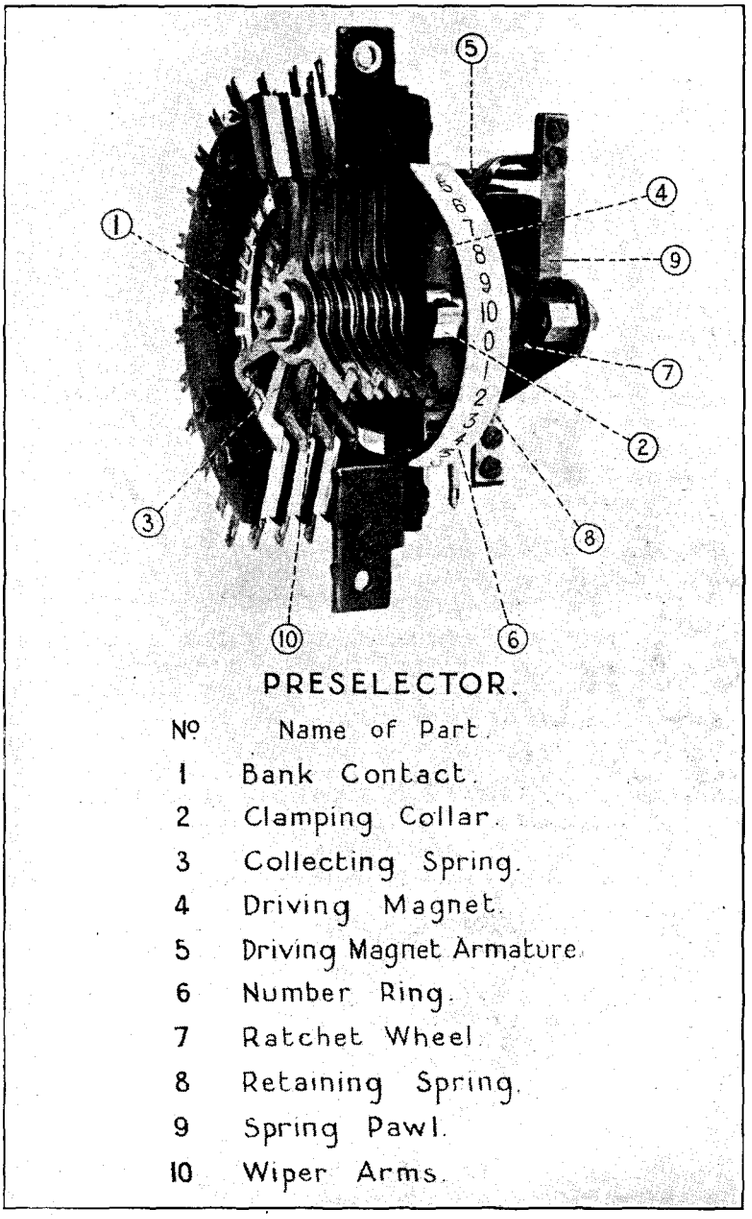


FIG. 5.

wipers from returning until it is withdrawn from the teeth by the operation of the magnet. The arrangement is shown in Fig. 6.

This type of switch is used for a number of auxiliary purposes such as distributors, registers, &c., It is used for these purposes in the translation equipment that is a feature of the metropolitan scheme.

When the number of lines exceeds the capacity of the selector bank, i.e. 100 circuits, additional stages of selection are introduced

into the switching scheme, the effect is to increase the capacity ten times. The capacity of the 100-line exchange can thus be raised to 1,000, 10,000, and 100,000 &c. lines. Additional digits are necessary, and the numbering for exchanges of different capacities will therefore be :—

For	100 lines	... ...	00 to 99
,,	1,000 ,,	... ...	000 to 999
,,	10,000 ,,	... ...	0000 to 9999
,,	100,000 ,,	... ...	00000 to 99,999.

It follows that each subscriber will have two, three, four or five digits dependent upon the ultimate capacity of the exchange, also that the extra digits are additional to the tens and units digits. Clearly, the effect of adding digits is to divide the exchange into groups as indicated in Fig. 7.

The additional selectors are known as group selectors, the selector that accepts the tens and units digits is the Final selector or connector, for it is at this switch that the connexion with the subscriber's multiple is made.

Group selectors and banks are similar to the two-motion switch and bank already described. The shaft and wipers are stepped vertically under the control of impulses transmitted over the lines, the rotary movement is *not* controlled by line impulses, however, but occurs automatically upon completion of vertical movement. The bank contacts are connected to selectors in the next stage, the number being determined by the traffic passing in the particular channel or group. Facilities are therefore required to indicate to a caller when the outlets from the level are all engaged and to enable a record of the condition to be obtained. The latter facility is met by the provision of an eleventh contact in the levels of the private bank as previously described, to which a counting meter is connected. The transmission of a busy signal occurs as the result

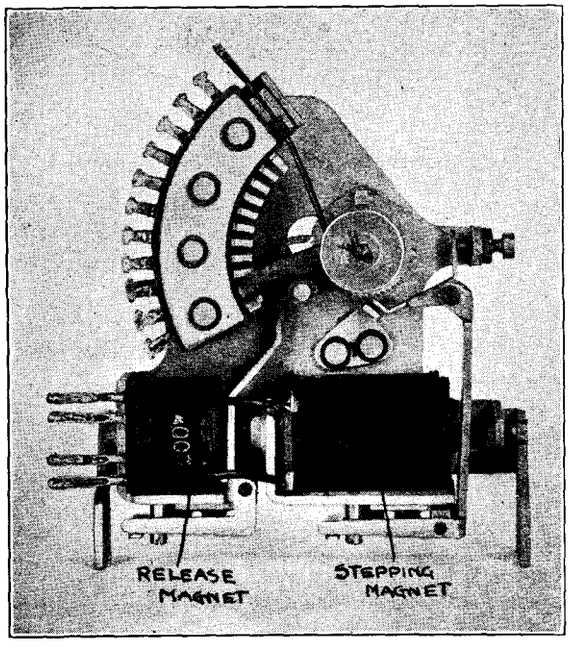


FIG. 6.

of the operation of cam springs fitted on the mechanism in such a position that they are operated mechanically when the wipers reach the eleventh position, due to the pressure exerted by a buffer attached to the shaft.

The cam spring scheme is shown in Fig. 8. The arrangement can also be seen in Fig. 9, which shows a group selector.

The need for the "lost motion," or minimum pause, feature associated with the standard dial will be more clearly appreciated in connexion with the automatic rotary hunting operation of group selectors. Unless a definite pause occurs between the transmission of digits, it is possible, when dialling small digits, to pass impulses into a selector while the wipers are "hunting," with the consequent loss of the digit. The normal speed of rotary operation is

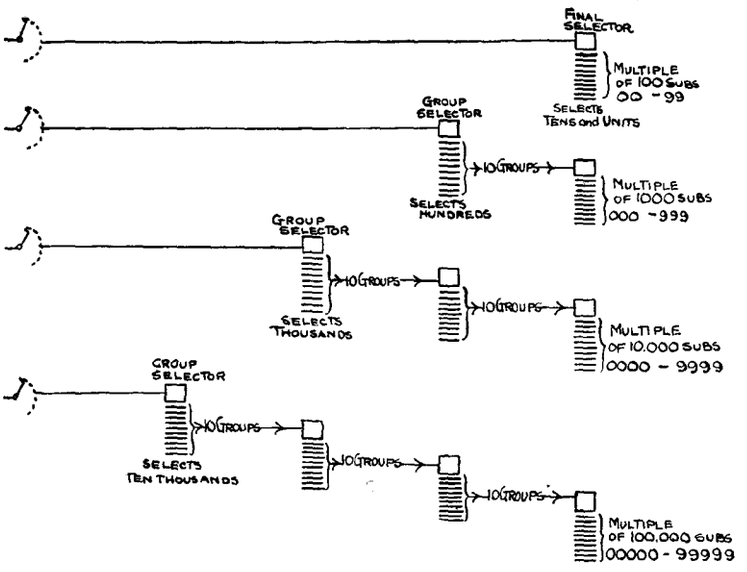


FIG. 7

approximately 35 steps per second and if the first free outlet (by outlet is meant a circuit to a selector in the next stage) should be from the 10th contact, some 300 milliseconds will be required by the switch to reach it. When the dial is transmitting impulses at normal speed, the "lost motion" period is 200 milliseconds, to which must be added the time of the personal pause between the pulling of the dial, plus the time taken to pull the dial for the digit. The imposition of the lost motion period will thus always ensure a satisfactory margin against the possibility of "beating the switch."

Although the introduction of group selection may be continued *ad infinitum*, it will be appreciated that the need for and the difficulty in memorising large numbers of digits is detrimental to smooth working. Also, the extension of the scheme as described to multi-exchange areas (in which direct dialling occurs between subscribers connected with different exchanges) necessitates a rigid and inflexible association of junction routing and numbering.

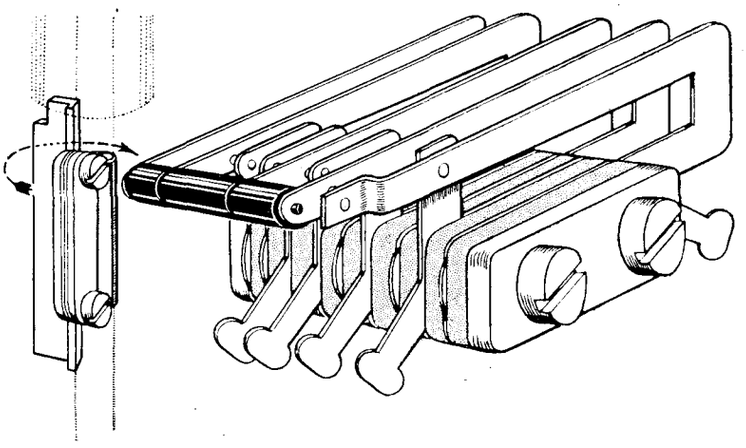
When the number of subscribers concerned in a common numbering scheme exceeds 100,000, requiring five digits, a system of translation is incorporated into the switching arrangements which permits the use of letters and figures; by thus reducing the number of figures to be dialled, the disadvantage previously mentioned, viz., the retention in the memory of a large number of figures, is eliminated. Experience has shown that subscribers are not averse to dialling five digits when setting up a call, neither do difficulties arise. The practical application of the translation scheme will be the subject of a subsequent article.

Fig. 10 is interesting and shows the disposition of the selectors when a call is actually set up.

Under automatic conditions, the responsibility for obtaining numbers having been placed upon the subscriber, it is desirable that means be provided for informing callers of the progress of

calls originated and to inform them if calls should be abandoned for any reason.

A system of tone signals is therefore provided as an adjunct to the switching scheme. As the tone system consists of a number of separate and distinct tones each having a special significance to subscribers, they must differ sufficiently to permit of easy recognition.



Selector Cam Springs

FIG. 8.

The tones are provided in a well-known manner. By rapidly interrupting a current flowing through a transformer winding, the resultant inductive effect in adjacent windings gives a tone, the pitch of which depends, *inter alia*, upon the periodicity of the interruptions, so that a series of different tones are readily obtainable from motor-driven machines operating interrupters having different periods of interruption, the interrupted currents being served to the distribution points through suitable transformers. Usually the interrupters are associated with the standard ringing machines, and are thus available continuously or as required, dependent upon whether the ringing machine is running always, as in the case of a large exchange, or is started up when a call is originated, as in the case of the small exchange.

The tone signals usually provided, and their significance, are as follows :—

1. *Dialling Signal.*—This informs the subscriber that he is connected with a selecting mechanism and may proceed to dial ; in the absence of the tone he should replace the receiver and call again after a short interval.
2. *Ringing Signal.*—This informs the subscriber that ringing conditions have been set up. If the tone is not removed in a reasonable time, the caller should assume that the call is ineffective.
3. *Busy Signal.*—This indicates to the subscriber that either the called subscriber is busy or that the call has failed to mature on account of a shortage of switches at some point during its progress. The call should be repeated.
4. *Number Unobtainable Signal.*—This informs the subscriber that the number called is not working and to abandon the call. The signal is given when a non-existent subscriber has been called and also if the required line is out of order. In metropolitan areas, such as London, the signal also indicates that a mis-operation has taken place or that apparatus has become faulty during the progress of a call.

In the following table, the tone characteristics are given :—

Name of Tone.	Periodicity per Second.	Continuous or Interrupted.	Nature of Tone.
Dialling	33	Continuous	Low (clicks).
Ringing	133	Interrupted secs. 0.4-0.2-0.4-2.0 on off on off	Low (note).
Busy	400	Interrupted secs. 0.75-0.75 on off	High.
Number Unobtainable	400	Continuous	High.

The ringing signal is interrupted at the same frequency at which the ringing current passes out to the called subscriber. It will be seen that a complete ringing cycle occupies one second,

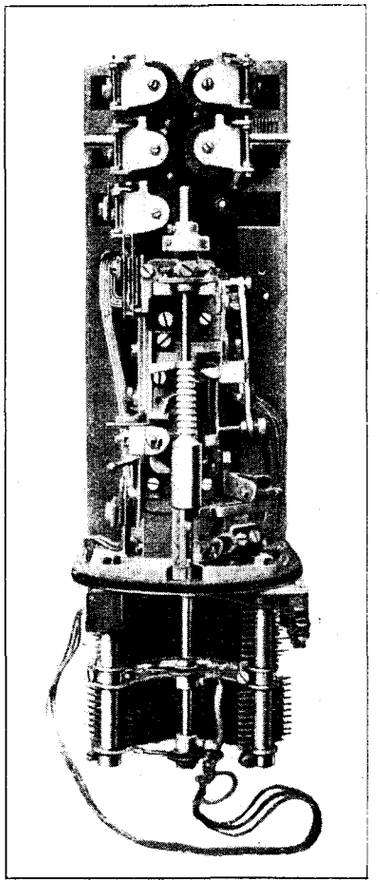


FIG. 9.

viz., 0.4-0.2-0.4, and is followed by a 2.0 seconds' pause. In order to reduce the load on the ringing machine that is providing the interruptions, the exchange is divided into three sections and ringing current is supplied to each of the sections in succession, thus one-third only of the exchange load is experienced by the machine, hence the two seconds' pause before a ringing cycle again occurs. This method of ringing distribution enables small ringers to be used, without any loss of efficiency to the service given.

The " double beat " in the ringing cycle has the effect of bringing subscribers to the telephone quickly, the effect being a psychological one, having for its object the reduction in holding time of selectors, and offsets the two seconds' pause between ringing cycles.

Is is opportune at this stage to indicate some of the operating conditions that have been standardised.

The control of a connexion is vested in the party originating a call, the switches are released only when the caller replaces the receiver. This is known as " calling party release." An exception occurs in the case of certain calls originated to an operator's position, in this case the release of the connexion cannot take place until the plug is withdrawn from the jack. This is necessary for purposes of number verification, &c.

In order that subscribers' lines shall not be held engaged for abnormal periods due to the failure of a calling party to replace the receiver, or due to faults occurring during a call that will prevent the release of a connexion, a lamp is provided on each final selector. The lamp glows when the abnormal condition exists. The lamp is recognised by the title of " called sub-held lamp," and is associated with an audible alarm which is given when the lamp is glowing for more than 3 minutes. Upon the receipt of an alarm, the attendant releases the connexion by hand. The offending line is dealt with on a fault basis.

The registration of a call takes place upon the removal of the receiver by the called subscriber, the meter of the calling subscriber then operates and remains " locked " until the caller replaces the

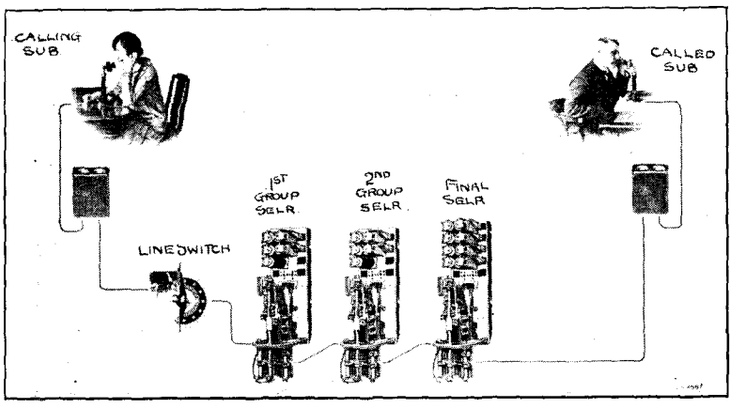


FIG. 10.

receiver. At present the metering scheme is arranged for single metering only, hence calls for beyond the unit fee area are obtained via an operator who tickets them.

Two technical methods of metering have been standardised for metropolitan and non-metropolitan (provincial) areas respectively. In the latter case the method is similar to that used in modern manual systems. The normal current flowing in the " private " circuit (with which the meter is associated) during the setting up of a call, is augmented when the called subscriber removes the receiver. The meter is designed only to respond to the higher current value, but when fully energised will remain operated at the lower current value. The higher current is, therefore, only applied for a very short period—approximately 300 milli-seconds.

In the manual case, the depression of the meter key causes an increase in the value of the current in the sleeve circuit with which the meter is associated. This method is generally known as " booster " metering.

In the metropolitan case the method adopted is known as " reverse " battery metering. A special relay, having two windings (the more recent type is known as a shunt field relay) is located in the apparatus at the outgoing end of the circuit, and is associated with the line wires. During the setting up of a call, the potential across the windings is such that the resultant currents are in a non-operating direction, when the called subscriber removes the receiver the line potential—and consequently the potential across the coil concerned—is reversed, thus the direction of current is reversed and the relay armature operates. A contact of the relay completes the circuit of the meter which locks by the action of a local contact. The scheme requires a separate meter wire which is extended to the switching apparatus via the line switch, hence the necessity for a meter level and wiper, referred to in connexion with the standard line switch.

In order that faults which operate the subscribers' calling equipment, and in consequence engage a selector, shall come under notice immediately they occur, a lamp is provided on each selector connected to the banks of line switches, it is known as a P.L. (permanent loop) lamp and is associated with a retarded audible alarm which is brought in after a period of 4 minutes for use when an attendant is not patrolling the selectors during slack periods.

It has been assumed that the whole of the levels of the selectors reached by subscribers upon removing the receiver, are available for subscribers' numbers. In practice this is not the case. Level 1 is not generally used. If, as frequently occurs, the switch-hook of the telephone is mis-operated before dialling, an impulse is transmitted over the lines, and the selector wipers will be raised to the first level. In such an event, the first digit dialled will be received upon a switch in the next stage, and a wrong number will result. The level is therefore connected to number unobtainable tone.

Levels 9 and 10 (0) are reserved for calls requiring the services of an operator and for service numbers, hence the levels are not used for subscribers' numbers.

As a result of the restrictions mentioned, the practical capacities of the two-digit, three-digit, four-digit and five-digit exchanges to which reference has already been made will be 70, 700, 7,000 and 70,000 lines respectively.

(To be continued.)

REVIEW.

" *La Poste Militaire en France* (*Campagne* 1914-1919)." *Par A. Marty, Inspecteur-Général des Postes et Télégraphes, Chargé de la Poste Militaire aux Armées au Grand Quartier General.* (*Librairie de l'Enseignement Technique, Paris.* 138 *pp.* 9 *francs.*)

A very interesting account of the growth of the French Army Mail system and its transformation from the somewhat crude arrangement devised as a result of experience gained in the war of 1871, to the highly complicated and efficient organisation required to satisfy the needs of the French armies during the late war.

It deals fully, in successive sections, with, amongst other subjects, the Organisation of the Military Post at the beginning of the Campaign, First Measures of Improvement, Creation of Postal Sectors, the nature of Military Correspondence, the Service at the Central Military Bureau, Postal liaison between the Armies, Parcels posts, the service of letters and parcels for prisoners of war, methods of dealing with complaints of non-delivery, and the special measures taken at demobilisation.

The book is written in an attractive style and is well worth the attention of both technical and lay readers.

MANCHESTER DISTRICT MANAGER'S OFFICE.

MESSRS. J. J. Green and R. J. Stafford, Assistant Traffic Superintendents, were presented by their colleagues with wedding gifts consisting of an Oak Clock and a Case of Cutlery, respectively.

CORRESPONDENCE.

TOURS ABROAD.

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

SIR,—I have just returned from a delightful fortnight's holiday, with a privately conducted party, in Holland; and feel sure that some of your women readers who are obliged to take their summer leave at inconvenient times, would be glad to know about the organisation.

This was my first venture abroad with a party, and I naturally felt rather nervous about joining one alone. However, I need not have been anxious, for a genial spirit of comradeship and goodwill prevailed and we spent a delightful fortnight. Individual comfort and convenience was studied in every possible way, and, though there was no "rush" of any sort, numerous and varied excursions were made to places of interest and beauty. I have never spent so enjoyable a holiday.

These "Goodwill" tours for women and girls continue throughout the summer, and I shall be glad to assist anyone who is at a loose end about her leave and give her any information she would like. All the terms quoted are inclusive, and I can, from personal experience, thoroughly recommend the tours for comfort and interest.—Yours faithfully,

GRACE E. COOMBS.

Ardington,
Wantage, Berks.
May 9, 1927.

TELEPHONE DEVELOPMENT OF TOWNS CONTAINING UPWARDS OF 100,000 INHABITANTS.

BY W. H. GUNSTON.

SUBJOINED is a table showing the telephonic development at the end of 1926 of all towns in Great Britain and Northern Ireland containing upwards of 100,000 inhabitants. For the purposes of this table it will be seen that Birkenhead is included with Liverpool, Salford with Manchester, Gateshead with Newcastle, while various boroughs adjoining the metropolis are included in the London Telephone area.

Hitherto, since the abolition of the old trunk exchange areas, the telephone areas have been defined by 5-mile radii in the case of most large towns and by 7-mile radii in the cases of Manchester, Liverpool, Glasgow and Birmingham.

Some inconvenience arose from the practice of adopting radial areas for the purpose of ascertaining the telephonic development of a city and its suburbs in that in many cases, especially in Lancashire, Yorkshire and Staffordshire, the circles overlap, and the same suburb may be included in 2 or even 3 telephone areas. It has therefore been decided to adopt as a telephone unit the geographical or administrative boundaries of the larger towns and cities together with such adjacent towns or urban districts as are closely related or stand in the relation of suburbs to the larger towns in question. These are clearly specified in the following list. A clear-cut geographical boundary is thus obtained, and the exact population of the area can readily be ascertained without resorting to estimates. Figures for the London Telephone area, as well as for Administrative London, have been included, as the London telephone area is by now a well-established entity.

The figures for Hull refer to Hull city. The number of telephones in the Hull telephone area is 15,073.

As the average for the whole country is 1 telephone to 29.2 inhabitants, it will be seen that all the towns after No. 20 do not come up to that average. It is not necessarily, however, in the large towns—as distinct from the largest—that the best results from a telephonic point of view are to be found. A city with numerous commercial offices and a large good-class residential district will stand high in the list, but a town of factories populated largely by factory hands or a mining centre will stand correspondingly low. It should be observed that many towns with less than 100,000 inhabitants show a very high telephone development: Chester and St. Albans, for example, and residential towns such as Guildford, Woking and Maidenhead, and pleasure resorts such as Harrogate, Eastbourne, Torquay and Tunbridge Wells, all have a development ranging between 13 and 20 inhabitants per telephone.

TELEPHONE DEVELOPMENT OF TOWNS CONTAINING UPWARDS OF 100,000 INHABITANTS AT DEC. 31. 1926.

		Population.	*No. of telephones.*	*Inhabitants per telephone.*
1.	London (City and Administrative County)	4,483,200	401,902	11
	(London telephone area, containing City and County of London and upwards of 60 boroughs and urban districts, including *West Ham, East Ham, Croydon, Leyton, Willesden, Walthamstow, Tottenham,* Hornsey, Kingston, Richmond, Ealing, Acton, Enfield, Edmonton, Hendon, Wood Green, Wimbledon and Reigate)	7,406,000	519,969	14
2.	Bournemouth (including Poole and Christchurch)	142,422	8,910	16
3.	Cardiff (including Penarth) ...	217,359	13,042	17
4.	Edinburgh	420,281	22,321	18.8
5.	Bradford (including Shipley) ...	314,268	15,656	20
6.	Blackpool (including St. Annes-on-Sea)	114,681	5,595	20
7.	Manchester (including *Salford,* Eccles and Stretford)	1,055,473	50,254	21
8.	Brighton (including Hove) ...	188,946	9,085	21
9.	Leicester (including Wigston) ...	242,780	10,967	22
10.	Huddersfield	110,120	4,801	23
11.	Liverpool (including *Birkenhead,* Bootle and Wallasey)	1,115,939	48,349	23
12.	Glasgow (including Clydebank, Renfrew and Rutherglen)	1,119,489	47,649	23.5
13.	Nottingham (including Arnold and Carlton)	292,969	12,407	23.6
14.	Aberdeen	158,969	6,142	26
15.	Southend-on-Sea	106,021	4,091	26.4
16.	Bristol (including Kingswood) ...	390,018	14,477	27
17.	Birmingham (including Smethwick and West Bromwich)	1,068,956	39,642	27.3
18.	Leeds (including Morley)	482,255	17,575	27.4
19.	Newcastle-on-Tyne (including *Gateshead,* Gosforth and Wallsend) ...	458,201	16,468	27.7
20.	Dundee	168,217	6,012	28
21.	Norwich	120,653	4,079	29.6
22.	Swansea	157,561	5,293	29.8
23.	Preston	117,426	3,939	30
24.	Dewsbury (including Batley and Ossett)	105,118	3,472	30
25.	Coventry	128,205	4,218	30.4
26.	Stockport	123,315	4,009	31
27.	Sheffield	490,724	15,550	31.7
28.	Belfast	415,007	12,785	32.4
29.	Southampton	160,997	4,963	33
30.	Blackburn	126,630	3,817	33.3
31.	Grimsby (including Cleethorpes) ...	110,489	3,300	33.4
32.	Oldham	145,001	4,122	35
33.	Bolton	178,678	4,912	36
34.	Derby	129,836	3,470	37
35.	Plymouth	209,857	5,066	41
36.	Rochdale (including Heywood) ...	117,498	2,762	43
37.	Wolverhampton (including Bilston, Cosely, Darlaston, Sedgely, Tettenhall, Willenhall and Wednesfield)	222,276	5,033	44
38.	Greenock (including Gourock and Pt. Glasgow)	112,270	2,385	47
39.	Middlesbrough (including Eston) ...	161,737	3,428	47.4
40.	Burnley	103,175	2,173	47.4
41.	Dudley (includes Rowley Regis, Brierley Hill and Oldbury) ...	145,337	3,009	48
42.	Sunderland (including Southwick)	173,742	3,454	50
43.	Portsmouth (including Gosport) ...	280,931	5,561	50
44.	Stoke-on-Trent (including Newcastle-under-Lyme and Wolstanton)	290,098	3,232	55
45.	Hamilton (including Motherwell and Wishaw)	108,289	1,854	58
46.	Chatham (including Gillingham and Rochester	127,964	2,073	62
47.	Wigan (including Ince)	112,312	1,778	63
48.	St. Helens	102,675	1,433	72
49.	South Shields (including Jarrow)	152,257	1,990	77
50.	Merthyr Tydfil (including Aberdare)	135,171	1,175	115
	Hull (Corporation system) ...	287,013	13,732	21

(The places in *italics* enclosed in brackets are boroughs or urban districts with upwards of 100,000 inhabitants.)

PROGRESS OF THE TELEPHONE SYSTEM.

A REVIEW of the telephone statistics for the past financial year shows that the total number of stations working at March 31 last was 1,508,786, an increase of 118,633, or 8.5%, on the previous year's total.

The table below shows the growth for the year in London, England and Wales (excluding London), Scotland and Northern Ireland :—

	Total Number of Stations			
	At Mar. 31, 1926.	*At Mar. 31,* 1927.	*Increase.*	*Increase* %.
London	488,499	532,066	43,567	8.9
England and Wales (excluding London)	751,876	817,356	65,480	8.7
Scotland	131,474	140,013	8,539	6.5
Northern Ireland	18,304	19,351	1,047	5.7

The total number of residence rate installations at the end of March, 1927, was 303,061, of which 115,278 were connected with London exchanges and 187,783 with provincial exchanges. The net increase in residence rate installations for the year was 41,755, as compared with an increase of 33,477 in business rate installations.

The number of public call offices working at March 31 last was 21,934, the net addition during the year being 1,634, or 8%. The London total increased from 4,445 to 4,724, and the provincial total from 15,855 to 17,210.

Included in the total of 21,934 public call offices are 3,051 street kiosks, 1,122 of which were provided during the past year. At the end of March there were 465 kiosks in the London area and 2,586 in the Provincial towns, compared with 245 and 1,684 a year ago.

A further 148 new exchanges were opened for service during the year 1926/27 under the rural development scheme, making a total of 1,030 exchanges opened since the inception of the scheme in 1922. In addition there were 50 exchanges in course of construction.

The rural party line stations at the end of March last numbered 10,040, the net addition in 1926/27 being 167. The demand for this class of service has declined during the last two years, probably because of the increase in the number of rural exchanges provided in outlying districts.

Trunk statistics for the year are not yet complete. The February figures are the latest available and during that month 7,192,382 inland trunk calls were dealt with, an increase of 667,279 (10.2%) on the figure for the corresponding month last year.

Calls made to the Continent during February numbered 24,181, and from the Continent 26,589.

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

PROVINCES—Chichester, Dartford.

And among the more important exchanges extended were :—

LONDON—Barnet, Putney, Southall.

PROVINCES—Amersham, Aylestone, Barry, Birmingham (North), Carlisle, Headingley (automatic), Lancaster, Newton Abbot, Pendleton, Rickmansworth, Selly Oak, Weston-super-Mare.

During the month 79 new overhead trunk circuits were completed, and 73 additional circuits were provided by means of spare wires in underground cables.

REVIEW.

"Astronomy." By Russell, Dugan and Stewart. Published by Ginn & Co., Ltd., 7, Queen Square, London, W.C.1. Volume II. 470 pp. Price 10s. 6d. net.)

In our last number we reviewed the first volume of this book. The second volume has now been published, and it quite comes up to the expectations raised by the first.

During the last half-century the addition of the spectroscope and other light-analysing and measuring instruments to the telescope has revolutionised Astronomy and has enabled investigations to be carried out which before would have been quite impossible. The greater part of modern astronomy is concerned with such investigations. The second volume accordingly opens with the analysis and measurement of light and other forms of radiant energy. The next chapter deals with the interpretation of the solar spectrum, the composition of the sun, and the formation of those curious markings which appear from time to time on its surface, and which are known as sunspots. This is a particularly interesting chapter to telegraph engineers, as there is little doubt that the activity of the sun has a profound effect on the electrical state of the earth, with its resultant magnetic storms and disturbances from atmospherics.

The third chapter deals with the sun's light and heat.

In the fourth chapter is given a very interesting summary of the modern theories concerning the structure of the atom, the production of the characteristic lines in the spectrum of an element, and the quantum theory. This chapter concludes with the application of the foregoing theories to the investigation of the constitution of the sun and stars.

The following two chapters are devoted to the stars, their nature, number and designation, star catalogues and maps, and the sizes, distances and motions of the stars. The next chapter deals with double and multiple stars.

In the seventh chapter variable stars and new stars are described, and the theories which have been advanced to explain them are given.

The next two chapters deal with the star clusters, the Milky Way and the nebulæ.

In the tenth chapter the results of the work which has been done to discover the constitution of the stars are given, and the final chapter is devoted to an account of the various hypotheses which have been advanced to explain the probable course which the evolution of the stellar universe has followed in the past, and which it appears likely to follow in the future.

The whole subject is covered as fully as possible in the available space, and, as in the first volume, the results of the latest researches have been incorporated.

The book is fully illustrated with clear diagrams and excellent photographs, and the printing leaves nothing to be desired. It is certainly the best exposition of the subject available to-day for those who wish to obtain a comprehensive view without going into the minute detail necessary to the specialist.

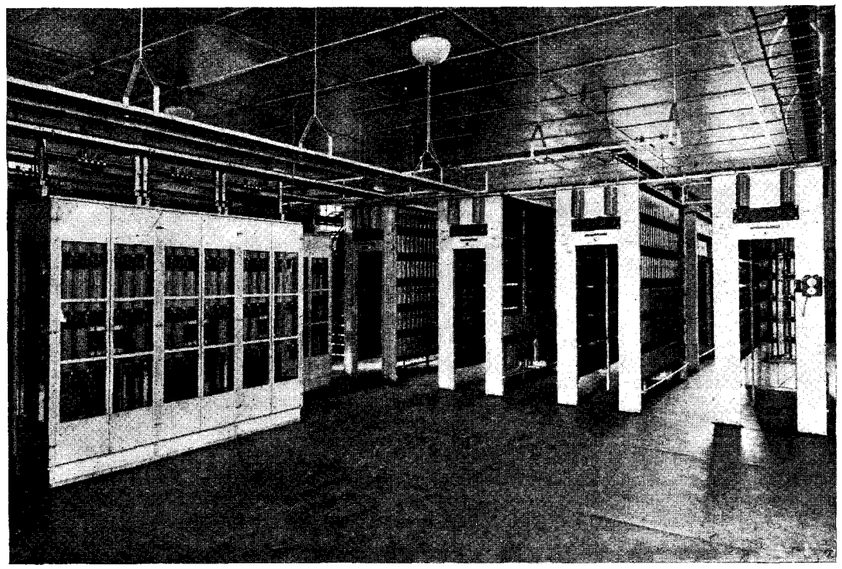
MANCHESTER.

MR. P. MACINTOSH and Miss M. Johnson, Clerical Officers in the District Manager's Office, Manchester, having decided to link their fortunes by marriage, their colleagues decided that some tangible expression of the good will felt toward them should be forthcoming. Hence an informal meeting of the staff in the dining room on Thursday, May 19th resulted in the District Manager, in a short racy speech, presenting the happy couple with a Canteen of Stainless Cutlery, Fish Eaters and Tea Knives.

Individual members of the staff supplied many choice gifts.

STROWGER AUTOMATIC TELEPHONE EQUIPMENT

A Thoroughly Experienced Technical Staff



A Strowger Automatic Installation at Melbourne, Australia.

ONE of the most important assets Automatic Electric Inc. possesses, and one which is of distinct value to its clients, is the experience gained by its technical staff during thirty-five years of intense application to the problems of automatic telephony.

This experience, tempered by the mature judgment of men who have literally grown up with the Strowger Automatic system and by actual contact with a wide variety of conditions, is now proving of inestimable value in the solution of problems involved in the modernization of telephone exchanges throughout the world.

Automatic Electric Inc.

Originators and Pioneer Manufacturers of the Strowger Automatic Telephone System
Chicago, Illinois, U.S.A.

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 - - - J. STUART JONES. W. D. SHARP. J. F. STIRLING. W. A. VALENTINE. 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.*

VOL. XIII. JUNE, 1927. No. 147.

EMPIRE BROADCASTING.

FROM time to time we hear murmurs about the need for an all-Empire broadcasting service, and as there seems some possibility at the moment of writing of an agitation for the creation of such a service, we make no apology for referring in this column to some of the difficulties of the situation. We grant that it is a great idea to supply every Britisher in a far-off clime with means of enjoying an opera or a play from dear old London, or a "Burns nicht" from Glasgow! But we wonder at times whether the stay-at-homes are not inclined to over-estimate the demand, or, dare we say it, the degree of home-sickness, and to under-estimate the real live interests of the Britisher beyond the seas in his home life, his daily task, his sports and other amusements.

The chief opponent of a universal British broadcast programme is, however, "old Sol," and we cannot hope to overcome him. He insists on bringing us out of bed and sending us back there without any consideration whatever for the ideas of those sentimental folk who cannot realise that the actions of their kinsfolk in the Greater Britain do not synchronise with theirs; and he gives us winter nights with all their fireside attractions, while "down-under" is enjoying all the delights of summer evenings with their insistent urge for the open air.

These differences alone would make the compilation of a universal programme almost an impossibility. To us a "jazz" band from 11.30 to midnight may be delightful; but in New Zealand during the morning's work it would be a nuisance, in Perth (W.A.) at breakfast time it would be a bore (one cannot eat eggs and bacon, or even passion fruit, to syncopated time without risk of disaster), and in Calcutta or Colombo at 5 a.m. it would be a perfect tragedy. A chat on butterflies would fail to enthuse one at the dead of night in midwinter. The subtleties of Bach or the humour of a Harry Lauder would not be appreciated when one's sole desire was to exterminate a mosquito and get back to bed, while the children's hour and what little Willie would find in the coal-box would leave one cold in the wee sma' hours.

The life of a Director of Programmes would not be a happy one. He must find it difficult under present conditions to satisfy the varied tastes of the many readers of the *Daily Mail*, and if he were to be subjected to world-wide criticism of his "rotten" programmes, he would require the hide of a rhinoceros.

Some difficulties could perhaps be met by extending the programmes to cover the twenty-four hours; but, unless a successful scheme for "bottling" programmes can be evolved, the expense for artistes alone would be enormous. And with bottled programmes comparisons would inevitably be made with "tinned" music, as our U.S. friends call gramophone records! In any case the transmission of programmes continuously would be a costly matter, and who is to pay? The British licensee might not unreasonably object to the diversion of his licence fees for the purpose, and our far-off fellow countrymen do not want charity.

If therefore we make the somewhat large assumption that short-wave telephony is sufficiently advanced at present to render Empire broadcasting a technical possibility, there are many other practical questions which must be settled before a regular service could be provided.

TELEPHONE DEVELOPMENT OF LARGE TOWNS.

THE tables showing the proportion of telephones to population which we publish in another column shows that a steady improvement is taking place on the development of our great towns. Fourteen of them show a ratio of less than 25 inhabitants to each telephone. In 1921 only London (16), Hull (24), and Cardiff (24) were below this figure. This standard is reached by all the five telephone areas with upwards of a million inhabitants, with the exception of Birmingham, where the ratio is 27 to 1. Comparison is obviously invited with the great cities of Europe, and it is by no means unfavourable to this country. According to figures recently published in the *Journée Industrielle*, there are 350,000 telephones in the Paris district with its population of 6,300,000, or 1 telephone to 18 inhabitants. The figure for the London telephone area is 1 to 14. The development of Paris proper is 1 to 12, while that of London County is 1 to 11. The following is the ratio of

telephones to inhabitants of the city telephone areas of Europe with a population of upwards of a million :—

Hamburg ...	...	1 to 9
Berlin ...	...	1 „ 9
London ...	...	1 „ 11
Paris ...	...	1 „ 12
Vienna ...	...	1 „ 18
Manchester	...	1 „ 21
Liverpool ...	...	1 „ 23
Glasgow ...	...	1 „ 23
Birmingham	...	1 „ 27
Moscow ...	...	1 „ 30
Constantinople	...	1 „ 100

Constantinople, which made a late start and was hindered in its progress by more than one war, makes a very creditable show under its exceptional conditions.

HIC ET UBIQUE.

IN our April issue, we published a paragraph quoted from the Press, to the effect that telephone rates in Germany were to be reduced. This is not correct. In fact the new rates are higher than the old. The subscriber in Berlin, Hamburg, Munich, Dresden, Leipzig, Cologne, Frankfort, and other large cities, now pays 96 marks a year basic charge, and has to make at least 40 calls a month at 10 pfennige each, amounting to 48 marks a year, or 144 marks in all = £7 4*s*. 0*d*. for 480 calls as against the former rate of £4 10*s*. 0*d*. for 600 calls.

An American journal, referring to the opening of an automatic exchange in Egypt, says " It will be interesting to see how the Arabic-speaking users will manage the dialling, as their method of expressing a number differs from that employed in most other countries. For example, 1234 is spoken of as one, two, four and thirty." It imagines there will be trouble with illiterate servants using the line.

We doubt if the really illiterate in any country could use the dial successfully. For instance, we call the number in question twelve hundred and thirty-four, which the " illiterate " *might* try to dial with 12, 100, 30 and 4. And how about the French who express 195 by " hundred, four-twenty, fifteen ? "

A writer in the *Hendon Times* says :—

SIR,—It would be of interest to the telephone subscribers of the district if you could publish the average time taken by the Hendon Exchange to obtain each telephone call, as the P.G. has done for the whole of London (this works out at about five seconds per call) for the past year.

At a rough guess I think the average for the Hendon Exchange would be about ten minutes. I should be glad to be proved wrong.—Yours faithfully, A SUBSCRIBER.

Tests taken over a period of five months show that the average speed of answer at the Hendon exchange varies between 6.1 and 9.4 seconds. We are glad to be able to prove this correspondent wrong by the slight difference between 600 and 9.

We believe, says the *Manchester Daily Dispatch*, that it is the high charges, and nothing else, which prevent hundreds of thousands of householders from being " on the telephone." To pay a high rental year after year on top of the initial installation costs, and then to have to pay a fee for each call, is one of those illogical things which irritate the average man. Let us have something more sensible and fairer.

Initial installation costs are paid by subscribers on the Continent and not in England. Let the *Daily Dispatch* get hold of the facts, and let us know something more sensible and fairer in criticism of the rates.

We are long past the days when it was considered by mistresses to be an outrage for the general servant to require houseroom for her bicycle. The *Liverpool Post* tells this story of a modern maid :—

" A suburban shopkeeper has recently had a telephone extension installed in his private house. The family, eagerly waiting to be rung up, were naturally rather disappointed when the first call proved to be for the maid. Their disappointment developed into annoyance during the following weeks, when by far the greater number of calls continued to be for the same person.

The climax, however, was reached when the maid inquired of the mistress of the house whether it would cost very much to have a direct line telephone put in. Her friends, she said, found it inconvenient to have to ask to be put through every time they rang up ! "

The *Christian Herald* has discovered that His Majesty The King, like Ministers of State and Ambassadors, enjoys priority on trunk calls. As our contemporary puts it : " King George gets it (the trunk call) at once, and holds it, not for three minutes, which is the limit for his subjects, but as long as he pleases. Moreover, he is not on any account to be interrupted by an operator in his conversation. I wonder if that is what occurs when the King of Kings calls up on the telephone of the universe ? "

We may remark that His Majesty's subjects may have more than 3 mins. if they pay for an extension ; but the answer to the last conundrum we leave to the *Christian Herald* which is something of an authority on these matters.

The second instalment of Miss Cox's paper on " Telephony from Various Viewpoints " is held over until next month, owing to pressure on space.

C. B. CLAY FOOTBALL CHALLENGE CUP.

THE final match for season 1926/7 was played on Friday, April 22, 1927, on the ground of the Tufnell Park Football Club. The competing teams were the Engineer-in-Chief's Office and the North-West External Section.

A splendid game was witnessed by about 500 enthusiasts. The teams were very evenly matched and after a hard struggle the Engineer-in-Chief's team were successful by four goals to one.

In the unavoidable absence of Colonel C. B. Clay, the Cup and medals were presented to the winning team at the conclusion of the match by Mr. J. Sinnott, O.B.E., Asst. Engineer-in-Chief.

The whole of the profits of the competition are always devoted to charity, and this season the sum of £18 13*s*. 2*d*. was divided between the Royal Northern and the Willesden General Hospitals.

It may be stated that the competition is open to teams representing the staff of any one branch or section of the following Departments :—

London Telephone Service ;
Post Office Stores Department ;
London Engineering District ;
Office of the Engineer-in-Chief.

Entries for the competition are cordially invited, particulars of which can be obtained from the trustees—C. J. Head, London Engineering District ; A. E. Wild, London Telephone Service and F. Woollard, Engineer-in-Chief's Office.

The Annual General Meeting of the competition will be held at Denman Street (Refreshment Room) on Monday, July 11, 1927, at 5r45 p m. All interested in the welfare of sport are invited to be present.

THE LONDON POSTAL SERVICE.*

BY LT.-COL. W. T. BRAIN.

Introduction.—Let me say at once that in the short time I have at my disposal I am not going to attempt a detailed history of the London Postal Service, but rather to try and interest you and to give you a rough idea, at least, of some of its work. In fact, my story will largely be one of the London Postal Service as I know it. I shall include certain historical particulars to illustrate the evolution of the London Postal Service *Department*, but I do not guarantee that references to the past will be strictly chronological or that they represent more than a few isolated items in the chain of events of bygone years.

The development of the L.P.S.—as, indeed, in the case of the Post Office generally—has been a romance, and whilst I hope to give you in a general way some idea of its practical work, it is the romantic side which you will probably find more appealing.

Genesis of London Postal Service Department.—For many generations prior to 1882 when the first controller of the London Postal Service Department was appointed, there existed a headquarters office known as the Circulation Office. This office had its Controller and he and his staff were regarded as *the* authority on all questions of circulation, traffic, collection, delivery and categorisation of correspondence. He was in charge of the Central Office in the old G.P.O. This old building, known as St. Martin's-le-Grand, and later, when its sister buildings came into existence, as G.P.O. East, took the place of the old G.P.O. in Lombard Street, and was built from the plans of Sir Robert Smirke and opened in 1829. It was no doubt regarded as a wonderful place in its early days and it housed the *whole of the Post Office Departments* for many years. It stood on a part of several City parishes; in fact it was hemmed in by churches on three sides, and I remember one room which had a brass plate on one wall stating that it marked the boundary of the parish of St. Michael le Querne, which church used to stand at the junction of Cheapside and Newgate Street. The G.P.O. contained a residence for the Secretary and many bedrooms for clerks.

From this building was despatched all the London correspondence for the provinces and abroad, and it must have been a fine sight to witness the departure of the night mail coaches (seen in the picture). Some of these had rough trips in all kinds of weather (second picture). Mounted post-boys were used to distribute correspondence off the mail coach "roads," and, as will be seen by the next picture, they were not always of prepossessing appearance.

In view of its ecclesiastical neighbours it is rather refreshing to know that opposite Smirke's G.P.O., on the other side of St. Martin's-le-Grand, there stood, until it was pulled down to build G.P.O. North, a typical coaching inn—the Bull and Mouth—whence passenger coaches started from London. Over the portals of this inn some of you will remember, as I do, there was the inscription :—

> "*Milo the Cretonian an ox slew with his fist,*
> And ate it up at one meal
> Ye gods, what a glorious twist!"

I have said that all the provincial and foreign correspondence posted throughout London was despatched from St. Martin's-le-Grand (the old Circulation Office) but what is more remarkable is that all correspondence *for* London received from the provinces and abroad, even up to 1854, when, of course, there were night mail trains instead of coaches, was brought to this central office and distributed from there, i.e., the Post Office treated the whole of London as one town and served it postally from one office. The majority of the letter carriers worked to and from this Central Office! Just imagine what this meant in days when there were no tubes, trams or anything like the omnibus system. There were "receiving houses" in the suburbs, or what were then the outskirts of London, and these collected letters and sent them, for despatch, to the Central Office. A postman ringing a bell also traversed the main streets and collected letters at 1*d.* each, and I have one of these old postmen's bells in my room.

This system of centralising the work not only applied to correspondence for the provinces and abroad but also to that posted in one suburb for another.

Sir Rowland Hill divided London into 10 districts about 1835, and set up a kind of local home rule in each under the jurisdiction of a Metropolitan Surveyor. The head of each district had, in fact in 1860, the dignified title of Deputy Controller. There were also Inspectors of Suburban Districts.

Such a division of London was undoubtedly necessary for the purposes of organised distribution and collection and it remained until 1882, when the Metropolitan Surveyor's Office was abolished and the whole postal control of London and its suburbs was vested in the Controller of the London Postal Service as Head of a Department. There were a good many difficulties of establishment to be overcome after that, and it was not until 1897 that the sorting establishment of London was amalgamated—the clerical staff being merged into a common list in 1905.

Following the appointment of a Controller L.P.S., the old Circulation Office, consisting of (*a*) the large distributing office for London—the E.C. Section, (*b*) the provincial distributing centre for provincial work—the Inland Section, and (*c*) that for foreign correspondence—the Foreign Section, became subordinate under the charge of a Sub-Controller. The Districts had been placed under Postmasters, and each one had absorbed, for control purposes, its adjacent suburbs in which had been opened sub-district sorting offices manned entirely by postmen.

Extent of L.P.S. Territory.—Thus the Controller L.P.S. had supreme charge postally—subject only to the Secretary, G.P.O., of a territory measuring about 20 miles from N. to S. and 20 miles from E. to W. (map shown on screen). This comprised an area of about 225 square miles. It is territorially practically the same to-day and now contains the following offices :—

Non-public	Inland Section	1	
	Sub-district offices	104	
			105
Public	Head offices (including E.C. and Battersea	10	
	B.O.'s	127	
	T.S.O.'s	866	
			*1,003
			1,108

* Including 574 telegraph offices.

The number of posting receptacles is 4,747.

Before going any further I would like to give you some figures to indicate the growth of postal work in London.

A Few Statistics.—In 1829 there were 564 Postmen in London and the villages round, e.g., Islington, Camden Town, Kensington, Brompton. Now there are 11,854.

In 1859, less than 70 years ago, the chief office, i.e., the Circulation Office, had a staff of 1,500, and in the Districts there were 3,300, a total of 4,800. *The whole Post Office staff throughout the British Isles* (*including, of course, Ireland*) was 24,802. Now, in the London Postal Service alone there are 32,729 employees, of whom about 6,000 are unestablished.

In 1859 the number of letters and newspapers delivered throughout the United Kingdom was estimated at 615½ millions, and in 1879, 1,586,937,300. The latest count showed the number delivered *in the London Postal area alone during a year was 1,838,931,900, whilst the number posted was 2,035,415,356,* and parcels posted were 45,429,614.

Even as recently as 1900 the corresponding figure to 1,838,931,900 was 964,200,000, so that it will be seen the work has practically doubled in just over 25 years.

Transfer of Inland Section to Mount Pleasant.—It is clear that it would have been impossible to have dealt with such traffic as is represented by these figures in one Central Office and the District Offices. Some rearrangement therefore became necessary when the upward curve of work was beginning to be apparent towards the end of the last century, or about 30 years ago, and almost concurrently with the building of the Mount Pleasant office to relieve the G.P.O. East of provincial work, a system of decentralisation so far as the despatching of correspondence to the provinces was concerned was taken in hand. The removal of the Inland Section (dealing with work for the provinces) to Mount Pleasant, took place in 1900, and since then some of the District Offices have become Divisional Offices—a term which I shall explain later.

King Edward Building.—Even with provincial work removed, the old G.P.O., which from a sorting office point of view became the E.C. and Foreign Section, was uncomfortably crowded and out of date. Accordingly, a new site for a central G.P.O. was acquired on the removal of Christ's Hospital to the country, and King Edward Building (named after the late King, who laid the foundation stone) was opened as the Headquarter Office of the Controller and a sorting office for town and foreign work in 1910. (Pictures shown.)

Last year the Inland Section extended into a fine new building which has been erected by the side of the old one, thus leaving room for the expansion of the Parcel Post Section into the old letter office floor.

General Organisation.—Having made you acquainted with the principal central buildings occupied by the L.P.S. at the present time, I think it would be well to give some rough outline of the general organisation of the Department and its functions.

The Controller is directly responsible to the Secretary in common with the heads of other Departments, and whilst in many matters he is in direct

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

touch with other Postal Departments on subjects of importance and of larger policy his contact is by way of the Secretary.

To deal with the mass of postal work coming to, despatched from, and passing through the London area the Controller has his own internal organisation. He has divided his Headquarter Staff functionally and the main branches are :—

(*a*) Revisions Branch ... ... } under an Assistant Controller
(*b*) Circulation and Mail Van Branch } with two Chief Supts.
(*c*) Buildings and Telegraph Staff and Establishment Branch ... ... } Under an Assistant Controller with two Chief Supts.
(*d*) Travelling Post Office Section ... Under a Chief Supt.

The Assistant Controllers pass papers of supreme importance to, or consult with, the Vice-Controller or Controller, whilst the Chief Superintendent, T.P.O., who has a measure of independence, keeps in close touch with the Assistant Controllers of (*a*) and (*b*).

Just briefly I will describe the work of these Branches.

(*a*) *Functions of Revisions Branch.*—The work of the Revisions Branch is mainly concerned with sorting office organisation : that is to say, broadly, with the proper adjustment of staff to work ; with the adoption of efficient sorting office methods, with the maintenance of scheduled arrivals, despatches and connexions, and with the adequacy of premises and fittings. In these respects, the Branch is concerned with the E.C., Inland Section and all Head, Sub-District and Branch Offices in London (but not with T.S.O.'s) and necessarily works in close touch with the Assistant Controllers in charge of the E.C. and Inland Sections, Postmasters and their organising staffs. It deals also with a variety of general questions affecting London as a whole and arising out of these activities.

For convenient working the Branch is divided into groups, each group being allotted a certain number of offices for inspection purposes and general control of organisation. The officers (1 Higher Executive, 1 Executive, 1 Clerical) on each group make frequent inspections of the duties at the offices attached to the group, deal with all matters affecting the working arrangements at those offices so far as they are proper to the Controller's Office, and subject interim and full revision proposals to critical examination before amendment or approval. A "general questions" group handles matters of general application to all London offices.

The work of the Branch requires on the part of each group officer a good general knowledge of sorting office working and a particular knowledge of the working of the offices attached to the group. As the activities of the Branch touch, at some point, the functions of every other Branch of the Controller's Office, it will be clear that a wide range of information and experience is required.

Full revisions of staff in relation to work are carried out at London offices approximately once in five years or more frequently in certain circumstances. Revision proposals are first prepared in the Assistant Controllers' (I.S. and E.C.) or Postmasters' Offices after detailed inspections of all duties, and are then examined in the Revisions Branch, not alone as regards their details but in the light of the part which the particular office under review is required to play in the general scheme and the obligations which the Department assumes in relation to the working conditions of the staff.

Minor revisions of force and methods may, and frequently do, become necessary in the intervals between the periodical revisions, and these are carried out on similar lines.

Adjustments of staff are determined primarily by expert inspections of working conditions, but for purposes of comparison between one office and another and to test the relation between staff and work, it becomes necessary to reduce to a common basis the various operations involved in that work. For this purpose, each operation performed is given a unit value. The numbers of articles of each class are ascertained annually for each office by means of Returns taken specially for this purpose. With the figures of units of work obtained we can establish a direct relation between growth of work and growth of staff costs, or, alternatively, obtain comparative figures of cost per unit (or more usually, per 1,000 units) of work done. At Counter and Branch Offices the main transactions are far more varied but an appropriate unit value is given to each.

The functions of the Branch also include (1) the maintenance of establishment and traffic records, (2) the settlement of postal boundaries and the maintenance of the necessary maps, and (3) the development of the use of departmentally-owned motor transport.

One of the great difficulties with which we have to contend, in common, of course, with the rest of the Post Office, is the "rush" character of the work. If postings could be spread evenly staff troubles would largely disappear, but you will see from the following diagrams (1) how sharply the posting line rises to a peak between 5 and 6 p.m. and (2) how the posting work is affected by industrial trouble (May, 1926), and its variation throughout the year. During the summer or holiday months there is a decided drop in the line.

At the end of each month, quarter and half-year—the times of accounting activity for the commercial world—the Post Office pulse always beats stronger and postings, &c., are heavier.

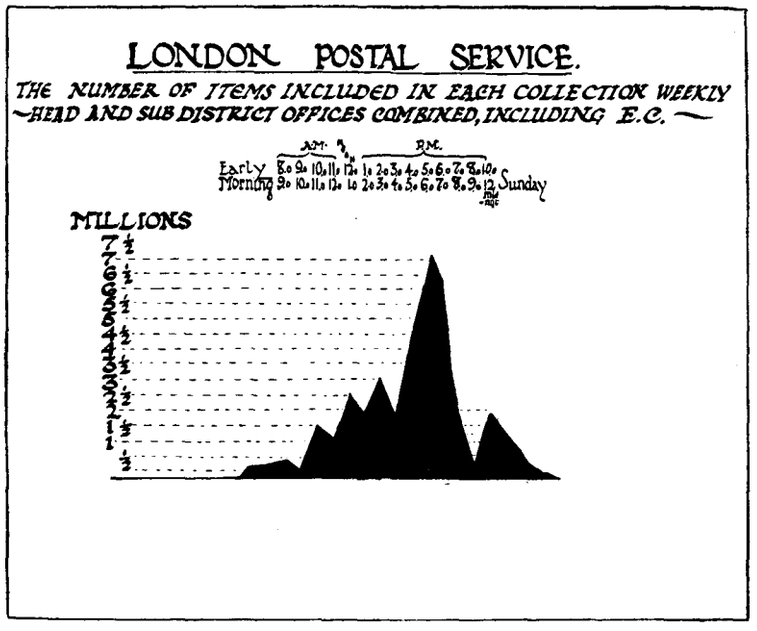


FIG. 1.

Christmas is a special anxiety although the fixing of a "latest posting time" for delivery up to Christmas morning and a well-organised control system have done much to rob this period of its postal terrors. Traffic figures naturally rise tremendously, but a good deal depends upon the incidence of Christmas Day and the absence of fog or very severe weather.

You may be interested to know that the number of ordinary letters posted in the Head and Sub-Districts on Dec. 23 last was 9,338,000, as against an average day of 5,000,000. Parcels collected (Dec. 22) rose from 144,823 to 526,312, and the delivered number from an average of 71,900 to 336,699.

The estimated number of letters, packets and newspapers posted in London during the Christmas period (Dec. 17 to Jan. 1 inclusive) was 107,797,922.

(*b*) *Functions of Circulation Branch.*—The old Circulation Office used to be the authority on all general questions affecting Circulation, and it kept a fairly complete record of all despatches from and arrival at every post town in the United Kingdom. With the growth and development of postal traffic throughout the kingdom it became necessary to establish a co-ordinating centre with more extensive powers, and the Traffic Section of the Secretary's Office was therefore formed, taking over a good deal of the administrative work formerly done in the Circulation Office.

The main principle of "Circulation" is to secure the most expeditious transitof letters and parcels from the office of Posting to that of Delivery.

Next the aim is simplicity of sorting, and attention is paid to uniformity so far as the disposal of correspondence for counties and groups of counties is concerned. Important considerations are cost of transport and the avoidance of circuitous routes on this account.

If a direct mail is not made to the office of delivery, letters and parcels are sent through an Intermediate Office.

The Intermediate Office may be either (*a*) a Distributing Office or (*b*) a Forwarding Office.

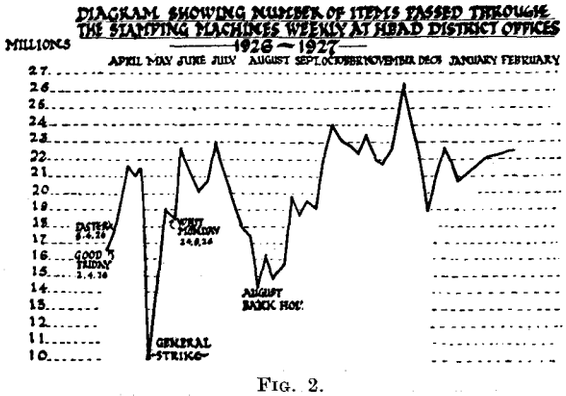


FIG. 2.

A Distributing Office is one selected as a convenient centre for distributing mails—usually direct to the delivery office—for a recognised area—e.g., Carlisle.

A Forwarding Office acts as an Intermediate Office between a despatching office and a Distributing Office or the office of delivery, e.g., Crewe.

An office may be a Distributing Office for an area as well as a Forwarding Office for other areas.

A Forwarding Office should not be used when a Distributing Office affords equal facilities. It will be clear even to the uninitiated that complete and accurate records must be kept by Surveyors, and to a smaller extent by Postmasters, if confusion and delay to correspondence are to be avoided. In addition, copies of most of the principal records are maintained by the Secretary (Postal Traffic Section) and the Controller, London Postal Service, to whom all provincial offices send particulars of alterations. The manner of recording alterations in mail work has been highly systematized. Certain standardised considerations govern the establishment or discontinuance of mails.

The Circulation Branch of the Controller, L.P.S., is regarded as an expert Branch, and a good many of the major problems and questions of Inland or Foreign Circulation are referred to it by the Secretary and Surveyors. It deals with all circulation questions in which London, or any office in London, is concerned. It makes proposals and considers those submitted to it for the establishment or discontinuance of letter, newspaper or parcel bags; investigates complaints of delay in transit, and is constantly seeking to expedite the transmission of mails of every kind—Inland, Foreign or Air Mails.

A sub-section of the Circulation Branch deals with *Mail Van Services.*

The road vehicles used on postal services in London fall mainly into two categories:—

(*a*) Vans—horse and motor—of 20 cwt. and 30 cwt. capacity, supplied and worked by contractors and driven by trade drivers.

(*b*) Motor-cycle combinations of 3 cwt. and motor vans of 8 cwt., 15 cwt. and 20 cwt. capacity, owned and worked by the Post Office and driven by postmen drivers.

The allocation of work between the two categories is broadly that purely transport services—i.e., the conveyance of bags of mails from one point to another—are performed under contract, while collection and delivery work is done by departmental van. The allocation is not a rigid one; there is overlapping on each type of work, especially in Central London, where the collections and deliveries are so heavy that many of the services connected with them are more of the nature of transport services than ordinary collection and delivery. On the other hand, a number of small services, particularly in the outer areas which might be regarded as purely transport, can more conveniently be linked with collection and delivery work, by departmental van.

The mail van contracts are at present four in number—one for letter mail work in Central London, one for parcel mails also in Central London, and two for combined letter and parcel work mainly between the Head District Offices and the Sub-Districts.

The total payment made by the London Postal Service in respect of contract services is over £300,000 a year. In 1911 it was £200,000 a year. Payment is calculated on the basis of *loaded mileage* in the case of ordinary transport work, and on the basis of *occupied time* in the case of collection and delivery work. Contracts are made on ordinary commercial lines, tenders being invited by means of advertisement in the motor trade press and the daily press.

The system of payment mentioned may appear strange in view of the usual commercial practice of engaging vehicles by the day or hour, but there are advantages as well as disadvantages in it, and the London Postal Service has had experience of the ordinary commercial practice.

There has been a steady process of motorisation on contract services over the past few years and when a new suburban contract comes into force in October next the number of horse vans will be a comparatively small proportion of the whole. It is still a very open question whether horse-drawn vehicles or motors are more suitable for such Post Office work as they have to do in the City of London for example, and another difficulty with which we have to contend lies in the fact that there are two pronounced traffic peaks of postal van work in the 24 hours, at both of which mileage work is preceded or followed by collection or delivery work. The peak point of collection or posted work previous to the despatch of night mails already referred to is one, and the other is the arrival of the up night mails, followed by the first morning delivery. Economy in the use of vans, therefore, entails much dovetailing of the two classes of work.

Postmen-driven motors are of post-war introduction. They are generally of the smaller type and their main functions are to replace foot and handcart services, particularly on collections and on parcel deliveries, especially in the Districts as well as in certain other special circumstances which perhaps need not be detailed.

The total number of motor and horse vehicles employed at the moment on mail services in the L.P.S. area is 770, and the annual mileage is in the neighbourhood of three-and-a-half millions.

(*c*) *Function of Building, &c., Branch.*—The main function of the Buildings Branch is to attend to the housing, maintenance and equipment of L.P.S. offices (Headquarter Offices, Branch Post Offices and Sorting Offices). The most important items with which it deals are:—

(1) the building or acquisition of new premises;
(2) the enlargement or alteration of existing premises;
(3) questions of lighting, heating, ventilation, cleaning, renovation, &c.
(4) questions of welfare accommodation (including refreshment branches;
(5) the provision of fittings of all kinds;
(6) the introduction of labour-saving devices, e.g., conveyors;
(7) the provision of stores, uniform, stationery, &c.;
(8) the revision of forms, draft letters, &c.;
(9) the consideration of suggestions for improvements in fittings, forms, &c.

This list explains the scope of the Buildings Branch activities in general terms, but the following brief observations may be of interest as illustrating the procedure in certain types of cases.

Much of the work is of a technical nature, and in framing schemes for large building works or for the introduction of labour-saving plant (such as that which is to be used in connexion with Tube workings) it is necessary for the Buildings Branch officers to maintain close co-operation with the technical officers of the Office of Works and the Engineering-in-Chief's Department in order that the most useful line of action may be settled before the proposals are submitted for authority to proceed.

It is not only with suggesting, considering or carrying out of such schemes as come under its purview, however, that the Buildings Branch is concerned. It has to produce satisfactory financial or other justification for any scheme it puts forward.

In matters concerning Accommodation and Fittings the Buildings Branch is largely guided by the recommendations of a Committee (composed of representatives of the Official and Staff Sides) which has until recently been sitting. This Committee, known as "The Fittings Committee," has recommended certain standards of accommodation (e.g., superficial areas, amenities, &c.) in relation to the nature of the work performed and the number of staff occupying the buildings or rooms concerned. The Committee has also evolved standard types of fittings which have been adopted for use in sorting offices and public post offices, some of which I shall show you later.

The Telegraph Branch is responsible for the telegraph working at all L.P.S. offices and for the delivery of telegrams throughout the London postal area. (Except the portions of the City delivered from the C.T.O. and Threadneedle Street B.O. during the day, and the night delivery of the eastern half of London which is effected from the C.T.O.)

Telegrams are accepted at 570 L.P.S. offices, and delivery is effected from 158 offices. At the latter offices 1,700 boy messengers are employed and 540 bicycles are in use.

Forty of the larger offices in the central areas are connected with the Central Telegraph Office by pneumatic tubes, while at the other offices the telegraph work is dealt with over morse telegraph circuits or telephone circuits. Exceptionally, Morkrum teletype circuits are in use at two offices (Knightsbridge and Boro' High Street).

Inter-London traffic, which formerly was dealt with direct via the telegraph inter-communication switch, is now transmitted direct by telephone from certain offices, and an extension of this system is contemplated.

Special arrangements have to be made for race meetings, e.g., at Alexandra Park, for miscellaneous exhibitions and shows at Olympia and the Agricultural Hall, and for Test Matches and other special events.

Besides telegraph work the Telegraph Branch exercises a general oversight over the facilities provided throughout the London postal area for the transaction of Post Office business by the public. This business is carried on at 137 Head and Branch Offices and 865 Town Sub-Offices. With the growth of London the number of offices is continually increasing, while old offices are frequently replaced by new ones, and changes are continuously taking place in the appointments at Town Sub-Offices. The maintenance of Town Sub-Offices is dealt with entirely by the Telegraph Branch, but the responsibility for the maintenance of Head and Branch Offices is shared with the Buildings and Revisions Branches.

Public telephone facilities provided at all London post offices, together with service lines for telegraph traffic or for use in the Controller's Office and in the District Postmasters' Offices and Sorting Offices, are also under the care of the Telegraph Branch.

It is impossible to give an exhaustive list of the many other classes of work which are dealt with, but the following are some of the more important items:—

(1) New classes of business transacted at post offices.
(2) Training of probationary C.C. & T.'s.
(3) Suitability of books, forms, &c., used at branch and town sub-offices.
(4) Rules for working at post office counters.
(5) Public complaints against staff or arrangements at branch and town sub-offices.
(6) Special attention to Imperial cable and Empiradio work.
(7) Educational classes for boy messengers.
(8) Messengers' institutes and general welfare work among boy messengers.

(*To be continued.*)

TELEGRAPHIC MEMORABILIA.

AUSTRALIA.—It is officially announced that the number of broadcast receiving licences held throughout the Commonwealth at the end of February was 197,872, which represents 3.2% of the population. Victoria was first amongst the States with a total of 114,428 licences, compared with 51,154 in New South Wales, 20,425 in Queensland, 15,773 in South Australia, 4,014 in West Australia, and 2,078 in Tasmania. The number of persons per 100 of the population in each State who held receiving licences at the end of February were as follows :—Victoria, 6.1 ; South Australia, 2.7 ; Queensland, 2.3 ; New South Wales, 2.2 ; West Australia, 1 ; Tasmania, 1.

BOLIVIA.—The *Electrical Review* states that under a twenty-years Government contract, Marconi's Wireless Telegraph Co. has undertaken the control and operation of the entire postal telegraph and wireless services of Bolivia ; the services were taken over on the 1st ult. This is the second contract of its kind entered into by Marconi's Co. in South America, the first being with the Peruvian Government in 1921. Modern apparatus will be introduced.

BULGARIA.—Reuter's Agency in Sofia informs us that Bulgarian citizens have hitherto not been allowed to use wireless, the only sets permitted in the country being those belonging to Government administrative bodies, the Ministry of War, and Bulgarian merchant vessels. The Government has now, however, decided to permit their use by the general public, although transmission will remain a State monopoly. Owners of receiving sets will be required to pay a fixed subscription and to undertake to conform to such regulations as may be made.

COLOMBIA.—Through Reuter's Trade Service we learn that in his message to Congress, the President of Colombia, South America, announced the immediate provision of an improved broadcasting service. Twelve sets are to be used, all of high power (the international call letters assigned being HJA-HKZ). The message has attracted much favourable attention, as hitherto there has been no broadcasting in Colombia, where static is bad during most of the year in the greater part of this extremely mountainous country. The best reception is obtained from January to March. The recently-opened stations at Caracas (Venezuela) and Balbóa (Panama) are expected to benefit broadcasting in Colombia.

FINLAND.—A station is to be built in Lahtis, says the *Electrical Review*, at a cost of about $200,000, which is part of a loan granted the country by an American concern. At present there are only two radio stations in Helsingfors and one in each of the following towns :—Tammerfors, Bjorneborg, Lahtis, Jyvaskyla, and Jakobstad. The stations in Helsingfors belong to the Army and those in the other towns are privately owned. None of them is equipped for modern broadcasting, says *Commerce Reports*, and it is expected that the new station will stimulate interest and increase the sale of equipment.

FRANCE.—The official inauguration of direct wireless communication between France and French Equatorial Africa took place on April 29. The station at Brazzaville is another link in the chain of wireless stations which are being constructed in accordance with the plans of the Government ; it will not only be used for the transmission of commercial messages, says Reuter, but will also serve for the dissemination of weather forecasts, time signals and all information of use to shipping. The construction of the new station was begun in 1920 ; it will be staffed by nine Frenchmen, aided by natives.

GREAT BRITAIN.—The *Electrical Review*, London, says that Capt. P. P. Eckersley, chief engineer of the B.B.C., and M. Braillard, the Belgian president of the Technical Committee of the Union Internationale de Radiophonie have recently co-operated in carrying out tests to ascertain the amount of wavelength separation needed between long-wave high-power stations in order to avoid interference between them. At its meeting at Geneva this month the Union will consider the results of the investigation. A 10-kilocycle interval between stations is apparently as essential in the case of long-wave stations as it is in that of the shorter band, while it seems to be not really sufficient between two powerful stations geographically "near" to each other.

PARLIAMENTARY QUESTIONS.—On April 27 Sir F. Wise asked the Postmaster-General if he could state the number of wireless calls between Great Britain and the United States of America from Jan. 1 to the most convenient date ; and if the service was paying its way.

Sir W. MITCHELL-THOMSON said that the total number of calls up to and including April 24 was 769. The service was not yet self-supporting. Receipts at present covered working costs, but not interest and depreciation.

On April 12, Mr. Montague asked the Postmaster-General whether his attention had been called to the effect of spark signals sent out constantly by the Lloyd's station at Niton, Isle of Wight, which made the wireless receiving sets for which licence fees had been paid in Sandown, Shanklin, Blackgang, and district, practically valueless ; and whether he would make representations to the company concerned as to the advisability of substituting continuous-wave messages for spark signals to ships entering the Channel.

Viscount WOLMER, the Assistant Postmaster-General, said that the wireless station at Niton was a Post Office station used for communication with ships and in the interests of safety of life at sea. Although some interference with the reception of the Bournemouth broadcast programmes was unavoidable in the immediate vicinity of the Niton station, there should be no serious interference at Sandown, Shanklin, and the district when reasonably selective receiving apparatus was used. The Daventry programmes could be received without difficulty even 200 yards only from the Niton aerial. An International Radiotelegraph Conference was to be held at Washington in the autumn of this year, at which the question of spark transmission from ships would be considered. In the meantime it was not practicable to take any steps to restrict the use of spark apparatus on ships.

The Western Union Telegraph Co. have inaugurated direct cable working in each direction between London and Boston, Mass., U.S.A., over one of the nine Atlantic cables operated by the company.

The cable steamer *Telconia* recently arrived at Valentia, Kerry, Irish Free State, where she is to undertake some repairs to the transatlantic cable.

At the end of March, 1927, the number of Post Office receiving licences current was 2,253,845, an increase of 18,845 as compared with February, 1927, and an increase of 241,845 as compared with May, 1926.

At the annual meeting of the Marconi International Marine Communication Co., Ltd., held in London, its managing director (Mr. F. G. Kelleway) announced that the authorities in this country were on the point of issuing rules governing the installation on merchant ships of the "auto alarm," actuated by a special signal which, in time of distress, would give audible warning of the need for help, and summon to the wireless apparatus on the ship where the alarm was received the telegraphist who at the time might be off duty.

GERMANY.—The reduction of 33⅓% in the charges for the public telephone service took effect on May 1, bringing the price down to ten pfennigs (roughly 1*d.*) per call. Hitherto it has been fifteen pfennigs, which odd price necessitated all users of public telephones purchasing special discs, slotted and nicked in a special way to deter "coiners," for insertion in the telephone boxes. For the lowered rates new boxes have been introduced which will take the ordinary ten-pfennig pieces.

The effect of this cheapening of the telephone upon the sister service, the telegraphs, will be watched with interest by all administrations. At the moment the telegraphs is just about holding its own.

It is reported from Hamburg that experiments are in progress with the object of connecting steamships and other vessels, when in port, with the local telephone system. This is to be done by specially arranged cables, so it is understood, but the information at present to hand is somewhat meagre.

GUATEMALA.—Reuter's Trade Service from Guatemala City says that an arrangement with the Tropical Radiotelegraph Company (a subsidiary of the United Fruit Company organised to handle the radio business of its steamships and stations in the United States) has been concluded by the Government for the connexion of the State radio station with the Fruit Company's system in Central America. The Tegucigalpa (Honduras) station has been decided upon as the connecting link with the other five States, and the Company's station in New Orleans will connect with the rest of the world and transmit Press messages at a discount of 50% on the actual rates. By special arrangement with the Minister of Promotion, messages of general interest up to 300 words from the Press of Guatemala City to that of San Salvador will be sent free of charge.

N.B.—The Minister of *Promotion* has nothing to do with advancement in the service !

HUNGARY.—It is understood, says the *Electrical Review*, that the Radiotelefono Hirmond Co., of Budapest, is to build a 60-kw. station similar to that at Langenberg ; the scheme has the approval of the Hungarian Post Office authorities.

By a recent ordinance radio receiving apparatus may now be imported into Hungary without restriction by anyone having a licence for the "production, sale or maintenance and use" of a receiving apparatus. The importation of radio broadcasting apparatus and parts is, however, still subject to the permission of the Minister of Commerce. Consignments of apparatus will still be cleared by the Budapest Central Customs Office, and will only be delivered to the addressee if he can produce the necessary licence. The regulations also apply to the movements of apparatus within the country.

INDIA.—It was announced in the Delhi *Council of State* that official "beam" radio-telegraph transmission tests from the Poona station would commence in May and that the service would actually commence in June. The Indian system consists of a transmitting station situated about six miles from Poona. The site is at an elevation of about 2,200 ft. above sea level, and the area at present utilised for the buildings and aerial system does not exceed 20 acres, but considerable space has been allowed for any extensions which may be made in the future. Heavy fuel oil is used for power production. The receiving station is situated about four miles from the small town of Dhond and about 50 miles from the Poona station, and lies in open, wide country, so that there is no screening to interfere with the reception of signals. These stations will link with the Grimsby transmitter and Skegness receiver in England.

According to the annual report of the committee of the Bombay Radio Club for the year 1926, the number of members increased during the year to 585. The Club had broadcast upwards of 300 concerts, and the programmes were received in places many hundreds of miles distant. It is intended by the Technical Committee to install in the current year small transmitters, of both long and short waves, for communication with other amateur stations in India and to start a class in Morse receiving and dispatching, if sufficient members accord their support. It is expected that the Indian Broadcasting Co. will commence its regular broadcasting services from Bombay and Calcutta in August next. Mr. Page, director of the Bombay station, and Mr. Wallace, director of the Calcutta station, have both arrived in India.

The transmitting station of the company will be 120 times as powerful as the present Bombay station (2FV).

IRISH FREE STATE.—The new State broadcasting station at Cork, which is intended to serve the south and west of the country, was officially inaugurated on April 25 by Mr. J. J. Walsh, Minister for Posts and Telegraphs. Equipped with "Standard" plant, the Geneva rating of the station is 1.5 kw., which means that 4-kw. "peak" power can be handled without distortion. It will operate on a wavelength of 400 metres and its call sign is 6CK.

In Dail Eireann, the Minister for Finance, said that the yield from the duty on wireless-telegraphy apparatus in the Irish Free State from April 22, 1926, the date of the imposition of the duty, up to and including March 31, 1927, was £19,008. The total amount received from licences on wireless receiving sets for the first three months of the present year was £8,315, *viz.*, for January last, £2,432; for February, £4,527: and for March, £1,356. The number of receiving licences issued in the Free State during the financial year ended March 31, 1927, was 21,795. The figure for Northern Ireland was 28,455 up to Feb. 28, 1927.

The *Cork Examiner* considers that the fact that in January, February and March, 1927, the authorities collected £8,315 in licence fees alone is sufficient evidence in itself that radio broadcasting in Ireland "is an extremely businesslike proposition."

ITALY.—From Milan through Reuter's Trade Service we learn that the publication is expected of a decree-law instituting a new company to take over the wireless telephony services, and appointing a supervisory committee. The decree will fix the composition of the board of the company and the staff of artists, which is to be predominantly Italian, and require the execution of the following technical plan: the replacement of the present station at Milan by another of 7 kw.; the erection at Genoa of a 11.5 kw. station; at Rome, one of 25 kw.; at Florence, Turin, Naples, and Bari stations of 3 kw., and at Palermo one of 7 kw.

To this information the London *Financial Times* adds that the new transmitter at Milan, which will deliver 7 kw. to the aerial, is nearing completion.

The Italian Government Commission examining broadcasting finance has adopted a resolution recommending the Government to impose a small tax. All Italians are instinctively against the suggestion of a licence tax.

From a Consular report received by the U.S.A. Government it is gathered that a good market existed for crystal sets immediately after the opening of the Milan broadcasting station in 1925, but the demand fell to inconsiderable proportions. The erection of the new station near Milan is expected to open up a new and larger market. A great deal of interest has been shown in valve sets; the cheapest are of Italian make, but German, British, French and American sets are available.

Reuter's Rome correspondent cables that Signor Majorana, Professor of Physics at the University of Bologna, has written to the Reale Accademia dei Lincei at Rome, claiming to have discovered a system of wireless telephony in which ultra-violet rays are employed. In experiments made between Bologna and a place 16 kilometres distant conversations were, it is said, carried on with great clearness and in secrecy.

JAPAN.—The Minister of Communications announces the return to Tokio of Monsieur Koichi Miyake, delegate of the Japanese Administration to the meetings of the International Consultative Committee on Telegraph Communications in November last.

JUGO-SLAVIA.—*World Radio* informs us that a company has definitely obtained a licence for the erection of a transmitter of 6 kw. The company began its activities with a capital of 2,500,000 dinars. The station will be installed on the top of the Académie des Sciences at Belgrade. One dinar equals 9.513 pence.

LITHUANIA.—The Lithuanian Parliament (Seimas) has adopted a new radio tariff which is already being provisionally put into operation by the institutions concerned. According to *World Radio* the monthly charge for a receiving set installed in private dwellings, State and Municipal institutions, by cultural and charitable organisations and in newspaper offices, if special taxes are already being levied, is as follows:—In towns: (*a*) crystal detector, tenpence; (*b*) valve receiver, 2*s*. 1*d*. In villages and other localities: (*a*) crystal set, fivepence; (*b*) valve set, 1*s*. 3*d*. For a receiving set in restaurants, clubs, shops, kinemas, and similar public places, the monthly fee is to be: (1) in Kaunas and Klaipeda, one pound sterling; (2) in district towns, 12*s*. 6*d*.; and in other places, 4*s*.

Reuter's Trade Service gives the following further interesting information ragarding radio matters in Lithuania:—The first sitting of the Exploitation Commission of the Kaunas wireless station was held recently to examine the activities of the station. Owing to lack of resources it has not hitherto been possible to develop; the number of registered subscribers in Lithuania at present is 1,500, of whom 1,000 are in Kaunas. Notwithstanding the regulations regarding the registration of apparatus, there are still many unregistered sets, it being estimated that the total number is 10,000. On the basis of the recent Cabinet decision, 75% of the receipts is assigned to programmes; the Commission therefore intends to introduce measures for the registration of all radio apparatus. Strict control will be enforced, and those who fail to register in time will be fined. Moreover, in shops dealing in wireless accessories, all apparatus and parts sold will be registered. It is proposed periodically to relay from the Kaunas station the more interesting programmes of the principal European stations.

NEW ZEALAND.—*World Radio* records that Wellington is shortly to possess a 5-kw. station and that in both Auckland and Christchurch there are good stations, but so far Wellington and Dunedin have each had only a very small one. The number of licensed listeners in New Zealand is at present 13,000.

POLAND.—The *Electrical Review* states that the Polish Broadcasting Co. (Poleskie Radio) has just placed a contract for a 10-kw. station to be erected at Katowice. The equipment will be manufactured in London at the works of Standard Telephones and Cables, Limited. This order follows on the recent successes of this company in obtaining contracts in face of foreign competition for broadcasting equipments for the Irish Free State, Denmark, Japan, and New Zealand.

PORTUGAL.—An extension of wireless telegraph facilities took place on April 30 with the inauguration of services between Lisbon and the Portuguese colonies of Cape Verde, Angola, and Mozambique. The opening of these services completes the network of wireless communication which Marconi's Wireless Telegraph Co., Ltd., undertook to construct for the Portuguese Marconi Co. in accordance with the concession obtained from the Portuguese Government in November, 1922, says the *Electrical Review*. Direct wireless communication is now established between Lisbon and all the principal Portuguese colonies, which also have a complete system of wireless communication with one another. Services to the Portuguese Islands of Madeira and Azores were opened on Dec. 15 last. Direct services between Lisbon and London, Paris, and Berlin have also been opened during the last few months, and a direct service with Rio de Janeiro is expected to be opened almost immediately. The English group of stations with which the Portuguese stations at Lisbon communicate are the Marconi stations at Ongar and Brentwood, in Essex. The transmitters for communication between Portugal and South America, Mozambique, Cape Verde and Angola are operated on the short-wave "beam" system.

RHODESIA.—The London *Times* announces that a broadcasting station is to be established in Southern Rhodesia within the next ten months to operate in conjunction with the Johannesburg station, and will relay the evening programmes transmitted therefrom. The African Broadcasting Co. is applying to the Southern Rhodesian Government for a licence, and is asking for alterations in the existing regulations in order that "pirates" may be dealt with.

RUSSIA.—The *Electrical Review* writes as follows regarding the new "Great Komintern" radio broadcasting station in Moscow:—

"This station, for the construction of which Professor Bonch Brouevitch was responsible, was recently opened. The plant is claimed to have a capacity of 40 kw. . . . An unusual type of aerial mast has been adopted."

This our worthy contemporary illustrates by a photograph, and from this the writer can best describe the aerial as presenting the appearance of a number of huge tapering lobster-pots placed end to end stretching skyward!

SANTO DOMINGO.—Reuter's Trade Service states that the Minister of Promotion and Communications has ordered new equipment for the radio station at Santo Domingo, South America (the international call letters assigned to the Republic being HIA-HIZ), to provide direct communication with New York, 1,225 miles distant, and other stations within a radius of 1,500 miles. The old equipment will be utilised at a radio station to be erected at Puerto Plata, the principal seaport on the north coast of the island, and it is also proposed to install a low-power station at Sanchez, on the Bay of Samaná.

SAN MARINO.—From Rome, through the same service, we learn that a convention has been signed by representatives of Italy and the Republic of San Marino for the construction of a wireless station at San Marino.

SWEDEN.—The new Motala station, which has been testing for some time, was to begin regular operation before Easter.

SWITZERLAND.—The Bureau International de Télégraphie reports that during 1926 new submarine telegraph cables were laid between Bay Roberts (Newfoundland) and Plymouth (England); between Borkum (Germany) and the Azores; in the Pacific Ocean between Bamfield (British Columbia) and the Fiji Islands, and between the Cocos Isles and Australia.

Not a bad record for a dying industry!

TURKEY.—It is very satisfactory to be able to state that a convention was signed on May 1 with the Eastern Telegraph Co. organising the opening of the Company's stations at Constantinople and Smyrna for a period of 30 years. To which we would wish to add our respectful felicitations to our friends of the Eastern Telegraph Company.

UNITED STATES.—*World Radio* announces that a plan for the reduction of the number of broadcasting stations in the United States from 733 to 364 has been submitted by the American Engineering Council to the Federal Radio Commission. Under the scheme there would be 64 national stations and 300 local stations; the former would operate in the band between 550 and 1,250 kilocycles, that is to say, from 240 metres to 545 metres: the local stations would be confined to the range of from 1,250 to 1,500 kilocycles, or from 240 down to 200 metres. The proposal has the support of many radio engineers and was worked out by the Radio Broadcasting Committee of the Engineering Council.

The following from the *T. and T. Age*, though doubtless well known to our highly skilled technicians, may not be exactly belated information to our many amateur readers:—

"The high-powered transmitter of WGY, at Schenectady, N.Y., has for some time been using a 100-k.w. vacuum power tube, which takes the place of eight 20-kw. tubes. It is a development of the General Electric Co., and engineers are now securing data on its performance; with its water jacket, the tube stands 7½ ft. high and weighs 100 lb., or 1 lb. per kilowatt, and it is used as a radio amplifier, fulfilling in the transmitter a function comparable with the radio-frequency stages in receivers. Outside its water jacket the tube is 5 ft. high, and two-thirds of this height consists of the copper envelope, 4 in. in diameter; the upper third is made of glass through which the filament leads and the grid lead find insulated entrance. The glass bulb is 22 in. long and 4 in. in diameter, and it is sealed to the spun-out end of the anode cylinder, or copper envelope, by a machine process in such a way as to make the junction of glass and copper mechanically strong and vacuum tight. Two copper cables capable of carrying several hundred amperes are connected to tungsten rods which, in turn, pass through a pinch seal terminating at the filament ends; three lengths of tungsten wire, each 16 in long, connect to each of the inner leads, forming six parallel filament spans, which pass within the grid and meet at a common point at the filament spring suspension in the lower end of the tube. The grid, within the copper envelope, is cylindrical and has an over-all length of 3 ft. 5 in. The grid frame is a most ingenious structure of molybdenum and tungsten; bracing, such as is common in steel bridges and tower construction, provides strength with a minimum of metal; rigidity is necessary to prevent short-circuiting from swaying or sagging, and minimum metal in the grid structure facilitates exhaust and minimises the possibilities of gas evolution. The grid connexion is brought out through an arm part way up the high-voltage glass bushing to a flexible outside grid terminal. To guard against failure due to pressure increase in the tube, an ionisation gauge is used which takes the form of a special three-element vacuum tube, in appearance much like an ordinary receiving tube; it is sealed to the large tube, connexions to filament, grid and plate are made from the pressure-indicating device at the operating panel, and the gauge operates on the principle of the ratio of ionisation by collision with electrons to the pressure, or amount of gas present."

My attention has been directed to a paragraph which appeared in the April "Memorabilia" under "Voice-Frequency Telegraphy," in which it is alleged that certain remarks therein conveyed some disparagement of officers employed at wireless repeater stations.

It would hardly appear necessary to emphasise the fact that nothing was farther from my thoughts than the disparagement of any class or individual, and this *amende honourable* would have been made earlier had my attention been directed to the possible viewpoint of the phrasing prior to the issue of the May number.

Congratulations are proffered to Messrs. C. W. Sparkes and C. G. Jones upon their promotion to the rank of Superintendent Lower Grade *vice* Messrs. R. E. V. May and G. J. Manners.

To these congratulations must be added the very sincerest regret that the health of the esteemed Mr. Sparkes is at present in some doubt, and that the realisation of the promotion in his case is contingent on an early resumption of duty of our C.T.O. colleague.

It is understood that the provisional appointments accorded to Messrs. F. S. Gullan and A. R. Clark, of the Cable Room, respectively to Assist. Superintendent and Overseer repectively have now been confirmed and both officers are to be congratulated on the more satisfactory situation.

News travels in a roundabout manner at times—even in matters telegraphic—as was noticed recently when a South African periodical came to hand which contained an interesting report on "Women in the New Zealand Post and Telegraph Service." The report was signed by an officer of the Secretary's Office, Wellington, N.Z., but had first been translated into Esperanto and had appeared in *La Interligilo de l'P.T.T.*, published at St. Cyr l'Ecole, Seine et Oise France, only to be "re-done into English" at the Cape!

Writing on South African matters one cannot refrain from reproducing a portion of the Report of the Controller and Auditor-General for the last financial year, which, as will be recognised, bears a distinctly personal touch throughout, at least in the paragraph now to be quoted, which is headed:—

"THEFTS FROM AND FRAUDS IN RELATION TO TELEPHONE CALL BOXES." Writes the Auditor-General: "Apparently when some youths in Johannesburg or Cape Town want to put up a wireless installation, they raid the nearest telephone call box for the microphones and other appropriate parts, and if they are short of cash, they pry out and smash the coin box in the Call Office holding the tickeys and steal the contents. In the year under review there were 173 cases of theft from telephone call boxes; in 140 cases apparatus alone was stolen while in 33 cases the coin containers were burgled. Johannesburg and the Reef were responsible for 97 cases in 140 cases apparatus alone was stolen while in 33 cases out of the total, involving the Department in a loss of £94 2*s*. 10*d*., representing the cost of replacement, and Cape Town and the Cape Peninsula for 50 cases, costing £63 0*s*. 5*d*. There were £9 19*s*. 3*d*. in the coin boxes burgled. The call office at the Crown Mines Recreation Hall, Mayfair, Johannesburg, was burgled six times in one month. During the year the Department was also defrauded by bad and mutilitated coins and pieces deposited in the box for telephone calls received, to the extent of £116 15*s*. 9*d*., representing 9,343 separate acts of fraud. Johannesburg and the Rand head the list with 3,908 cases and even the rest of the Transvaal with 1,955 cases approximates to the 2,082 cases for the whole of the Cape Province, including Cape Town. I viewed the six years' collection of bad and spurious coin passed off on the Postmaster-General in this way for good telephone calls. It weighed 73 lb. While the major portion consists of mutilated threepenny pieces, there are numbers of small Canadian, Indian, Portuguese, Dutch, German and other coins. The collection also includes a large assortment of flattened buttons, brass tokens, lead and tin discs (in many cases obviously prepared for the fraud), the tops of drawing pins and small medallions, including *inter alia*, a Church Medal!"

Those specially interested in the forthcoming International Wireless Conference to be held in Washington next Autumn should not fail to read three articles on "Wireless Telegraph Communication" which appeared in the respective issues of the *Electrical Review* of April 22, 29 and May 6, and are from the pen of Lt.-Col. Chetwode Crawley, M.I.E.E.

The articles well meet the claim made for them by the writer, who simply describes them as "a review of the present position of maritime safety devices, commercial communications, and point-to-point telegraphy in view of the proposed modified requirements and regulations to be discussed at the coming conference."

The 1926 report of the Indo-European Telegraph Company is a record of successful working, and having become acquainted first-hand with the nature of some of the reconstruction difficulties encountered by the energetic and resourceful officers of this company, those of Captain A. L. Cook, for example, one may say that never was a successful post-war working better deserved than that of this indomitable company.

In presenting the report for 1926 H. L. M. Tritton (chairman), after referring to the successful working during the year, dealt with the question of radio-telegraphy. He said that, although remarkable use had been made of the discoveries in radio transmission, he was convinced that as the telegraphing habit grew, there would still be room for both wired and wireless communication, and, in his opinion, the cable and land-line companies would continue to hold their own. The company had introduced a number of special services which were much appreciated by the public. The difficulties attending the reopening of the Black Sea cable had not yet been overcome, although no stone had been left unturned to restore direct communication between Odessa and Constantinople. (Regarding Constantinople, *see also* note above under Turkey.) Negotiations had been proceeding with the Turkish authorities, but had not yet reached finality; it was feared, also, that difficulty would be experienced in repairing the fault in the cable. In December last he (the chairman) paid a visit to Moscow, and interviewed the heads of the Russian Government telegraph and telephone services; he was courteously received, and hoped that his visit would prove of mutual benefit. He also went to the company's Odessa headquarters and met members of the British and Russian staffs. The chairman then reviewed the financial results, which were as follows:—

Only two serious interruptions, caused by severe weather, occurred during the year, apart from a stoppage due to a strike of Russian employees. The revenue from all sources increased from £310,345 to £314,007. The profit, after meeting income tax, was £103,125, and a net balance of £16,288 brought forward makes available £119,413. £45,000 is devoted to writing down expenditure upon line reconstruction in Russia and Poland, and £5,244 in writing down the cost of the Persian section, and £15,000 is handed over to the retirement trust fund. A final dividend of £1 2*s*. 6*d*. per share is to be paid (making 7% for the year), together with a bonus of 15*s*. per share, all free of tax, leaving a balance of £11,669 to be carried forward.

The following excerpt from a recent financial article in the *Electrical Review* is submitted without comment, and simply to place on record all views regarding telegraph matters:—

"Reference was made here [in the financial column of the *E.R.*], three weeks ago to the statement on the subject of Beam developments by the president of the important American concern known as Mackay Companies. In that statement, naturally, not wholly unbiased, he defined the Beam radio as a system using low power and short waves which, by means of suitable reflectors, are more or less concentrated into a converging beam directed towards the receiving apparatus. The older trans-ocean wireless systems use high power and long waves which are much less susceptible to efficient directional sending. The superiority of short waves over long waves, he declared, remains to be proved, and he quoted Dr. W. H. Eccles, president of the Institution of Electrical Engineers, as saying that a commercial (radio) firm competing with cables would find long waves generally more trustworthy. The development of the high inductance, or so-called "loaded" cable, is a long forward step; general progress and improvement in recent years have been marked and important, even if lacking in spectacular appeal. A good deal is made, of course, of the ease with which "beam" radio can be picked up by anyone possessing the necessary equipment.

Technical testimony to the composure with which radio and wireless achievements can be regarded by holders of cable securities is of solid value. A dozen times during the past 25 years scares of greater or of less intensity have disturbed the cable companies' proprietors. Yet, in spite of the wonderful advance made by the newer systems, and the marvels which these can now accomplish, nothing has so far arisen to shake the so oft-repeated conviction that there is plenty of room for them all; that one is complementary, rather than antagonistic to the other, and that the Senior Service keeps abreast of modern requirements by linking wireless interests to those of the submarine cable."

A much-condensed report of the Mackay group for 1926, but giving all essential features is that 1926 records income and profits from investments

of $4,922,811. Operating expenses absorbed $296,640, leaving $4,626,171, to which is added a surplus brought in, making $6,771,513. The dividends required $4,611,111, leaving a surplus of $2,160,402. It is stated that during the past 20 years all extensions have been made from reserves and earnings, and in the last six years no less than $25,000,000 has been spent on capital assets, including Atlantic cables. The Atlantic business continues to expand satisfactorily, but the net profit rises at a lower rate owing to the extended use of the low-rate services. The report shows that the group places great hope in the development of loaded cables.

Mr. John B. Kramer, of the General Electric Co., Ltd., who has been investigating phenomena associated with radio-active energy, described some of the interesting results he has achieved in a lecture on "Radiation" before the Birmingham Electric Club recently. He showed how it is possible to harness, in a small way, the energy of certain radio-active materials, which exist in quantities in various parts of the world. Mr. Kramer had used monazite sand from India as a source of radiation at an earlier stage in his experiments, and batteries were made by placing the sand between plates of carbon and zinc; the sand remained radio-active for years, but it was eventually found to be unsuitable owing to changes in the atmosphere setting up an electrolytic action. Other materials, notably thorium, had since been used. Mr. Kramer demonstrated various experiments, and claimed that they had brought him nearer to the practical utilisation of the energy stored in radio-active minerals. He showed a method of using radiation energy to work a small electronic balance, and also an electronic cell; the radio-active substance was placed upon a carbon plate, above which, with an air space between, was a zinc plate. He was engaged in examining such cells with a view to developing a battery which would produce sufficient energy for useful work, even if only in a small way for a start. The lecturer also pointed out that, up to a certain point, the determination of the air gap in an electronic cell, a very important matter, was contrary to Ohm's law, in that the charge increased as the gap was made larger; this was probably explained by the fact that a certain volume of air was required for maximum ionisation.

The Royal Meteorological Society recently issued a report on an attempt to ascertain the range of atmospherics; that is, how far away are the storms that produce the X's which interfere with reception in England. The Society, with the co-operation of the B.B.C., appointed observers in various parts of Europe, equipped with broadcast receivers and advance copies of certain talks transmitted simultaneously by B.B.C. stations, to which they listened. Whenever they heard a strong atmospheric they put a mark on the manuscript through the syllable on which it occurred. At the same time automatic direction finders in Aberdeen, London and Egypt, recorded the directions of atmospherics which occurred when the talks were taking place. When the papers were gathered and compared with the records made by the direction finders, the results were remarkable, says the *Evening News*, which explains that in several cases atmospherics were observed at identically the same moment by listeners in Madeira, Ireland, Germany and Norway, and the direction finders showed that the thunderstorm responsible at the moment was situated somewhere in the West Atlantic. The results show that atmospherics may be due to storms taking place perhaps 4,000 to 5,000 miles away. Instructive observations of a similar nature are contained in I.E.E. papers, says the *Electrical Review* (Vol. 63, No. 346, and Vol. 64, No. 353), by Capt. H. J. Round and Mr. R. A. Watson Watt, respectively.

The proceedings of the Institute of Railway Signalling Engineers for 1926-27 are now on sale and included in the contents are: "A Comparative Survey of American and British Signalling," by J. Parsons; "Fundamentals of Automatic Telephone Switching," by our much-respected H. H. Harrison; "Electrical Power for Railway Signalling Communications," by M. G. Tweedie; and "Railway Signalling in Germany," by T. S. Lascelles.

The annual reports of the following three important long-distance cable companies continue to show little perturbation regarding wireless at present:—

A larger outlay on maintenance of cables and stations caused expenditure of the Eastern Telegraph Company to rise from £2,151,921 in 1925 to £2,338,729 in 1926. Gross revenue in 1926 was within £37,000 of the 1925 figure, but profit fell from £1,114,399 to £920,909. The dividend, however, is maintained at 10%, but the allocation to reserve is reduced from £500,000 to £400,000, and the sum carried forward is £50,000 lower at £506,625. The reserves are £3,229,000.

The Eastern Extension Australasia and China Telegraph Company reports more favourable results for 1926 than for 1925. Gross receipts rose from £1,953,927 to £2,047,033, while expenditure fell from £947,517 to £931,058, leaving a net revenue of £951,996, against £854,294 in 1925. Reserve receives £550,000, as compared with £450,000, the dividend being maintained at 10%. The company possesses reserves amounting to £4,406,000.

The report of the Great Northern Telegraph Co., Ltd., of Denmark, proves particularly interesting, not only from its continued good financial condition but from the various peeps gained into Eastern and Far Eastern conditions at the present time, thus:—

The directors state that in 1926, owing to the closing of the Harbin station, the lines between Leningrad, Irkutsk, and Vladivostok, had to carry the whole of the company's Far East traffic during the latter part of the year. Negotiations with the Russian Administration for the exclusive use of another wire between Irkutsk and Vladivostok have not yet reached a settlement. The company's activities in Russia, in so far as the transmission of Russian terminal telegrams exchanged with Western Europe and America is concerned, are not remunerative owing to salary increases, loss of traffic, &c. In spite of the unsettled conditions in China, the traffic exchanged with that country has not decreased; there is even a slight improvement in the Far East traffic. No result has been arrived at in the negotiations between the Chinese Telegraph Administration, the Eastern Extension Co., and the Great Northern Co. The company's offices at Mariehamn and Stockholm have been closed. The coal dispute caused a decline in British traffic and that of most other European countries shows a decrease. Although there is now radio competition in the Far East traffic, the company feels confident of the superiority of its service. There was a fall of £220,000 in the year's revenue and one of £240,000 in the expenditure. As previously reported, the directors propose to pay 30*s.* per £10 share less tax, making a total dividend and bonus of 20% for the year.

The cause of the fall in both revenue and expenditure is not stated.

The London *Times* in the *British Empire Products* number of its *Imperial and Foreign Trade Supplement* throws a happy side-light on the use of the Telegraph Cables in connexion with the Indian Sugar markets, when it records that

"The Sugar Cable Service, started by the Sugar Bureau in 1922, is "now run successfully on a self-supporting basis. The telegrams and weekly "reviews supplied by the Bureau keep the merchants in India fully posted "with the world's sugar market conditions and fluctuations in prices. The "importance of this service may be judged from the fact that the Cuban "Government is considering the formation of a similar organsation at an "early date."

It is no mean tribute to the new wireless Beam service between this country and Canada to be able to state that the *one* two-way service between London and Montreal has been able to carry with ease and time to spare practically all the Anglo-Canadian traffic normally carried by the two two-way cables during the total interruption of these latter.

Time.—Time! the corrector where our judgments err,
The test of Truth.—*Byron.* J. J. T.

OBITUARY.

THE LATE MR. H. HARTNELL.

ON May 3 last there passed away at Wellington, Somerset, at the ripe old age of 81 years, the much respected Henry Hartnell, A.M.I.E.E., one time a Staff Engineer of the General Post Office. An old telegraphist, he was transferred from the Nottingham Post Office to the Engineer-in-Chief's Office at headquarters under Sir W. Preece.

He was for some time a technological examiner and possessed a special knowledge of electric cable matters, including loaded submarine and underground cables, and his committee work included duties as a member of the Committee on Copper Conductors, and as a member of the Engineering Standards Sub-Committee on Telegraphs and Telephones. For some years he was joint editor of the *Journal* of the Institution of Post Office Electrical Engineers, and he was also an accomplished translator of technical and scientific matter from many languages. He had, indeed, a considerable knowledge of languages, both ancient and modern.

The writer's recollection of this really remarkable man was that of an earnest thorough worker in all that he did, unassuming, and modest withal, even with his best results never leaving the impression that anything out of the ordinary had been achieved. A lovable character.

J. J. T.

PROMOTION OF MR. J. LAW, CANTERBURY.

AN interesting gathering was held on the evening of the 13th inst. at "Stanmore," the District Office of the Canterbury Post Office Telephone Department. Mr. J. Law, who had for over 20 years held the post of Chief Clerk for the Canterbury District, was leaving to take up an appointment at Glasgow as Staff Officer. Mr. W. Thyne, the District Manager of the Canterbury District, congratulated Mr. Law in the name of the Staff on his promotion, and also expressed the regret that every member felt on the separation. Mr. Thyne stated that he had heard of Mr. Law's good qualities before coming to Canterbury in February last, and after two months' experience, he could fully confirm the previous good reports. The Staff were anxious to shew their appreciation of Mr. Law by presenting him with a small token of their esteem, which took the form of a gold watch and albert.

LONDON TELEPHONE SERVICE NOTES.

The Journal.

REGULAR readers of these notes will be interested to learn that the articles on Automatic Telephony, by Mr. C. W. Brown, which commenced in the April issue, have created nearly 300 new readers of the *T. & T. Journal*. It is to be hoped that those who thus became acquainted with the *Journal* will read it from cover to cover and will find other features which will cause them to become regular subscribers. In most issues they will find something of particular interest to them individually, and every issue is indispensable to those who wish to be kept generally informed regarding all the aspects of their calling. Should anyone have difficulty in obtaining copies, communication with T. A. Beck, G.P.O. (South), will remove it.

* * * *

Accounts Branch.

It is regretted that owing to the indisposition of the Branch correspondent the notes are omitted this month, but it is hoped that they will appear in the *next* issue.

* * * *

Contract Branch Notes.

Obituary.—The Branch was shocked to hear of the death of one of its members, Mr. E. E. Beeston, from broncho-pneumonia, following influenza, on April 13, at the early age of 56, after an illness lasting only 5 days.

Mr. Beeston entered the service of the National Telephone Company as a Contract Officer in December, 1909, and was employed on development study work in 1912 and 1913. He was attached to the West District Office during the greater part of his service but was transferred to the North-West Office about sixteen months ago. His genial presence and kindly disposition will be missed by his colleagues, especially those at the North-West and West Offices.

The following figures show the volume of work dealt with by the Contract Branch during April :—

	Stations.
New business obtained	7,003
Ceasements	2,741
	4,262

Although the Easter holidays interfered with the flow of new orders the net gain was only 66 below the figure for March and it was nearly 400 above the figure for the corresponding month last year.

We have been accustomed for so long to the hard words of the London daily press that we had quite a shock a week or two ago when one of the morning papers actually said that the Post Office does not sufficiently advertise either *the advantages or the cheapness of the telephone service.* The context of this statement dubbed Manchester as a telephone-shy city, because only 79,000 out of the 1,400,000 people in the area are subscribers.† The newspaper went on to say that three-quarters of the 79,000 were business firms, so that there are only 20,000 private subscribers, or 1 to 70 of the total population. The statement given above, that made us open our eyes and stare at it, was followed, however, by some good advice to make a serious attempt to popularise the telephone and to increase the number of subscribers so as to enable the charges to be reduced ! !

Cricket.—The Contract Branch Cricket Club, "the Com-Con," has now practically arranged its fixture list, and a number of highly interesting games are promised.

The majority of the matches this year will be played in connexion with the newly-formed L.T.S. Cricket League on the new ground at Chiswick. The formation of this League incidentally marks a further stage in the development of cricket enthusiasm in the L.T.S. The Contract Branch team claims to be the pioneer of post-war cricket in the Department, and will make every effort to secure the first place in the league this year.

The first match of the season is expected to take place at Battersea Park on May 24 and will be a trial game between two Contract Branch teams, one drawn from the Headquarters and District Offices and the other from the Development Section.

The staff of the Contract Branch were gratified to learn that Mr. G. W. Livermore, District Contract Manager, Western District, conducted a ladies' choir in the accompanied part-song, "The Sea hath its Pearls," at the Festival of Song held under the auspices of the London Municipal Society (Women's Section) at the Caxton Hall, from April 25 to 30 and secured the 3rd place out of an entry of 30 choirs.

* * * *

Sport.

Last month saw the formation of the L.T.S. Bowling Club. It is fitting that Mr. P. J. Mantle, of the Traffic Branch, should have been elected Captain since he was largely instrumental in launching the new club. Mr. W. A. Valentine and Mr. W. N. U. Napier have shown their interest by accepting nominations to be President and Vice-President respectively. The Hon. Sec. is anxious to enrol all bowlers and would-be bowlers, and anyone interested should apply to Mr. J. E. Collins, 14, Gilpin Avenue, East Sheen, S.W.14, or telephone him at Avenue 0101. That the club has serious intentions is proved by its entry for the Bunbury Cup Competition. It is hoped that the matches in this competition will be played in the excellent rink on the Civil Service Sports Ground at Chiswick. The Hon. Sec. wishes it to be known that although the game of bowls is ancient it is not necessarily confined to the ancients.

† This area includes many towns besides Manchester. Vide p. 176.—(ED. *T. & T. J.*).

PERSONALIA.

LONDON TELEPHONE SERVICE.

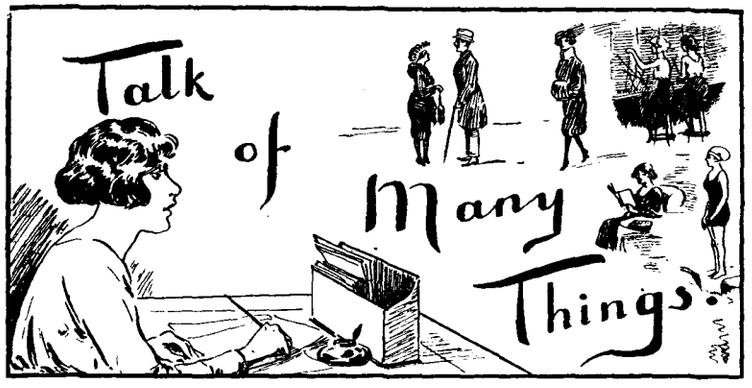
The Secretary has approved the following appointments :—

Mr. G. H. TREE, Executive Officer to Acting Staff Officer.
Mr. A. E. HUTCHISON, Clerical Officer to Acting Executive Officer.
Mr. W. S. GREIG, Clerical Officer to Acting Executive Officer.
Mr. T. J. BEDFORD, Clerical Officer to Acting Executive Officer.
Mr. H. A. Baker, Clerical Officer to Acting Executive Officer.
Miss E. M. WALSH to Toll as Assistant Supervisor, Class II.
Miss O. W. NEWPORT to North as Assistant Supervisor, Class II.
Miss W. M. BROWNE to Hampstead as Assistant Supervisor, Class II.
Miss K. A. M. BEDFORD to Wembley as Assistant Supervisor, Class II.
Miss F. A. G. SCHOFIELD to Erith as Assistant Supervisor, Class II.
Miss E. S. BOTT to Putney as Assistant Supervisor, Class II.
Miss K. H. BURNETT to Finchley as Assistant Supervisor, Class II.
Miss G. E. CHURCH to Regent as Assistant Supervisor, Class II.
Miss E. M. SHAPCOTT to Langham as Assistant Supervisor, Class II.
Miss D. HALL to Hampstead as Assistant Supervisor, Class II.
Miss I. M. YELLAND to Trunk as Assistant Supervisor, Class II.
Miss J. M. SHAPCOTT to Riverside as Assistant Supervisor, Class II.
Miss L. E. MASON to Chiswick as Assistant Supervisor, Class II.

Resignations on account of Marriage, Telephonists :—

Miss D. W. SLOPER, Trunk Exchange.
Miss R. SHAW, Trunk Exchange.
Miss M. E. VERNEY, Trunk Exchange.
Miss Z. THIRLWALL, London Wall.
Miss J. BROWN, Victoria Exchange.
Miss I. STONE, Victoria Exchange.
Miss D. WOODFORD, Victoria Exchange.
Miss W. J. BAKER, Mountview Exchange.
Miss E. I. JAMES, Mountview Exchange.
Miss F. E. EVERED, Park Exchange.
Miss E. V. WRIGHTON, Finchley Exchange.
Miss I. GIBBS, Paddington Exchange.

WE TELEPHONISTS



Bank Holiday Duty.

IF there is one thing that we owe to banks more than our overdraft it is the excellent institution known as Bank Holiday. Had there been no banks there could have been no bank holidays. On the other hand, if all banking accounts were like mine all days could be bank holidays—for the banks, at least. It is a pity, however, that some spirit of emulation or rivalry could not be aroused in other public bodies to enable us to set aside other days as holidays, because the excellence of bank holidays in general is marred by their infrequency. How delightful it would be to know that in addition to four bank holidays we could also look forward each year to four Post Office holidays and four Shipping holidays, and four Insurance holidays. Some will urge, of course, that our appreciation of bank holidays is due to their rarity and this, strangely enough, is exactly my view of working days.

I doubt, however, whether we could stand the bodily and mental strain of as many as twelve bank and other holidays in a year. It has been calculated that if the energy dissipated on bank holidays were applied to everyday tasks, one year's work could be completed in six months. The calculation, it should be said, was made at headquarters on a slide-rule. It must, therefore, be right, but I feel that there is a catch in it somewhere.

Then again, think of the strain imposed by the serious business of seeking enjoyment—at no time so much in evidence as on a bank holiday. We rise much earlier than usual, scramble over a heavy breakfast, pack vast quantities of sandwiches, cake, and oranges, rush violently for a train, squeeze frantically into crowded carriages, spill perspiring and crushed on to the platform at our destination and crawl and jostle laboriously through the barriers out into the street. Once there our ears are deafened with the noise of traffic, our eyes are filled with dust and our nostrils are assailed with the smell of cockles, pineapple, and petrol. Gradually we emerge from the mass of people, like flies from treacle, and make our way to field or beach with thoughts of lunch. The selection of a suitable site inevitably gives rise to a great deal of argument, but we might as well have saved our breath, for the wasps or flies find us anyhow, and sand has ever formed part of any sandwich. Then we seek enjoyment variously in walks, roundabouts, swings, donkey rides, cocoanut shies or in madly chasing a ball. Respite comes with tea accompanied by shrimps or watercress and rendered indigestible by noise, bustle and confusion. After a long, long wait we are served with someone else's order, and then we race against time to catch the return train. Finally, laden with sticks of rock or bunches of wilted flowers, we crowd into a train filled with other tired, happy people and their howling, sticky children. But, we have enjoyed ourselves, in witness whereof and in accordance with time-honoured custom we sing loudly and slowly all the sad songs we know.

Behind us the trees sway wearily, the violet nestles cosily, the daisy and the buttercup close drowsily, the twitter of the birds fades into silence and the waves gently caress the shore. One by one the stars gleam out and the gentle evening breeze, sighing sadly over the grass, proceeds to sweep up the litter of paper that we have left. No! perhaps four Bank Holidays are sufficient.

PERCY FLAGE.

(Apropos of our correspondent's conclusion, is he the author of the following verses—exhibited in many places on Oxshott Heath:—

"THANK YOU!

"Ye who visit Oxshott Heath,
I would fain remind you,
Orange Peel and Paper must
Not be left behind you.
As we range these beauty spots,
Nothing's more unsightly,
Than the litter careless folks
Strew about so lightly.
Whosoever sins in this,
Heedless of these verses,
Surely brings upon himself
Many bitter curses!"

Yes; four *are* sufficient.)

The Travelling Supervisor.

The life of a Travelling Supervisor covering the smaller exchanges in an industrial area, where it is possible, by the aid of train, tram or bus, to move speedily from place to place and to arrive home at a definite time each evening, is vastly different from that led by the Travelling Supervisor who is in charge of exchanges in a widely scattered rural area, maybe a hundred or more miles away from her district office. Her lot, like that of Gilbert's policeman, will not be a happy one unless she is physically strong, blessed with an abundant sense of humour to enable her to see the funny side of life, and having, in addition, the Mark Tapleyan spirit of "coming out strong under difficulties." Consider for a moment her position. She may have assigned to her as headquarters a town or village situated roughly in the centre of the territory she has to cover, and the principal reason for the choice of such a place will not be its social amenities, but the fact that it is a more or less convenient railway centre. Located as she is, so far from the Traffic Headquarters, it is not possible for the Travelling Supervisor to refer telephonically to Cæsar for a decision on points of doubt or difficulty uncovered by the rules and regulations, and she is bound, therefore, to rely more on her own judgment than is her colleague in the urban areas, who has ready access to the district office. A large portion of her scheduled hours of duty, and of hours that are not scheduled, is spent in railway travelling, and happy is she, when books and magazines pall and fail to satisfy, if she can extract enjoyment from contemplation of her fellow-travellers. According to Pope, "the proper study of mankind is man," and the Travelling Supervisor whom we are portraying has ample opportunities of indulging in such study. And it is really remarkable, in view of our national reputation of being a reserved, undemonstrative people, how very garrulous and communicative railway travellers can be, provided they are given the least encouragement. Many are the confidences almost forced upon the Travelling Supervisor in the course of conversations casually started to beguile a journey, and were she so gifted, many are the dramas and the comedies which could be written up from the stories told to her. Although, as previously stated, she may have her headquarters in the centre of her district, the area to be covered, and the very limited train services in these country places, often necessitate her absence from headquarters for several nights each week, possibly occupying a different bed each night, and this is one of the reasons why the position of Travelling Supervisor, enviable as it may seem in some respects, is not fitted for any but the healthy and robust, and even for such it has its perils. To leave home shortly after 7 o'clock on a winter's morning, and board a train which has evidently stood in the siding all night, and is consequently a few degrees colder than a refrigerator, is no uncommon experience. To those who say, "but why so early?" it has to be pointed out that this is the only train going that day to Plumpton-on-the-Plump, which has a rural exchange of eight subscribers and a call office, and is due for a visit from the Travelling Supervisor. Having arrived there, watched the busy hour traffic, consisting of two calls, one in and one out, she gives any necessary instructions to the exchange attendant, keeping in mind all the time that the only train out of the place leaves at 3 p.m. and that, if she misses it, there is not another until the Monday but one following. Should she become so obsessed with her duty as to allow the worst to happen, there is the possibility that she may be able to charter from the village smithy what must really be the first car turned out by Henry Ford, and assuming that the car and herself survive the journey, may reach the next place at which she intends to spend the night. Many of the sub-Postmasters and Sub-Postmistresses, acting also as Exchange Attendants, have no great love for this part of their business, and in her dealings with them the Travelling Supervisor has to be most tactful. If she is wise she duly admires the latest baby, asks after the health of Grandad or Grandma who occupies the rocking-chair in the corner, and if the attendant should happen to have a hobby she will discreetly introduce the subject during her visit. Nor need there be any suggestion of insincerity or hypocisy in so doing. Rather should we call it an exercise in the gentle art of diplomacy. The Travelling Supervisor is out to gain the confidence of the people whom she has to instruct and supervise, and if she is fortunate enough to do so she is rewarded by seeing the smile of welcome which greets her on her unheralded visit, and hearing the chaffing remark that they wondered what they had done to offend her, seeing she had been so long away.

In her zeal for improving the service the Travelling Supervisor may occasionally have to risk incurring the displeasure of the local engineering staff. Faults not serious enough to cause a stoppage, but sufficient to interfere with the service, have been repeatedly reported to the lineman, who is always just about to clear them, but is always prevented from doing so. Along comes the Travelling Supervisor, who notes the defects, reports them to the docket centre, and the lineman proceeds to "get busy," but whether he loves the Travelling Supervisor or not for having disturbed the even tenor of his way is, as Kipling would say, another story.

The life certainly has its compensations. There is the constant change of scene, the many pleasant tramps in the spring and summer time along sweet-smelling country roads, the intimate talks with, and the assured friendship of many of the people on whom the Travelling Supervisor has to call; but there are also the long, dreary nights in winter, spent often in unfamiliar places where, if she be fortunate, she may have for diversion in the local cinema the picture she saw two summers ago whilst on her holidays, or, what is more likely, she may retire early to the privacy of her hotel bedroom, there to write up her journal for the day, in preference to spending the evening in company with a crowd of commercial travellers in the lounge downstairs.

Often must the Travelling Supervisor sigh for "the bright lights of the city," and the more settled daily routine of other Supervisors in the service who are not called upon to travel, and it is well for the Department that her

enthusiasm for the work is such as to enable her to conquer the homesickness and the loneliness by a feeling of pride that she has been chosen to perform pioneer work on the outposts of telephone civilisation.

G. W. B.

The Mosquito.

When roaming in the sylvan glades,
Aglow with nature's beauty;
A gnat will jab you with his sting,
And think he's done his duty.

By sea or country in the Spring,
The midge will purr with glee:
His victims number hundreds,
Beneath each shady tree.

Mosquitoes, too, will get you soon,
Unless you all take care;
And bring their aunts and cousins,
So maidens all! beware!!

Now take precautions one and all.
Don't visit the M.O.
A bottle of Ammonia
Please take where'er you go.

Some soda and some oil of cloves,
They will not come amiss,
If, maidens all, you would evade
The cruel mosquito's kiss.

D. D.

The Wreck of the Whitewash Brush.

("Owed" to a Supervisor when spring-cleaning.)

Toll for the brush!
Its bristles are no more!
All plastered on the ceiling
Are quite two hundred score!

Eight hundred of the hairs—
Beyond endurance tried—
Left home with one accord,
And Daphne they defied!

The brush was Woolworth's best,
And guaranteed to last—
But she forgot to steep it,
So the bristles left it fast.

Her foot was on the step,
Her mother cried, "Say when!"
And she lost a batch of bristles
Like four hundred gallant men!

With whitewash in her eyes,
And plaster in her hair,
She stood upon the step,
A statue of despair!

Then she said some naughty words,
(A practice we deplore!)
But she and her eight hundred,
Will whitewash there no more.

ELIZABETH DRIPPING.

Presentations.

The recent transfer of Mr. E. B. Boucher from Victoria to the Controller's Office, Traffic Branch, with the consequent transfer of Mr. T. M. Oldham from Western to Victoria was marked by the presentation to Mr. Boucher by the Staffs of Victoria, Sloane, and the District office, of an oak clock; and of a gold watch to Mr. Oldham by the Staffs of Western, Kensington, Kelvin, and the District office; as tokens of the esteem in which each was held by his brother (and sister) officers.

Mr. Oldham's friends conceived the happy idea of making the presentation at a farewell social held in his honour. A very happy time was spent by all concerned; marred only by the shadow of the impending removal of a popular colleague.

P.D'A.

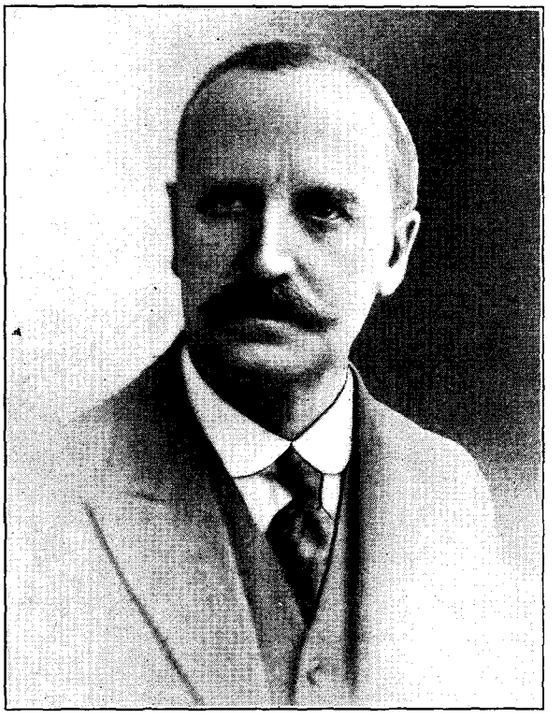
Contributions to this column should be addressed: THE EDITRESS, "Talk of Many Things," *Telegraph and Telephone Journal*," Secretary's Office, G.P.O. (North), London, E.C.

RETIREMENT OF MR. HENRY ELLIOTT.

MR. HENRY ELLIOTT, Contract Manager, Manchester, having reached the allotted span as laid down by the Department, retired from official life on May 6.

He was the first and only Contract Manager Manchester has had, having been appointed firstly as Contract Agent in July, 1905, which title was subsequently altered to Contract Manager. Mr. Elliott was a Manchester man and joined the National Telephone Service as a Way Leave Officer in November, 1891. He was transferred to Oldham as Clerk and Draughtsman in 1892 under the late Mr. A. L. E. Drummond.

In 1894 he was appointed to the Company's Travelling Audit Staff, on which he served until 1901, when he was appointed Chief Clerk at Dublin under Mr. J. Ashton (now retired).



MR. HENRY ELLIOTT.

On the formation of Contract Sections throughout the country Mr. Elliott was selected for the Manchester post when the telephone stations in the Manchester district were approximately 18,000; under his administration this number has grown to practically 80,000.

At a farewell gathering in the District Office, Mr. Elliott was presented by the District Manager (Mr. J. T. Whitelaw) with a gold cigarette case, suitably inscribed.

Mr. Godfrey, Staff Officer, Mr. Clough, Contract Officer Class I, Mr. Fletcher and Mr. White, of the Engineering Department, spoke a few words as to Mr. Elliott's long association with telephone matters, and wished him a long and happy life in his retirement.

Mr. Elliott, in his reply, regretted the necessity that compelled him to give up active participation in the business which had meant so much to him, and thanked the various heads of Departments for their help and co-operation, and who worked so amicably with him.

Mr. E. S. Cooper, Contract Manager, Glasgow, has been appointed Contract Manager (Manchester) in Mr. Elliott's place.

PRESENTATION TO MR. W. J. SAWYER.

ON leaving Nottingham for Liverpool to take up the position of Staff Officer in the Liverpool Telephone District, Mr. W. J. Sawyer was the recipient of a handsome electric lamp stand, the gift of the staff.

Mr. Sawyer carries with him in his new sphere the good wishes of the District Manager and the staff of the North Midland Telephone District.