

# THE National Telephone Journal

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## TELEPHONE MEN.

### XLVII.—CHARLES ERNEST FENTON.

CHARLES ERNEST FENTON was born in 1870 at Bromsgrove, a market town midway between Birmingham and Worcester. He was educated first at a school situate amongst the Lickey Hills, afterwards at a public school at Bromsgrove, and subsequently his studies were continued at Birmingham.

The first few years of his business life were spent in the offices of Messrs. Lea & Levens, estate agents and accountants, of Bromsgrove, but his first acquaintance with the telephone began when he entered the service of the old National Company at Birmingham in December, 1888, as a Junior Clerk under Mr. Cotterell, and in a few months was promoted to the position of Clerk to Mr. Coleman, then General Manager for the Midland Counties, in which capacity he gained a varied experience. At that period each local office in the Midland Counties was responsible for the monthly returns to Head Office, and with the object of improving his knowledge Mr. Fenton frequently assisted the local staff in the preparation of their returns after the ordinary office hours.

As the business extended and the territory increased he visited the outlying centres at intervals for the purpose of auditing the accounts and checking off the stock, and at times did relief duty.

When the South of England Company was absorbed by the National, Mr. Fenton was sent to one of the centres which had been attached to the Midland Counties district to report on the records there. It was somewhat of a shock to him to discover that the receptacle for the cash was the manager's hip pocket—a method hardly in accordance with standard practice.

When it was decided to centralise at Birmingham, with one or two exceptions the accounts of the local offices in the Midland

Counties, the work was entrusted to Mr. Fenton and it was accomplished when the general re-organisation of 1893 took place.

In 1892 the Company opened its Aston Works, and the supervision of the accounts there first brought him in contact with the manufacturing and repairing processes.

In June, 1893, Mr. Fenton was transferred to the Head Office travelling audit staff, and spent some time in various districts straightening up the accounts, a standard system of bookkeeping having been brought into force. These duties gave him an opportunity of visiting most of the districts throughout the United Kingdom.

In 1894, during his holidays, Mr. Fenton received a letter from Mr. Anns requesting him to speak to him from the nearest call office on an urgent matter. This proved to be the offer of a position to take control of the bookkeeping at the newly opened Nottingham Factory, the works at Aston having been closed, and operations on a more extensive scale commenced at Nottingham under the management of Mr. J. W. Ullett.

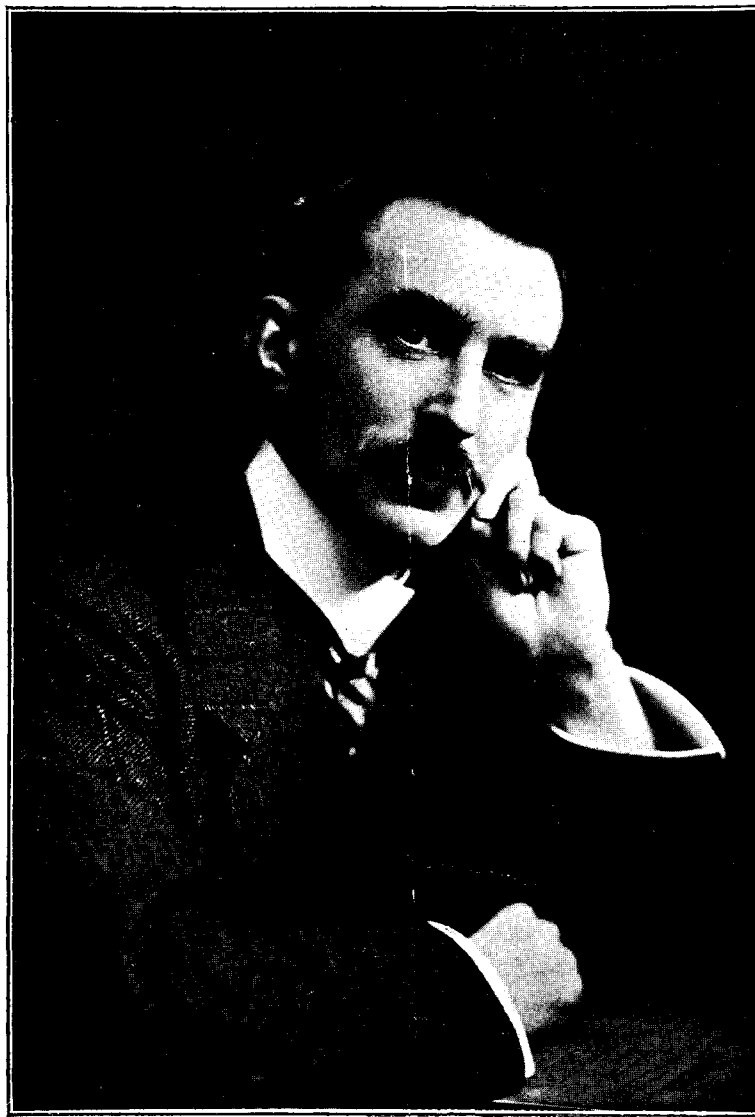
Mr. Fenton on accepting the post encountered and overcame much uphill work, which entailed three months' solid work, early and late.

Soon after he was settled in his new position he married the daughter of Mr. Philip Levens, his former employer.

In order to cope with increased business additional works were established at Beeston in 1901 for manufacturing purposes, the repairing work being retained at Nottingham Factory. The offices

were transferred to Beeston and the two establishments were controlled from there under Mr. Ullett's management, which brought Mr. Fenton increased responsibilities.

With a view to applying the American card index system of



accounting to the new works, he visited several large engineering establishments for the purpose of acquiring information. He worked out a scheme, which was approved by Head Office, and which involved the displacement of the whole of the books and forms by cards, time recorders, adding and listing machine, and other labour-saving appliances. The results which followed justified the innovation.

In December, 1903, when the Beeston Works were taken over by the British Ericsson Company, Mr. Fenton was appointed Manager of Nottingham Factory to devote his energies to repairing work, thus severing, to his regret, his long and happy association with Mr. Ullett. Two years later an adjacent factory was taken to meet the increased demands, when the departments were specialised and the various operations subdivided, with satisfactory results.

Mr. Fenton's spare time is devoted to photography and flower gardening, but Mr. Fenton's greatest interest is in the factory and its staff of between 500 and 600. He has occupied the position of president of the Factory Telephone Society since its inception, and takes an active and also pleasurable part in all movements connected with the welfare of the staff. Indeed, although he is firm in all matters of discipline he has the interests of the workers truly at heart.

In connection with factory work Mr. Fenton has strong ideas in favour of the payment of wages on the bonus system, with a special premium on all work passed by the test room without rejection. It is one of his great hopes, when telephone affairs are in a more settled state, to see a well-equipped school attached to the factory in which practical and theoretical instruction can be given to all learners for a short period prior to entering the work-shops; also a scheme whereby the learners, after satisfactory service in the various departments and some distinction in connection with the Telephony Classes, can be drafted into the districts to take up positions there, some of them subsequently to return to the factory to fill superior positions, in which their knowledge of the actual working conditions of the apparatus would be of incalculable benefit. It is his belief that such arrangements would be beneficial to the telephone service, and that learners would have a real incentive to flout.

## SERVICE INSTRUCTIONS AND DISCRETION.\*

BY EUSTACE HARE.

IN a paper entitled "Control" which I read to the Telephone Society of London a few months ago I said this: "Organise as you will, issue your service instructions by the ream . . . and you will still find scope for personal discretion and responsibility, to say nothing of individual lapses and errors of judgment."

This remark was challenged by one of my audience on the plea that the Company's staff is so hampered and hemmed in by instructions that there remains no room for the exercise of initiative and originality.

Now, we all know that any discussion which follows a lecture or the reading of a paper is largely dominated by a note of unpreparedness, because it needs the skill of a practised debater always to be able readily to formulate points in a manner that will convey precisely, in a few words, what is in the speaker's mind. Making due allowance for this fact, I was, nevertheless, on this occasion, startled. The suggestion of this captive state; the suggestion of a vast body of men and women so shackled by hide-bound regulations that the play of their reasoning faculties is denied them was new to me, and I asked myself this question, Does my critic really mean what he says; does he desire to be taken literally?

At once, I may say, I did not do him the injustice of supposing he had spoken his full mind; at the same time, it seemed to me, there passed over the meeting a wave of acquiescence, indicating that, with more or less success, a general sentiment had been voiced. How far my supposition was true I could not, of course, judge, but it occurred to me that if it had any foundation at all, this idea of excessive legislation must extend far beyond the four walls of the

hall in which we had met, and I, then and there, determined to give the subject a little attention and to present the results in the paper which I had already undertaken to read to your Society.

Although I did not, as I have said, believe that the contention was intended to be taken literally, I was bound to give credit to a conviction, no doubt honest but, to my mind, somewhat ragged, that our management has seen fit to issue a mass of vexatious and unnecessary instructions, the effect of which has been not so much to benefit the work and regulate our duties as to retard the capabilities and quench the ambition of the individual.

But suppose we take, for a moment, an extreme view of my critic's statement. What does it mean? Shortly, this, that the staff of this Company has nothing to do but to obey instructions! Does anyone really believe that this is the melancholy doom of every entrant into the Company's service: that not only is he expected to keep within the four corners of those instructions, but is positively forbidden to overstep their boundary? If this is the position, I ask this question: How does it come about that we are here to-night? Is not the very existence of this multiplicity of telephone societies, encouraged and fostered as they are by the administration, direct evidence of a desire to promote free and healthy discussion and the useful interchange of ideas for mutual benefit and advancement? Again, do we not all know that an education committee has been formed and periodically meets to consider the merits of inventions and suggestions which the staff is invited to submit? There is no undue disregard to the claims of the individual here, I think.

"The staff has nothing to do but to obey instructions." By way of illustration and parallel we will carry the idea to a wider region, to the region of the laws of the land, and we will paraphrase it thus: the whole duty of a citizen is to observe the natural and, what I will call for want of a better word, the "civil" laws. And we must supplement this by adding, the State forbids him to do anything else! Imagine it. Every man's library limited to blue books, with a lawyer in every family to interpret them; every life bereft of its individual charms and graces, merely an item in a huge puzzle of hard, dry facts.

I am not, of course, competent to give you a treatise on law, but I propose in a general way to draw your attention to a few points in connection with laws as introductory aids to my main subject, which is, the laws or instructions under which we serve the Company and the public.

You will have noticed that I referred just now to the natural law and the civil law. Briefly, for our purpose, we may take the difference between the two to be this: the natural laws are laws common to all civilised nations, such as those set forth in the Decalogue; and civil laws are those of a particular State, supplementing the natural laws and defining the duties, the responsibilities, the restrictions, rights and privileges of the citizen. To make the distinction clearer, I will give you examples of each.

A natural law tells you that you must not steal. At the same time the term "natural laws" must not be confused here with the simple, crude laws of Nature, such as, for example, the survival of the fittest, a law essentially selfish. The morally-untutored instinct of the child and the savage impels them to lay hands on anything they want or think it necessary to possess; in their eyes *meum* and *hunc* have no meaning. They do not rise beyond acquisition by the exercise of the greater force or the superior strategy.

The need for a code of moral laws becomes apparent as soon as the community awakens to the necessity of the preservation of order and of promoting and sustaining the common weal, and with the growth of civilised communities the rules of right and wrong and of honesty and dishonesty spread until they became international and immutable, finally to be recognised as ordinary moral instincts under the generic term "natural laws."

To appropriate the property of another is therefore an offence against a natural law, nor does it matter what form the property takes. Be it the owner's purse or his pheasants or his good name; all should be alike safe from our predatory instincts, should we still unhappily possess them.

The civil law stands on a different footing, and, as an example, I will give you smuggling.

*In itself* there can be no offence in pushing a boat off from the shore and purchasing a keg or two of brandy from a passing ship,

\* Paper read before the Gloucester Telephone Society.

or in a man's bringing a few hundred cigars into this country for his own private consumption. Having paid for them, they are his, and no natural law is broken. But the State steps in here, having a duty to perform—and a duty to impose. It requires revenue for the upkeep of the country, and it has selected these particular articles as a means of getting it. Therefore it makes a law of its own by which the importation of cigars and brandy becomes an offence unless a toll is paid upon them. And it creates an army of coastguardsmen and Customs officers to protect its interests.

Further, it is clear that under both the laws against theft and smuggling there is no question of discretion, no compromise, no palliation. No extenuating circumstances will excuse the smuggler, and the Customs officers have no authority to discriminate. For an example of the administration of law with discretion we must seek elsewhere.

The police have authority to take into custody those whom they observe begging; so that a man who, knowing you will not give him a night's lodging, asks you the price of it, is liable to arrest, the act stigmatising him a beggar. But the same police would hesitate before interfering with the well-dressed stranger who begs for money's worth in the shape of a light for his cigarette, or even for the cigarette itself.

Again, those who obstruct the thoroughfare also break a law, but instead of being called upon to pay the penalty, they are mercifully persuaded merely to move on. And you will readily perceive that unless a wise discretion were exercised, the machinery of the law would speedily and perpetually be clogged by the investigation of relatively unimportant detail. Broadly, what it amounts to is this: order must be kept and the public preserved from importunity and discomfort, and full powers are provided for the purpose.

We will now apply this sketch to some of our own conditions as members of a body which is subject, in addition to the ordinary laws of citizenship, to rules and regulations which the administration of every great business concern is bound to lay down for the guidance and welfare of its staff and its work.

It is totally unnecessary for the Company to issue a bald instruction that theft is prohibited; and yet to safeguard its interests it has to lay down certain rules which, by implication, recognise the possibility of this law being broken. For example, therefore, it is provided that the man who actually handles cash must not keep, or have access to, particular books, and *vice versa*. But, irrespective of any question of fraud or the manipulation of accounts, what a very simple and natural division of labour this is! The one man is responsible only for the receipt or payment of money and its lodgment in the bank. He is concerned neither in its collection nor its allocation; nothing but the care of it, and this is of sufficient importance to occupy his undivided attention. The rules which environ him place him practically above suspicion, and his position of trust is made easier by the fact that where money is concerned no question of discretion can be admitted.

His colleague in charge of the books has quite a different duty to perform. Clear rules are laid down as to the method of collecting accounts, but some tact and some judgment are necessary in their application. The undue worrying of a substantial firm which has a settled pay-day is as senseless as a highwayman pistolling a traveller who is prepared to deliver his purse without such persuasion; while on the other hand the ordinary procedure may prove too lenient in dealing with dubious debtors. At the same time, this discretionary discrimination must be wielded wisely and only by those who have gained their knowledge by practice.

We have seen that theft is an offence both against the natural and the civil laws, but there is a form of theft of which the State takes no cognisance and which, so far as we are concerned, the Company deals with entirely and lays down its own rules. I refer to the theft of time, and here, the instructions that provide for the hours of attendance are adamant; they admit of no compromise; they are ever part of the bargain between employer and employed, and in that sense they partake more of the nature of a compact than a law. In fact, like many rules, punctuality becomes a mere matter of habit and no more irksome than the orderly step of a regiment of soldiers on the march. And yet the rule of punctuality is one of the most important and necessary conditions of all service.

It will not be out of place here to note the distinction between a compact and a rule. And first, it is always the superior who makes a compact with the dependent, and in our case the compact is made at the time we enter the service of the Company. It is only after our initiation that we become bound by rules; until that takes place we are entitled to accept or reject, to say "I will" or "I will not"; but having agreed to the compact, we are subject to the "thou shalt" or "thou shalt not." That is to say, that although natural wills and inclinations differ, the consent to submit such wills to the governing body is a necessary preliminary to membership, and the acknowledged, governing will then becomes our law. It is the duty of the whole to protect its parts and, on the other side, each part must pay obedience to the will of the whole.

Under civil laws the reward for observance lies only in the enjoyment of our rights and privileges; in the Company's service the reward lies in advancement and the means of living. Howbeit, the simple fact remains that laws and rules can only persuade, they cannot compel; there is only one thing that is absolutely compulsive, and that is—punishment.

The rules of punctuality, diligence and so forth, which, defined or not, are recognised as part of our compact with the Company affect the staff generally. We will now turn to a set of instructions, from which no deviation is permissible but which directly concerns and dominates the work of one department only, viz., the Company's tariff rates and the Contract Department.

No doubt, a contract officer can say with some truth that his labours are hampered and his success impeded by the inelasticity of these tariff rates: that he, in fact, loses, by reason of his limitations, orders which might, in his view, be intensely profitable, and that were he endowed with some discretionary powers, had he a more free hand in negotiations, choice of localities, etc., the Company would very soon hear of something to its advantage, not to mention his own. And he honestly thinks he is taking a broad, reasonable view of the situation.

But I venture to think he is not. His view is probably bounded by his own centre or by an isolated case in that centre, and it may be that the particular order involved, taken by itself, would be a highly remunerative one to the Company. Either, he thinks that his instructions lack wisdom, or he overlooks the fact that laws are not made for the individual or to meet solitary cases. If his were the only centre or were he the only contract officer to consider, there would be no need for definite, detailed instructions. With, perhaps, the proviso that everyone must be treated equitably, all that would be required of him would be that the business as a whole must yield a certain profit on the outlay, and I venture to add incidentally that he would find his task by no means a bed of roses. But the position would be a matter of compact between employer and employed, rather than one of law.

A man looking closely at a brick wall may see a spider; another man standing farther off may detect several, and this is the position of those who are responsible for and draw up our service instructions. And contract officers and others who sometimes feel the pinch of a particular regulation may generally be sure of this, that its importance to the business as a whole is proportionate to the extent to which it seems harassing or unreasonable under peculiar conditions. In other words, its non-observance, though harmless in isolated cases, would, if general, prove disastrous to the Company's well-being.

But (still keeping to the Contract Department) to say that no discretion or initiative are left to its officers would be not only absurd but untrue. If it were otherwise, what would constitute the merits of a contract officer and wherein would lie the difference between a good and a bad one? The management can train and counsel, but it cannot distribute talents as it can instructions. By its rules and under their guidance each man has a fair and equal start, and the Company says, "within those rules use your talents, practise your discretion, employ your initiative, by virtue of which you may vary and create methods of persuasion, the fruit of which in your particular sphere is success, and according to your success so you shall be rewarded."

(To be concluded.)

## THE NATIONAL TELEPHONE COMPANY'S HALF-YEARLY MEETING.

At the 45th ordinary general meeting of the Company, held on Feb. 24, Mr. George Franklin, the President, in proposing the resolution adopting the report and accounts, said:

Shareholders will observe that whether for the half-year, or for the complete year, ending Dec. 31, 1909, the accounts continue to show steady progress, with increasing revenue and larger balances for disposal. The first item we come to is income accrued in respect of the business of the half-year, which has increased from £1,498,431 to £1,599,990, an increase in our revenue for the half-year of £101,559.

The first deduction is Post Office royalty, £153,857, as compared with £144,226, an increase on the half-year of £9,631, and making a grand total of royalty paid to the Postmaster-General, for which no services whatever have been rendered to the Company, of something like £3,100,000 from the granting of the licenses to date.

Taking next the working expenses, you find that they have increased from £858,566 to £922,693, an increase of £64,127. This leaves us with a net result of £523,440, as compared with £495,638, a balance of £27,802 more than we had this time last year. This increased amount has been disposed of by debenture and other interest, which, as shown in the accounts, have absorbed £13,545 more, the allocation to the reserve fund of £170,000, whereas for the corresponding half-year it was only £155,000, an increase of £15,000, and the rectifications between the increased balances brought forward and carried forward account for the difference. On revenue account No. 2 for the half-year we shall there see what these expenses are. Rents of premises, taxes and insurances £122,566, as compared with £111,049 for the corresponding half-year, an increase of £11,517; administration and management £376,618, as compared with £365,587, an increase of £11,031, and maintenance and renewal of lines and instruments and depreciation allowances £338,606, as compared with £322,075, which shows that on the maintenance of our plant there is an increase of expenditure during the half-year of £16,531. The other item in revenue account No. 2 shows rent and maintenance of Post Office wires £51,253, as compared with the rent and maintenance of Post Office wires in the corresponding half-year £31,118, whilst other increases in income tax, pension fund and Parliamentary expenses make up the figure of the increase for the half-year of £64,127.

On the whole year 1909 there is an increased income of £198,126, being the difference between £3,149,126 in 1909 and £2,951,000 in the year 1908. There is an increase in Post Office royalties of £19,226; an increase in working expenses of £125,956, and an increase in the net result, and that, after all, is the thing in which shareholders are most keenly interested, of £52,944. This £52,944 has been absorbed by extra outlay for debenture and other interest, £26,500, an additional sum carried to reserve of £25,000, and an additional sum carried forward of £1,344, less £100 in the amount brought forward.

If we now turn to the capital account we shall find that during the six months there has been expended on construction of exchange and private stations £255,361, as compared with £361,079 in the corresponding period of the previous year. The diminution in amount is entirely due to the necessary restriction which has had to be placed upon capital expenditure owing to the approaching termination of the license.

We see that there has been expended on the purchase of undertakings and the construction of the system £14,972,793. That is equal to £29 14s. 7d. per station. Whilst I should not dare to presume to institute comparisons between the Company's system and any other, yet there is no harm, I think, in saying that the system which has been constructed by the Post Office in London and the provinces has cost the Postmaster-General—I was going to say twice that sum—but almost twice that sum. I believe his average cost works out at something like £52 per station. I do not know whether we are to deduce from that that the Postmaster-General's plant is very much more up to date than the Company's plant; but, as I said just now, comparisons are odious, and I do not want to institute any comparison. But as I am speaking of our capital cost per station—and you must remember our capital cost is stated to be watered and inflated and everything else, at least we have been told that, although people are getting a little wiser now—I think that at all events it is right that the shareholder should know that his capital stands in the books at a sum between £29 and £30 per station, and that the Post Office capital for telephone stations stands in the country's books at a sum of over £50 per station.

If to the capital expenditure we add the land and buildings £850,197, we have a total of £15,822,990 expended upon this business, and it may be of interest to the shareholders to know that of that 15½ millions there has been expended during the past six years sums approximating to £6,000,000 sterling, which go to show that with this expansion of the Company's plant we have met during the past few years the requirements of the public so far as telephones are concerned. On the other side of the account we find there has been raised in shares and stocks, including debenture stock, £11,483,593, leaving us with a balance being in excess of expenditure over capital raised of £4,339,397, which you will find brought down as the first item on the credit side of the balance sheet.

In the Directors' report it is stated that a certain sum has been expended on capital account during the half-year in the erection of 13,896 additional exchange and private stations, of which 13,443 are upon the measured rate or system of payment according to user, making a total number of 503,643 stations. Whilst we are on this question of stations, it might be well to refer again to the question of the Post Office competition in London which, as you are aware, has been going on for some six or seven years. The number of the Company's exchange stations in London at Dec. 31, 1909, was 112,205, as compared with 103,287 at the corresponding period of 1908, showing an increase of 8,918 stations, whilst the Postmaster-General's system had only 60,091 stations as against 52,422, or

an increase of 7,669, so that the Company has increased its lead in London on the Post Office system by 1,249. I think that at all events shows that your system is growing rapidly; and the only competition between the Company and the Post Office is a competition in efficiency of service, as to which I will have a word to say by-and-by.

The unexecuted orders on Dec. 31 last represented 5,435 stations with an annual revenue of £36,229, as compared with 5,220 valued at £34,334 per annum at the corresponding period of 1908.

Now, these results, which I have endeavoured to indicate to you, satisfactory as they are, have not been achieved at the sacrifice of efficiency. I have already shown that the expenditure upon maintenance and renewal of lines and instruments has been increased by £16,531 for the half-year, whilst for the complete year the charge under this head has increased by £25,020. Perhaps, however, the best test applied by the subscribers and the public and the shareholders, too, is the quality of the service, and the Company have the strongest evidence that, alike in London and the provinces, there has been a marked improvement in the readiness and rapidity of communication, and this is borne out by the fact that in London during the past four years there has been a diminution in the complaints made to the Company of something like 40 per cent. in number, and that, I think, is satisfactory evidence, first, that we are spending upon maintenance considerably more than we have ever done before; and next, that the efficiency of our service is as good or better to-day than it has ever been at any previous period in the Company's history. Well, now that is the story with regard to the figures of the accounts, and I have no doubt they will strike the shareholders as they do the Board, that as figures and as a story they are a cause of great satisfaction.

There is no doubt whatever that the Company is making the best of its opportunities, having regard to the many difficulties with which it has been confronted; and if we may now turn from the study of the financial results of the Company's working, I should like to say a word or two on the Company's position in view of the approaching termination of its license.

At the last half-yearly meeting I referred to a statement made by the late Postmaster-General, to the effect that an earlier purchase of the Company's plant, properly, and assets than that provided by the purchase agreement of 1905 was, from the public point of view, advisable. Following upon that statement, certain discussions have taken place, having for their object the determination of the value of the Company's plant. I have to say that those discussions have not had any result. I do not believe that in the Company's interest it would have been possible to have proceeded upon the lines which were suggested with regard to this question of earlier purchase.

In the event of no arrangement being arrived at, the value of the Company's assets at the end of the license is, in case of difference, to be determined by arbitration. In this contingency it is necessary to provide a detailed inventory of the Company's plant, upon which to found its claim. The preparation of this inventory and claim—covering the plant and assets connected with nearly 1,600 exchanges, with more than half a million stations spread all over the United Kingdom of Great Britain and Ireland—is a gigantic task, and must impose a heavy burden upon the Company's officers. In view of the nature of this task, the Board and the staff have for some time past been engaged in the preparations necessary for this important work, with the object of enabling the Company to be in a position to prefer its claim at as early a date as possible after the termination of its license—a course which the interests alike of the shareholders and the public would appear to demand.

The arbitration authority arranged in the purchase agreement was, as you may remember, the Railway and Canal Commission, and by an act of Parliament, which received the Royal assent on Oct. 20 last, that body has been clothed with power to undertake the work which this agreement commits to them.

I can only say with regard to that, as well as to the policy of the Company generally—whether in managing its daily business, or in looking, as we are sometimes asked to do, to our latter end—we shall devote ourselves unstintingly, both in thought and labour, and spare no effort to see that the Company's claim—if that claim has to be made before the arbitration tribunal—is properly made, and that the interests of the shareholders of the National Telephone Company do not suffer.

Mr. FRANKLIN said, in conclusion: It has always been usual, I think, for the Board to ask that the resolution of confidence in them shall comprise the members of the staff of the Company. We have a staff of some 17,000 people, all of whom are animated with the excellent desire to do the very best they can for the Company. The Telephone business is a business which, as I have said before, fascinates all who touch it, and it is gratifying to know that we get from our staff services such as, I believe, no other Company similarly situated could be led to expect. We have at the head of our staff in the various departments men of single-minded purpose doing their best day in and day out, constantly thinking of the problems which are with us to-day, and which I suppose will now be with us to the end. I am sure it will be a satisfaction to you to know, as it is naturally for them to feel, that their services are appreciated by the shareholders of this Company.

### A SMART JUNIOR.

A JUNIOR of the clerical contract staff at Brighton has shown recently a business aptitude (and this too, after office hours) well worthy of commendation.

A certain London firm had been written to in connection with the telephone service for their new establishment about to be opened in Brighton, but unfortunately without result. The manageress of the firm came to Brighton, and put up for the night at the same residence as the aforesaid junior (who is fifteen years of age). The lad discovered that an opposition line was being arranged for, and he pleaded his, and the Company's case so fluently that the next morning the contract was secured for the Company's service.



EDITH E. FITZGIBBON.



BEATRICE CLIFFORD.



ALICE BESSIE SMITH.



ALICE CLARA PINNELL.



MAY TUCKER.

## TELEPHONE WOMEN, LXI—LXV.

## THE SUPERVISING STAFF, BRISTOL:

(LXI) ALICE BESSIE SMITH, (LXII) ALICE CLARA PINNELL, (LXIII) BEATRICE CLIFFORD, (LXIV) MAY TUCKER, AND (LXV) EDITH FITZGIBBON.

ALICE BESSIE SMITH, Senior Supervisor, entered the service of the Western Counties Telephone Company in July, 1888, as an operator. ALICE CLARA PINNELL entered the service a little later in the same year.

At that time the old slipper pattern peg boards were in use, and multiples were not known. At the Bristol Exchange there were about 500 lines and ten operators. These have now increased to 3,400 and 42 respectively, and the board has been changed first to the magneto call-and-clear system with multiple jacks, and then, in 1900, to common battery working, being removed at the same time to the new building of the National Telephone Company in Baldwin Street.

Both Miss Smith and Miss Pinnell were pupil teachers before entering the telephone service. These ladies make their work their hobby, and are looked up to and respected by all members of the staff.

BEATRICE CLIFFORD and MAY TUCKER entered the service in 1896, just prior to the handing over of the trunk lines to the Post Office. The Bristol Exchange then consisted of a magneto board with twelve operators and a clerk-in-charge, from which it has grown to its present dimensions. Misses Clifford and Tucker have seen many changes in the *personnel* of the Company, notably—two district managers, three local managers, two exchange managers, and two clerks-in-charge.

These two ladies also take very great interest in their duties, which is really a characteristic of all the supervising staff at Bristol.

EDITH E. FITZ-GIBBON, who has recently been appointed Travelling Supervisor for the Bristol district, seems to have found the right scope for her energies. Entering the service of the Company in 1897, she too has been through many changes both of equipment and staff. A natural enthusiast, she imparts her enthusiasm to others, and her various visits to the exchanges are looked forward to keenly by the staff. Comment on her work is needless here, except to say that Miss Fitz-Gibbon has quickly solved the great problem of rousing and maintaining the interest of the sub-exchanges operating staff, thus making her task of organising much lighter than it would otherwise be.

In the Bristol district, at any rate, there is no need for questioning the success of the installation of the travelling supervisor.

## ALD. FRANKLIN, Litt.D.

## PRESENTATION OF PORTRAIT.

THE long record of public service that Alderman George Franklin, Litt.D., has rendered to his native city, says the *Sheffield Daily Telegraph*, was celebrated at the Sheffield Town Hall yesterday, when a large and representative gathering of his fellow-citizens met to do honour to his distinguished career.

On behalf of a numerous body of subscribers, the Lord Mayor (Earl Fitzwilliam) presented Alderman Franklin with his portrait, which was unveiled by the Lady Mayoress (Countess Fitzwilliam), whilst Alderman Stephenson also handed to Mrs. Franklin a magnificent single-stone diamond pendant, in recognition of the help she has given her husband in his public work and the philanthropic labours in which she has engaged.

The portrait, which is a fine work of art, is the work of Mr. W. W. Oules, R.A., an artist of eminence. It will hang permanently in the Town Hall, but a replica will remain in Alderman Franklin's possession. The idea of putting on permanent memorial Alderman Franklin's great work for the city was originated during the Lord Mayoralty of Alderman Styring, and is in natural succession to the similar honour that was paid to Sir William Clegg.

The subscription list amounted to between £1,300 and £1,400.

## THE NATIONAL TELEPHONE MUTUAL BENEVOLENT SOCIETY, WEST KENT DISTRICT.

THE accounts of the above society, which was formed in April, 1909, have been made up to Nov. 25, the result being highly gratifying to the members, who now number 102.

The amount paid in averaged 7s. 6d. per member, and after relieving four cases, amounting to £6 10s. 10d., each member received an average of 6s. for his or her share, leaving a balance in hand of £4 13s. 10d.

## GLOUCESTER DISTRICT MUTUAL BENEVOLENT SOCIETY.

A GENERAL meeting of the above society was held on Dec. 29, when the hon. secretary, S. G. Hare, read the annual report and balance sheet for the year 1909. The total membership for the district from Cheltenham, Evesham, Gloucester, Hereford, Stroud and Lydney centres numbered 78.

The receipts for the year ending Dec. 25 amounted to £47 9s. 3½d., and the expenditure was as follows:—Sick pay, £18 4s. 6d.; refunded to members leaving the Company's service or transferred, £1 11s. 4d.; cheque book, 2s. 6d.; postage, 3d.; total £19 18s. 7d.; balance £27 10s. 8½d. From this amount £27 9s. 9d. was distributed amongst the various members in respect of annual dividend, the balance of 11½d. being carried forward to the year 1910.

The balance sheet having been read and generally approved, expressions of appreciation at the financial result, with a vote of thanks to the hon. secretary, S. G. Hare; hon. treasurer, H. Millett; and hon. auditors, T. H. Thompson and R. J. White, for their respective services were passed.

The election of officers and committee for 1910 are as follows:—Mr. R. A. Dalzell, Provincial Superintendent, president; Mr. C. Elliott, vice-president; Mr. S. G. Hare, hon. secretary; Mr. H. Millett, hon. treasurer; Mr. H. Thompson and Mr. R. J. White, hon. auditors. Committee: Messrs. W. J. Norman, J. L. de Medewe, F. W. Sceats, J. Savory, C. M. French, W. A. Taylor and Miss Harry.



J. A. McLeman, F. Burroughes, H. G. Peck, E. W. Atkinson, F. J. Saunders, G. H. Bryant, W. Hills,  
 T. M. Doman, R. H. Carter, J. Johnson, F. M. Ward, A. E. Abbott, L. Bignell, J. H. Paturin, J. H. Stewart, J. McLeish,  
 E. C. Humphrey, J. R. Angier, A. R. MacFarlane, G. F. Gadsby, J. B. Ryall, F. Woodland, G. A. Payton, T. H. Edgerton, H. Sadler.



F. M. Hall, P. J. Riad, J. Rorfen, P. T. Wood, G. F. Greenham, A. Wright, A. C. Greening, A. Warner,  
 W. Blight, R. H. Drury.

## LONDON AND ITS ORGANISATION.

### ELECTRICAL.

By J. STIRLING, *Metropolitan Chief Accountant*, and G. F. GREENHAM, *Metropolitan Electrician*.

AMONGST much that lies to their credit, Telephone Societies have also this—that they have reduced to a commonplace the comparison between our primitive telephone appliances of 30 years ago and the latest product of the electrician's ingenuity and skill. It is a far cry from peg boards and Blake transmitters to central batteries and "solid backs"; yet it has all been accomplished within the short space of a quarter of a century. One wonders whether the next generation will have to face a similar revolution, and contemplate

with mixed feelings the scrapping of that plant which we to-day regard with so much pride.

"Electrical" Department, although a convenient description, is to some extent a misnomer. It is at once too comprehensive, and not sufficiently expressive. Every branch of the telephone business is, or ought to be electrical in a very wide sense—in knowledge and in action alike. "Internal Engineering" is in some ways better, but lacks the euphony and general acceptance of the other. After all, nomenclature is not of primary importance, and so long as the prescribed functions are adequately discharged we need not waste time on mere names.

The fitting of all internal apparatus, and the care of it after completion, is in London neither a simple nor a light task. What it lacks in ease it makes up for in attractiveness, and generates that love of one's work which amply compensates for anxiety and toil. Just a few figures to illustrate the gigantic system with which the

Metropolitan Electrician and his staff have to deal, and over which they must exercise a control so complete that inconvenience to the public will be reduced to a minimum, and unavoidable troubles cleared with the utmost promptitude.

Exchanges over 1,000 lines ... ..	=	17
„ under „ „ ... ..	=	44
Subscribers' lines on exchanges ... ..	=	70,000
Instruments at Subscribers' premises ... ..	=	122,000
Lines connected to Switchboards, Fire Bells, etc. ... ..	=	30,000
Switchboards at Subscribers' offices ... ..	=	8,700
Junction Wires between Exchanges ... ..	=	6,400

Figures are, as a rule, dry, but anyone with a little knowledge, and even a slight touch of that imaginative faculty which is none too common, can conjure up from those quoted an interesting picture of the complete and extensive organisation required to cope with the work of which these figures give but a feeble indication. Numbers, indeed, form but one factor; distance, locality, type of apparatus are others both insistent and important. In one neighbourhood a man may have to travel some miles to clear a fault or inspect an instrument; in another, one block of buildings may keep an inspector occupied for days. In one locality the bicycle is the

definitions that the right men are at the head. Experience justifies the assumption. The group reproduced at the head of this article is composed of the senior Metropolitan Maintenance and Fitting officers.

The appended Staff Diagram (Fig. 1) shows more graphically than much description how the work is distributed and supervised. The Metropolitan Electrician, with his Assistant, and the two heads of the Maintenance and Construction branches respectively, are stationed at Salisbury House. To them come reports from the Divisional officers on matters affecting their districts. From the central office are issued, as the need arises, numbered circular letters, containing instructions on the multitudinous points which must present themselves for attention in a large business. Diagrams of the numerous circuits now necessary in telephone work are also sent out, marked with consecutive numbers for easy reference. In addition, a monthly conference of Divisional Officers is held, and at these meetings important questions affecting the smooth working of the Company's business are constantly discussed and settled; many valuable suggestions have been made at these gatherings, with resultant gain to the Company.

For Maintenance work there are six Divisions—four on the

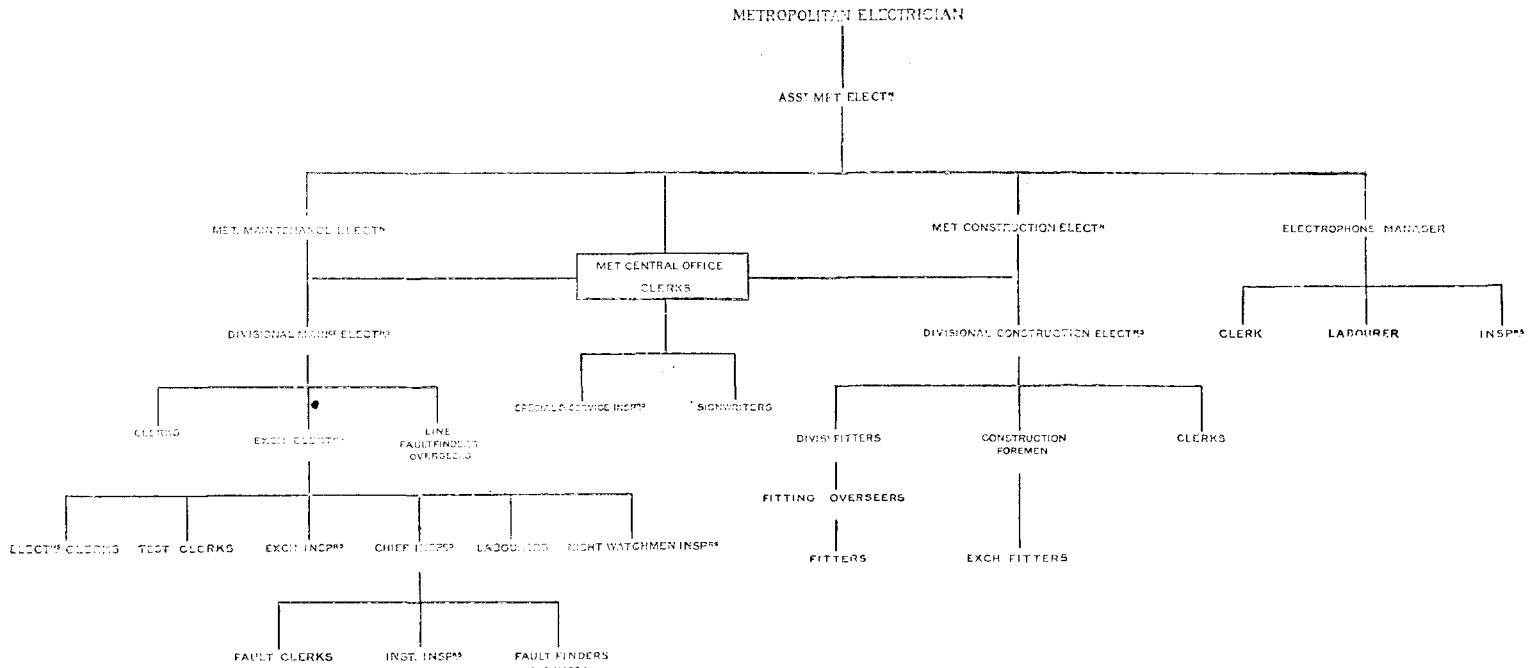


FIG. 1.

quickest mode of conveyance, as the Company do not yet supply motor cars; in others the motor bus, the tram, or the tube speed the workman to his destination in a few minutes. Whether magneto or common battery instruments; whether there are switchboards, switches, indicators, bells, or other apparatus; whether the neighbourhood is densely or sparsely telephoned: these are all points which have to be carefully weighed and appraised if the best and most economical work is to be obtained from the Maintenance staff.

Somewhat similar problems have to be solved in fitting work, although obviously the extent is not so great, owing to the limited number of jobs which can be allotted to each man per day. It is only a question of degree, however, and the Fitting staff have the extra difficulty that they do not know what they are to encounter in the way of "soft" walls, expensive paper which must not be finger-marked, eleventh-hour additions or alterations required by the subscriber, and a host of other impediments which are doubtless familiar to all who have to deal with works orders.

Successful administration is largely the result of effective central control and systematic distribution of duties. The personality of the men in charge is naturally most important, but as even the best system will break down if ineptitude and incapacity characterise those operating it, one takes it for granted in all

north side of the river and two on the south. The most important is the City, with its huge intricate congeries of streets and lanes, its immense office blocks, each with scores of telephone instruments, its towering warehouses, its Stock Exchange, its Markets, its Tubes, its never-ceasing traffic, its continuous buying and selling—all of which exercise an important influence on telephone needs. In one City exchange the average outgoing calling rate is slightly over twenty per line per day; naturally instruments used to the extent that figure represents, and an exchange through which so great a traffic is passing, require considerably more attention from the Maintenance staff than those located in less bustling districts. The increase of recent years in extension instruments, and their necessary accompaniment of switchboards, in City offices, has complicated still more the work of the inspectors, and made an extra draft on their intelligence and skill.

Next in importance is the Western Division, with headquarters at Gerrard Street. Shopping centres, hotels, the fashionable residential districts, Parliamentary offices—all are here. It is Society's happy hunting-ground, the seat of senatorial wisdom, and the resort at all times of that cosmopolitan crowd which is never absent from London—not even in the height of summer, when "there is nobody in town." The growth of the private branch exchange system in the hotels and large stores has been the outstanding feature in the

West End; to our electrical staff it has brought many new problems, and much additional work.

The North-West Division is controlled from Paddington, and the North-East from East exchange premises. The former includes the great railway termini of the North, the latter covers a large area comprising such diverse elements as the Docks, the East End factories, the vast playground of Epping Forest, and the suburban quietude of Finchley, Barnet and Enfield.

Of the two Divisional Officers on the Surrey side of the Thames, one is stationed at Hop, and the other at Sydenham. The one takes all the Borough, Blackheath, Battersea, Streatham, Wimbledon, Richmond and Woolwich neighbourhoods, partly business, partly residential—one part decaying or decayed, and another part just blossomed from "eligible sites" into the staid respectability which accompanies streets of desirable suburban villas. The other officer presides over a glorious country where business is little known. It is a land which has been captured by the man of leisure, the City gentleman who need only spend an hour or two occasionally at his office, and to some extent the man who tempers business by day with the fancy that he likes to do gardening at night. Golf and tennis are its recreations, telephones its luxuries. Bye-and-bye the latter will become its necessities, when the dwellers within its bounds realise how much their pleasures and ease may be ministered to thereby.



FIG. 2. - EXCHANGE ELECTRICIAN'S OFFICE, GERRARD.

This somewhat discursive description of the London telephone territory is given in the hope of emphasising the varied and complex needs that have to be catered for, and the difficulty of setting up a standard of efficiency or of cost which would be applicable in every portion of the area.

Next in seniority to the Divisional Officers are the Exchange Electricians. They number fourteen, and under their control work the staff of Exchange and Instrument inspectors, test clerks, fault clerks and faultfinders, totalling 450. The Exchange Electricians are responsible for the condition of all exchange and subscribers' apparatus within their respective areas, and for the exercise of an effective supervision over the work of the maintenance staff. They have likewise to act as peacemakers with subscribers suffering from exceptional troubles, see that the monthly estimates of expenditure are adhered to, know the weak spots and the special features of all plant, and generally see that their staff walk in the right path.

Up to the end of last year a special department received all complaints, passed them on to the electrical staff for attention, and afterwards communicated with the subscriber, if necessary. Recent efforts to educate subscribers into reporting troubles by telephone to the Clerk-in-Charge instead of by letter, combined with a steady improvement in the plant and service, have resulted in the Complaint Office being abolished. Letters arriving at the Metropolitan

Offices are immediately telephoned by the Correspondence Department to the Test Clerk, who makes out a docket, the number of which is entered on the letter by the telephoning clerk. The letter is then filed. Special complaints are, of course, referred to a senior maintenance officer. Instrument faults per maintained station for the past twelve months were only '95, a figure which surely spells efficiency.

The docket and testing arrangements have not many special features. One worthy of mention is that the Exchange Testing operator and the test clerk keep in front of them a sheet of paper ruled off into squares, each square representing a block of subscribers' numbers. The number of each subscriber for whom a docket has been passed on to another officer is entered in the appropriate square; by this means the course of any docket can be traced, and subsequent enquiries rapidly dealt with. The sheets are also useful for keeping a watch on repeat fault forms.

Instrument Inspectors have very important and often trying duties. A subscriber whose instrument is faulty is generally pleased to see them, but frequently his pleasure is expressed in the form of reprimand and expletives rather than delight; in other words, his sense of annoyance over the temporary breakdown of his telephone overcomes his feeling of pleasure at the prospect of prompt restoration. One day, perhaps, human nature may be so idealised that the average telephone subscriber will rather think with gratitude of the thousand occasions when his telephone has worked well, than with reviling over the occasional incident of its being out of order.

With the advent of central battery instruments the inspector's routine duties have become less exacting, but that gain has been largely counterbalanced by the increase in the number of subscribers' switchboards. The allocation of all duties and rounds, and immediate supervision of internal fault-clearing and inspecting, are in the hands of Chief Inspectors, of whom there are eleven. To them the men appeal in cases of difficulty, and through them report any matter affecting the Company's interests. Faults are, of course, given out by, and the "clear" given through to, the fault clerk by telephone in the recognised manner.

The instrument staff meet with all sorts of curious experiences. That is not peculiar to London, but one or two of the incidents which have added variety, if not a "crowded hour of glorious life," to the ordinary day's work of some of the London staff are not without interest. It is difficult to enter into the mingled feelings of uneasiness and chagrin experienced by the inspector who, after clearing a fault, found his exit barred by a large dog, which threatened attack at each attempt to leave; ultimately the telephone was utilised to summon the next-door neighbour, and so secure release.

The reply of a subscriber to an enquiry as to which receiver was broken—"Well, it's not the receiver you listen with, but the one you put to your ear to stop the noise from coming through"—was a model of limited knowledge lucidly expressed.

At a naturalist's in East London an inspector was startled to find at the end of an examination of the instrument protector that all his operations had been carefully watched by a large chimpanzee. Two hours later the man, on passing the premises, was dragged in by the proprietor, and told that the telephone was out of order. It was found that the monkey had taken the protector cover off, removed the fuses and heat coils, and deposited the treasure trove in his bed of straw.

Queer places and curious faults abound. One of the former where a fault had to be cleared was the post-mortem room of the London Hospital. We sympathise with the inspector's description of his experience as "gruesome and unpleasant." Of the latter, an aged survivor of earth-circuit times was reported for intermittent refusal to work. After much tribulation, it was found that when the tide was low the earth-plate which was sunk in the river bed got quite dry, hence the stoppage. It would appear that a healthy thirst can be developed in the scientific as well as in the human world; but temperance reformers will gladly learn that the element used to quench it was harmless.

Call Offices are an unfailing source of curious and amusing incidents, tempting one to exclaim with Puck, "Lord, what fools these mortals be." We rather pride ourselves on the extent to which the telephone is becoming used and known by the public.



To watch a group of country cousins gazing open-mouthed at someone using the telephone at a busy station, or to listen to a few of the ingenuous and original explanations of the spectacle which they offer to each other, rather shatters our pride, even if it does also impart a comfortable feeling of superiority. Yet the user is often little better than the gazer at a public Call Office, as witness the callers (ladies, as a rule) who will insist on trying to speak into the earpiece, and get the mouthpiece to the ear; one lady was quite indignant when the inspector offered to show her how to use the instrument.

The introduction of common battery instruments will abolish the last-mentioned vagary, but we may safely take odds that others will come along. Indeed, one has arrived, for a visiting inspector found the source of a gurgling noise proceeding from inside a call-box to be a burly farmer-looking gentleman engaged in the healthy occupation of blowing vigorously into the transmitter mouthpiece, evidently under the impression that the thing worked like a speaking-tube. Being a mere man, he welcomed the proffered tuition, and departed beaming, whether at the completed message or the joke we did not learn—probably he did not see the latter.

One curious call office fault was discovered by observation at the hour when the intermittent trouble usually came on. The occupant of the box was big and broad; the box was somewhat narrow for his liberal proportions. Result 1—as he swung his arms slightly round in the effort to drop his penny into the slot, his elbow pressed down the hook of the Ericsson instrument. Result 2—no buzz, no call, lost twopence, lost temper. Result 3—language, of which the less said the better.

(To be concluded.)

### OPERATING AS A CAREER.\*

By FLORENCE J. MINTER, *Metropolitan Examining Matron.*

As in choosing a career for girls the careful parent considers many professions and trades, I think it is as well for us to wander from the well-trodden path of the telephone world and glance outside into that greater world of workers, as applied to the eternal feminine, which we are apt sometimes to forget.

We move so rapidly nowadays that we seldom have time to realise what tremendous changes have taken place in the general conditions of life since the days of our grandmothers, and especially in connection with woman's place in the universe. (Not being a suffragist, I am not making this an opportunity of showing what we still lack in a vote.)

The fact remains that 50 years ago a woman who ventured to business, or dared to be something other than a somewhat meek and domesticated dependent, was looked upon with suspicion; but she evolved into a business girl, who became tolerated as she became more general, and has, in spite of still a few objectors, become a recognised necessity. Periodically we are reminded of woman's proper place, and pathetic pictures are drawn of the home duties she neglects; she has even been quoted as ousting men from their positions, and thus swelling the ranks of the unemployed. No one has a higher ideal of happy home life for women than myself—personally I deplore the necessity which brings women in competition with men for their existence—but I recognise that with no superabundance of unselfish brothers to support the unmarried sisters of their families women must work, must put their shoulders to the wheel, must make their own careers, and, as a sequence, it has become difficult to find one sphere of labour in which woman has not planted her foot, and that firmly.

But there is a dark side to the picture. Although, with the increase of the sex and demand for work, Father Time has opened up fresh fields for labour, especially during the last eighteen or twenty years, my experience shows me how lives of toil and discomfort are being lived for a mere pittance, and also that the competition of numbers, and not always the "survival of the fittest" leaves thousands to undertake hopelessly underpaid positions in unhealthy surroundings and generally poor conditions.

Possibly a few figures in connection with two of London's biggest commercial training schools will enable you better to compute the number of girls annually seeking careers.

The number passing through Clark's Commercial Training College alone is annually 3,000. Many clever, well-educated girls who do not care to face the growing severity of the Civil Service examinations take up commercial pursuits, and average about 1,500 students. For these from 1,000 to 1,200 positions are annually found. There have actually been over 20,000 successful students passing through this training centre alone.

Pitman's Metropolitan School, to which first place must be given in the shorthand world, has at its disposal more than 2,000 appointments a year for shorthand typists, and also trains many students for professional, preliminary and Civil Service examinations.

Compare these figures with those of ten years ago; then go back another ten, and see how positions for women in business have steadily increased.

To refer again to typists. At all polytechnics typewriting is taught, and at various London offices of machine-making firms free tuition is given. The number of girls actually training for this work alone is computed to have risen 150 per cent in five years.

Beyond this, the London County Council Schools make a feature of training girls in shorthand, typewriting, and other commercial pursuits, and the demand in the Evening Continuation Schools has grown to a tremendous extent. In these schools any female, irrespective of age or social position, may now acquire a knowledge of typewriting for 1s. providing she has attained a certain speed in shorthand. They are supposed to become experts, but I do not think this is possible under the conditions, although they certainly are enabled to obtain, if not efficiency, the *knowledge* of shorthand or typewriting, which is the key that opens the door to many clerical appointments.

A fact which I think is so often not appreciated by our learners is the cost to the Company of training them. It has been found in London that the average cost to the Company for the school tuition, based on a large number of cases, is £6, but this does not include the additional cost incurred in making an operator proficient at an exchange.

In most trades an apprenticeship must be served, which often represents at least two years' service given, or a premium paid, and the eventual salaries earned do not always justify the outlay.

Some people have very erroneous and strange ideas with regard to the work. One mother wrote me: "I have been told that the telephone work is most injurious to the nervous system—that it is so much so that the operators have to wear bands round their heads. I want you, please, to let me know if this is so, and if it is true that doctors are putting telephone work down for women."

In spite of this sort of thing, however, we still receive in London some thousands of applications in the year.

I have already dealt with the present-day dining arrangements in an article in the first number of our JOURNAL, so far as they apply to the catering committee, so that it is unnecessary to dwell at any length now upon the subject. I would, however, point out by way of comparison that we are now providing in London lunches at 21 exchanges, and have a kitchen staff of 58, whose salaries amount to over £1,400 per annum, and who deal with an average of 8,500 lunches and teas per week.

The only exchanges at which such arrangements do not exist are those with less than twelve operators, and even these, where possible, are at least having separate tea rooms provided for their use.

I understand the first co-operative cooking was at Liverpool.

In these same days there were no training schools for operators, and the newcomers had to pick up their knowledge of rule and manipulation as best they could, and very difficult they must have found it. Now, of course, everything is so organised as to make an operator's work as easy, and her telephone life as happy and comfortable as possible, and from the time of her application to the time she is turned out of the school to an exchange as operator on probation a recognised routine is followed. I have often thought it would be possible to write an article on "Why they Fail," and in dealing with the prospective operator I will now touch on some of the reasons which account for the many disappointments we cause

\* Abridged and revised from a paper read before the Birmingham Operators' Telephone Society, session 1908-9.

in the rejection of those who, in their own mind, have decided upon operating as a career.

Of course hundreds of letters received are so hopelessly illiterate that the number rejected for this alone is very high. Some of these are really too amusing to lose sight of, and I subjoin a few unique specimens.

Sir,—Having read in the paper that you are in want of Ladies for the London Telephone I should very much like to do it if it is to sleep in.—Your Truly,  
SARAH V.

Sir,—Seeing your advertisement in the "Daily Telegraph," I should very much like to give you a trail as a learner.—Your Truly, KATE Q.

Sir,—I answer your advert. in the "Daily Telegraph" for young girls to learn the telephone. My height is 5 ft. 5 ins., and age 18 years. I should be very pleased to here from you or I could call and see any time after 6.30 of an even or any time on Saturdays.—I remain, yours Truly, Miss R. R.

If I have been accused of having too high an educational standard for our girls, I think I was justified in sending the writers of these letters the "cannot further entertain" form. Speaking of these particular forms, I might mention that they are often not accepted by the recipients at their full value, and second and third applications are made by the same people, who tell us in their letters that they applied before, but we told them "there were no vacancies." The parents of some of the rejected are not always easily appeased, and recently a letter was received from the father of a girl who, on applying, said she thought herself quite suitable for the post, but she unfortunately sent a badly spelt letter on a half sheet of paper. He said: "I think it ridiculous to advertise for people, and then to sent answers without knowing or ever to take any trouble to find out if they are suitable or not. I am keeping this letter to sent to the head one of this business, as it is a Limited Co. I will find out the reason why applicants are treated in this of-hand business."

Occasionally, however, it is the Company or their terms that are rejected, and one man must have heard something terrible of me, for an appointment having been made with his daughter, she wrote: "Regret to say I cannot call on you, as Dada objects"!

When we reach the forms, too many are rejected from the obvious want of education in the applicant, and many careless, often amusing, errors are made. One girl applying last year gave the date of her birth as 1909; the date given in another case made the age as over 100.

One gave her height as 7 feet 6 inches, and another stated her father's occupation to be "diseased."

One girl stated the only certificate she had received was "for cruelty to animals," and on my asking her of what the particular cruelty consisted, replied, "writing an essay."

It is, of course, obviously impossible to go into details, either with the applicants or their parents, of the many reasons for not accepting them. Some have only to come inside the door for their unsuitability to at once be apparent, and with from fifteen to twenty girls to see in an afternoon, one often longs to be able to say "No," and dismiss them summarily.

There are so many small things which, if one be a character reader at all, are quickly noticeable; others are difficult indeed to gauge. Much information withheld through ignorance, and often wilfully, can be obtained by judicious questioning.

With regard to the general selection of candidates, I dealt with one year's figures in the JOURNAL some time ago, and I will therefore touch but lightly on the subject. The chief points for consideration are:

Appearance.

Voice and articulation.

Manner or tone.

Intelligence (and with that I couple the most valuable asset of anyone)—

Common sense.

Age is determined, as a rule, before the candidate reaches an interview, and height should be, but unfortunately since the advertisement and the form give the required minimum of 5 feet 3 inches, 75 per cent. of the applicants give their height as that, and we have long since found the usefulness of a proper apparatus for measuring the questionable candidates in this respect. The unbelieving way in which a number of girls glare at this apparatus when its record is decidedly against them is amusing.

As we now take girls from sixteen, we naturally do not reject a growing girl, when she is otherwise suitable, for the sake of half an inch, but we do find the impossibility of short operators reaching the multiple in some new exchanges. Looking ahead, we can all appreciate that a short supervisor is at a disadvantage compared with a tall one, and it is indeed a pity that no one "can by taking thought add an inch to his stature."

With regard to appearance, there are some people who seem never able to discriminate in the matter of dress, especially in the little things. Some come in so untidy a condition, pinned together, or with stained, dirty blouses, that it is obvious if they would come to apply for a situation in such a condition, they would not improve after they had obtained it. Others, on the contrary, are dressed for conquest, and scented with such pungent perfume that we have to air the office afterward. The businesslike girl is attired suitably and cannot be mistaken.

Manner and tone are difficult to judge when the person naturally tries to please, but curtness of answer—and the "superior" air which accompanies it—does not bode well for the politeness which would deal with a troublesome subscriber.

With regard to general intelligence, I am afraid this is not sufficiently trained by modern educational methods, but a fund of natural common sense is indeed valuable to employer and employed, helping both, by its use, over difficulties others could not surmount.

Health must also be considered. I do not underrate the trying nature of the work, but I think its short hours and the conditions under which it is undertaken do not call for more than the average healthy girl. But as staff is based on the "load," and the question of "relief" not always settled to an exchange manager's own ideas, it becomes a serious matter if good attendance cannot be relied on from each individual operator.

(To be continued.)

#### NATIONAL TELEPHONE PROGRESS.

THE number of new stations added during February was 1,744, bringing the total up to 507,809.

GLASGOW DISTRICT.—*Hillhead Exchange*.—The extension of the No. 1 C.B. equipment by 580 lines has been completed.

LIVERPOOL DISTRICT.—*Bootle Exchange*.—The No. 1 C.B. equipment for 1,080 lines which has been installed in a specially designed building was brought into use on March 12.

MANCHESTER DISTRICT.—*Cheetham Hill Exchange*.—A No. 10 C.B. equipment for 880 lines has been placed on order.

*Trafford Park Exchange*.—The installation of the No. 1 C.B. equipment for 780 lines in a specially designed building has been commenced and is now in hand.

METROPOLITAN DISTRICT.—*Dalston Exchange*.—Additional C.B. equipment for 480 lines has been ordered, and the installation is now in hand.

*London Wall Exchange*.—Additional C.B. equipment for 440 lines has been ordered.

#### NEWS OF THE STAFF.

##### OBITUARY.

We regret to announce the death of Mr. B. FISHER, Night Operator at the Kemp Town Exchange, Brighton, who died on March 13 from consumption, the death taking place in the Brighton Borough Sanatorium. The interment took place on March 18, the Company being represented by Miss Gladman, Clerk-in-Charge of the Kemp Town Exchange. Floral tributes were sent from the Company's staff, inmates of the Sanatorium, and Mr. W. W. Wood, the latter being a gentleman who has shown considerable kindness to Mr. Fisher in the time of extremity. Mr. Fisher died at the early age of 35, and has left three children to mourn his loss. A sad feature of the case is that only last year his wife pre-deceased him, so that the little ones are very nearly friendless. The two younger one are being taken care of by the Brighton Guardians and means are being taken to find a suitable opening for the oldest boy, who is of the age of fifteen, and who is at present employed by Mr. Wood.

We have to announce the death of Instrument Fitter J. T. MCKENZIE which took place on Saturday, March 12. Mr. McKenzie had been four and a half years in the Company's service and in this comparatively short time he gained the esteem and goodwill of his fellow employees who have now arranged for a token of their practical sympathy being forwarded to Mr. McKenzie's widow.

We regret also to record the death at the early age of 29 of Mr. ARTHUR ATKINSON, Leeds, which occurred in January last. He entered the Company's service on June 6, 1897, as office boy, and was a district office clerk for over eleven years. Lately he was transferred to the Contract Department. He was a man much esteemed by all who came in contact with him.

## DEVELOPMENT STUDIES AND BLOCK CANVASSING.

By J. L. MAGRATH, *Edinburgh.*

MR. TAYLOR'S and Mr. Elliott's articles in the February issue are of particular importance, and it is an interesting coincidence—if it be coincidence and not design on the part of the Editors—that, dealing as they do with kindred matters, they should appear simultaneously. The ideas detailed are, generally speaking, so much in accord with plans in operation here that my comments may be permitted without much question or explanation.

In January, 1908, a serious attempt was made in Edinburgh to estimate the probable development up to the end of the license. It was a big job, and it used up the services of the majority of the contract office staff for some five weeks. The initial method adopted was the supply by the engineer of a series of blue prints covering the entire territory to be surveyed, these having plotted on them the position of each distributing pole, and the area served by it. Large areas were divided into zones as follows:—"A," up to 150 yards distance; "B," from 150 yards to 260 yards; "C," from 260 yards to 390 yards; and "D," over 390 yards. This, however, is I conceive, not essential in every case, and was adopted on the occasion referred to under a scheme devised in the Engineer-in-Chief's office for estimating distributing costs.

The men detailed for the work were supplied with the prints, and a systematic survey of each area, and a rigidly accurate count of all premises within that area—except those obviously hopeless—were demanded. In residential districts the size and probable rent of the houses were taken into consideration, and all over, each man was instructed to supply the fullest information obtainable in respect of his area—the quality of the locality, the business position of the people, their attitude towards telephone service, probable building extensions, possible special installations, and so on.

Having got the figures, we subdivided them into actual subscribers, and from the remainder made a careful and reasoned attempt to estimate the probable increase. The percentage taken varied, of course, in accordance with the quality of the locality under review. The past rate of increase in certain areas was considered, but in most cases this proved of little value in estimating future development. The figures were interesting, and formed a sort of tool with which to work; but they could not be taken as a guide, and any attempt to treat them as such was speedily abandoned. Mr. Taylor is, I think, absolutely right in his idea that an actual survey is essential, and the more studies are undertaken the clearer, I believe, will this point be demonstrated.

After this lapse of time my reflections on the work done then may be summed up very briefly. Firstly, we did not get sufficient time. A survey, even of one area, should be considered and re-considered and again considered; and I submit that months instead of weeks should be devoted to the question of the possible development in a big city. The aim was rather to be conservative than over-sanguine, and here and there accordingly we have had to revise our figures. Secondly, removals have on occasions and in some areas upset former calculations. The transfer of a subscriber from one area to another is something impossible to forecast; where a migration occurs in large numbers to one area it may play the dickens with your figures. A modern block of offices, of which there is no indication at the time of the survey, is erected. People in other areas tumble over one another in their eagerness to obtain tenancy; there is a boom, and the place fills up in no time. Your figures may have been absolutely correct under the old conditions, but in circumstances such as these—with practically everybody already a subscriber—the necessity for a speedy re-survey is very obvious. This is something, I think, which is likely to happen everywhere; but it may appear more formidable in Scotland, where all removals practically take place at the one time.

Another point for which allowance has to be made is the gradual and increasing conversion of party line subscribers into direct line subscribers. With the withdrawal of the two-party flat rate and the ten-party rate, there is bound to be an increase in the number of direct lines; and it is not now sufficient simply to plot out existing subscribers, many of whom, in a given area, may be on

party lines. It is necessary to take into account the probability of these being converted into direct lines, and to make the estimate accordingly.

Like Mr. Taylor, I have taken a considerable interest in this fascinating subject. It is a side of our business of extreme value, not only to the engineers, but also to the contract staff. Properly applied and followed up, it ought to be an invaluable guide to the getting of new business in areas which can be readily supplied with service. This being so, the question of block canvassing is naturally entered upon. In Edinburgh we are now working on lines somewhat similar to those detailed by Mr. Elliott. An ordinance survey map is divided into canvassing districts; "A," "B," "C," and so on. These in turn are subdivided into blocks, which actually represent the engineers' distributing areas, and are numbered accordingly. Regular advice is received from the engineer's office as to the state of the plant in each area, and this is represented on the map by coloured pins. Thus, black pins indicate that the area concerned is "full up"; white pins signify relieved areas; blue pins indicate areas where the capacity is limited to, say, half a dozen circuits, and where, consequently, it is necessary to exercise care in taking orders. Areas unpinned are clear, and the engineers' advice keeps us informed as to how these are encroached upon.

For canvassing purposes, the cards, both "new business" and "unsuccessful interview," are filed in accordance with the distributing areas. Each area will be subdivided into streets, and a card will be written for each occupant of premises—with due regard, of course, to the possibilities and surroundings. It is anticipated that every possible subscriber will thus in time be noted, and that we will have a complete list of actual and possible subscribers street by street; the "new business" cards giving us the former, and the other cards the latter. Removals will be keenly watched, and transfers from one area to another noted and recorded. To get such a system of recording into full operation takes, naturally, some time, more especially as it is not desirable to keep outside men indoors on clerical work; but it is believed to be worth doing. With Mr. Elliott's claim for the advantages of systematised work no contract man, I think, can disagree.

To keep the canvass in accord with the survey figures is now our aim, and from time to time we are advised as to the number of circuits working at each distributing pole, from which it is an easy matter to arrive at the number still wanted. Mr. Taylor has, however, struck an obvious point in mentioning the possibility of additional men being required. This may not be so requisite in districts where no development study has been made, but in surveyed centres it appears to me to be a necessary condition if the estimated figures are to be arrived at. Even where an increase of staff may be dispensed with, it seems obvious that, as the better areas are filled up and the second and third-rate ones tackled, the rate of growth will slow down. From which it may be reckoned that, in the concluding period of the license, the development will lessen and the expenses increase, the desired standard of cost in proportion to revenue will go by the board, and the monthly comparative statements from Head Office be of little beyond academic value.

Mr. Taylor's emphasising of the necessity of putting down the plant within a reasonable period after the survey, touches upon another essential condition. You make a study of a given area, reckoning generally the time at your disposal from the date at which you make the study. If the scheme be delayed and haggled over, and postponed indefinitely, the chances are against your figures being reached.

The whole subject of development studies and relative canvassing is one of surpassing importance, and I make no apology for this lengthy contribution to it. Its value is bound to be more clearly recognised every day, and a stimulated and expressed interest throughout the country ought to be of considerable benefit to all of us.

### THE NATIONAL TELEPHONE STAFF BOLTON DISTRICT BENEVOLENT SOCIETY.

THE SOCIETY was formed in September, 1908, and the good work carried out is fully appreciated by all its members. Since the inauguration sixteen grants to the value of £20 9s. have been made to the members and donations totalling to £9 9s. to the various infirmaries in the Bolton district. The total number of members is 148, which represents 84 per cent. of the total staff employed in the district.

# The National Telephone Journal.

"BY THE STAFF FOR THE STAFF."

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[No. 49.]

## THE SETTLING DOWN OF THE MEASURED RATE.

OVER three years have now elapsed since the measured rates were introduced into this country, and the general popularity which they have earned has justified the policy of the Company up to the hilt. The measured rate is so essentially and inherently fair in principle that, although in matters of detail, the present rates might be amenable to some slight re-adjustment, any opposition which it has met has been easily encountered and overcome. The chief objection to the new rates was made by the Chambers of Commerce representing the views of the large user, whose objections were not founded on principle, but were rather of a special and personal character. The large user, who pays a stated sum a year, for which he can make an unlimited number of calls is, in fact, in the position of a man who has made an uncommonly good bargain, and who is enjoying a privilege of which he does not wish to be deprived. His arguments against the new rate, therefore, were of an interested nature, and did not bear close criticism. What arguments could be successfully employed against a rate under which a man pays only for the amount of telephone service he requires? Under this system of charging he can bargain in advance for a large or small number of calls according to the length of his purse and the nature of his business, and if he underestimates he can always make additions, while if he overestimates he is not penalised—moreover, is not asked to pay a rate which has been averaged out to cover the need of the busy man whose telephone is in use all day, as is the unlimited service subscriber.

On the other hand, the new rates have a feature which appeals strongly to the really large user who desires to be up to date and have the telephone everywhere; for the private branch exchange provides for hiring additional telephones and additional lines at a very low rate, and large blocks of calls can be purchased thereunder

at a figure decreasing in rate as the block increases in size. Under such a tariff the progressive merchant's ideal of a telephone on every desk can be realised. Numerous subscribers have adopted this rate of their own choice, and have never regretted it.

The measured rate, therefore, has found general favour; it has imperceptibly settled down as the Company's standard rate without strife or friction. The principle of leaving undisturbed the existing agreements of the subscribers—which the Company maintained throughout the introduction of the charge—silenced the fears and opposition of the large users; and most other objections were of a flimsy character and easily disposed of. If evidence were required of the popularity of this rate it would be supplied by the steady flow of orders which have come in during the period of its ascendancy, and there is no doubt that many now enjoy the benefits of the service who never entertained the idea of it before.

Whilst on the subject of the measured rate we take the opportunity of returning for a moment to the question of the frivolous call, to which the *Zeitschrift für Schwachstromtechnik* again reverts in its February issue (No. 3). We are reluctant to continue the discussion, and shall not refer to it again; but when we are told that if a frivolous call is that for which a subscriber does not pay, then, as there are no unpaid-for calls either in Germany or England, the frivolous call does not exist, we can only say that we thought it unnecessary in our February article to state explicitly "pay extra" instead of "pay." Of course, the subscriber pays his annual rate, as he pays his water rate; and viewed in the same light every cup of cold water given to the thirsty undoubtedly costs the giver something. If a subscriber may make 10,000 or 100,000 or any number of calls for a certain sum a year, it is quite obvious that whatever number of calls a year he makes he is paying a certain fraction of a penny each for them. But whether he pays a tenth or a hundredth of a penny per call he pays the same annual charge for the whole; and for every call above the number made on occasions of business and social necessity, and for every call made by his clerks, his typists, his office boys, his family, his friends, his man-servant and his maid-servant, he pays no more. Experience has shown very clearly that if he paid so much per call he would take good care that these supernumerary calls were not made. These we call "frivolous" calls. But need we labour the point? We think our German contemporary understands our meaning very well.

## CERTAIN TELEPHONE CRITICS.

AMONGST those who, according to Sir W. S. GILBERT, "never would be missed," was

The idiot who praises in enthusiastic tone

All centuries but this and every country but his own.

The telephone critic is a shining example of this genus, except that he seldom praises the telephone in any age or country. He occasionally, however, makes an exception in favour of America, whilst another sub-genus owns to a preference for Sweden or Switzerland, for not very recondite reasons.

The New York system, to the excellence of which we have often testified, has received another compliment of a kind to which it must by now be pretty well accustomed. We are informed that six officials of the Parisian telephone service are going to the

American city for a thorough practical training in telephone methods. The representatives of more perfect telephone systems than that of Paris have in the past learnt much from New York, and there should be no doubt that the present visits will produce the happiest results.

But now the telephone critic comes in. The humorous artist of a large Boston daily paper depicts the visit of the Paris telephone students. Without troubling to ascertain the rank of the students, he imagines them to be operators instead of engineers. Accordingly, the visitors are represented as three extravagantly befrocked and be-hatted young ladies for whom the gifted artist has evidently drawn on his memories of American-French farces. They watch curiously a somewhat fluffy and frivolous-looking damsel who reads a novelette at the switchboard and refreshes herself from a box conspicuously labelled "candy." Underneath is the legend: "They came over for a few pointers!"

This, then, is the popular criticism of what is perhaps the best telephone service in the world. We do not mean by this that it is the verdict of the business men and *habitués* of the telephone in New York and other large American cities; far from it, they have shown themselves large-minded and enterprising in matters connected with the service. What we do mean is that, however good a service may be, there is always a large section of the public who have not got beyond the novel-and-sweetmeat stage in their conception of telephone operating, and that they will always find a humourist in the press to voice their sentiments. Operating may be perfected to the last degree of human excellence, supervision increased, mechanical and automatic devices multiplied to the obviation of all imaginable troubles, but at the first slight delay or difficulty, the unpractised and casual telephone users' imagination flies back to the independent, unsupervised young lady with the novelette and bag of sweets. New Yorkers, Bostonians, Londoners, Berliners or Parisians—they are all the same.

### THE TELEPHONE MASONIC LODGE.

By special dispensation the regular meeting of the members was held at the Gaiety Restaurant on Feb. 26 instead of Feb. 19. Bro. P. P. Kipping, W.M., occupied the chair, and was ably supported by the following officers:—Bros. Stanley J. Goddard, S.W.; F. A. B. Lord, J.W.; F. O. Harke, L.R., I.P.M.; C. E. Tattersall, treasurer; P. Kenny, secretary; A. F. Paddon, S.D.; W. M. France, J.D.; W. J. Downes, A.D.C.; J. E. Pullin, I.G.; V. Baldwin, organist; F. E. Sims, R. H. Kenway and J. R. Gall, stewards. Bros. A. L. De Lattre, T. E. Devonshire and F. Addey were advanced to M.M.'s, and Bros. Alfred Rawlinson (N.T.Co.), W. H. Matthews (G.P.O.) and Bernard M. Brown (G.P.O.) were initiated into the mysteries of the Order. The Senior Warden, Bro. Stanley J. Goddard, was unanimously elected Worshipful Master of the lodge for the ensuing year, and Bro. C. E. Tattersall the treasurer. The following brethren were elected to serve on the G.P.C.:—W. M. France, J. M. Shackleton and A. L. De Lattre.

Amongst the visiting brethren who subsequently dined with the members of the lodge were W. Bro. R. Percy Simpson, P.D.G.D.C., secretary Royal Masonic Institution for Girls; Bros. A. M. Barnard, L.R.; W. S. Wilson, P.M.; W. N. Rodger, and S. Cole. In responding to the toast of the "Grand Officers," Bro. Simpson made a strong appeal on behalf of the three great Masonic Charitable Institutions, and in particular urged the brethren to support Bro. Kipping's list as he was representing the lodge at the festival of the R.M.I. for Girls on April 6, when H.G. the Duke of Devonshire will occupy the chair. Bro. Kipping subsequently announced that the donations placed on his list that evening amounted to £160, and he expressed the hope that it would reach £200 before the date of the festival, so that the Telephone Lodge might early take its place as a generous supporter of the masonic charities. An excellent musical programme was arranged by Bro. Baldwin, the organist to the lodge.

Bro. Stanley J. Goddard, the Worshipful Master Elect, will be installed in the Chair on Saturday, May 28.

### HIC ET UBIQUE.

THE annual meeting of officers is fixed for Friday, May 27. The subject for discussion has not yet been made known, but it will turn on practical politics and economics. The sixteenth annual staff dinner will take place at the Empress Rooms of the Trocadero Restaurant on the evening of the same day.

CONSTANT users of the telephone, says the *Liverpool Courier*, have some funny experiences at times. As often as not these arise out of the mistakes of the operators in calling up the wrong numbers, a class of error that is all too frequent. A subscriber wishing to speak the other day to a friend asked for a certain number. Instead of being put on to say "oooo Central" he was switched on to "oooo Royal." In order to guard against the occurrence of any such mistake he took the precaution to inquire, "Is that So and So's brewery?" Evidently there was a thirsty soul at the other end of the wire, for the reply came back in a regretful sort of voice, "No, I wish it were."

M.A.P. has a story of a girl who travelled from San Francisco to New York to hear Tetrizzini sing, but being taken ill in the latter city was unable to go to the opera to hear the prima donna, whose acquaintance she had already made.

She rang up Tetrizzini on the telephone and poured her tale of woe into the singer's ears.

"Well, my dear," answered Tetrizzini, "if you can't come to hear me at the opera you shall hear me sing now. I have an accompanist with me, and if you listen I will sing the 'Mad Scene' from *Lucia* for you."

The girl was delighted. So was the telephone operator who happened to have heard the latter part of the conversation. She notified all the exchanges that were not engaged, and in a few seconds the prima donna had an unseen audience of some hundred or more appreciative telephone operators waiting at telephones all over the town to hear the difficult music sung by its greatest living exponent. It was twenty minutes before the excerpt was finished, and during that time there were more wires "engaged" than ever remembered in the history of the New York telephone.

When the last note died away Tetrizzini took up the receiver and was astounded to hear a chorus of "Brava!"

It is all very pretty; "the unseen audience," the "greatest living exponent" and the history-making number of engaged wires! The latter part of the story especially will afford huge amusement to telephone men. Apart from the inherent absurdity of hundreds of operators in New York being independent and unsupervised for a period of twenty minutes, of the unthinkable neglect of business entailed, of the calm sweeping aside of all physical and practical details which would spoil this delightful arrangement, the transmission difficulties alone of only 100 operators plugging on to a single line would reduce the speaking capacity of the line almost below commercial possibility and we fear the sick girl would hear little of Mme. Tetrizzini unless her sickness had preternaturally sharpened her hearing.

Half a minute's delay in answering by an operator is considered bad; but our paragraphist boldly indulges in twenty! We do not think it was necessary to strain our belief so far even in the interests of journalistic effect.

### CORRECTIONS.

**Telephone Men (Mr. Cowley).**—It is regretted that on p. 243 the date of the formation of the South of England Telephone Company was omitted. It was 1885.

**Power Supply at Small Exchanges.**—By a printer's error D.C. (p. 246) in Mr. Wood's article was transposed to "dry core" and S.C. (p. 247) to "short circuit." They should stand, of course, for "double cord" and "single cord" respectively.

### POST OFFICE INSTITUTE OF ELECTRICAL ENGINEERS.

THE following further papers read before the above institution are now obtainable at the prices mentioned:—

"The Theory and Development of Central Battery Telegraph Systems." J. Fraser .. .. .	9d.
"The Education of the Post Office Electrical Engineer." A. W. HEAVISIDE .. .. .	6d.
"Aerial Wire Construction, with special reference to the Elastic Properties of Copper Wire." G. Carr, M.I.E.E. .. .. .	6d.

Application for copies of these should be made with remittance to the Engineer-in-Chief, Head Office.



## THE MAGNETISATION OF IRON.

ABRIDGED FOR THE USE OF JUNIOR MEMBERS OF THE STAFF  
BY G. H. C., Nottingham.

If you take a centimetre length of a conductor or wire carrying an "absolute unit" of current, 10 amperes, and bend it into an arc of 1 centimetre radius, a force of 1 dyne is exerted by that current on a magnetic unit pole placed at the centre. A magnetic unit pole is one such that when placed at a distance of 1 centimetre from a similar pole it attracts or repels this pole with a force of 1 dyne.

The ends of the poles should be far enough removed so that they do not affect the magnets under test, or you would get an entirely different effect. One dyne is equal to  $\frac{1}{444400}$  part of a lb., or, in another way, 1 dyne nearly equals 1.02 milligrammes.

Now, the unit pole creates unit magnetic field all round it, at a distance of 1 centimetre, and as the conductor is bent into an arc of 1 cm. radius, all parts of it must be standing in unit magnetic field, which is equal to 1 line per square centimetre.

Now, remember that the unit current carrying conductor will experience the force of 1 dyne as well as the unit pole, and if the pole be fixed and the conductor free to move, it will move.

If a pole of 2 units strength be placed in the centre, it will create 2 lines per sq. cm. at unit distance, 1 centimetre, and the force naturally on the current carrying conductor will be doubled. Similarly if the current be doubled in the conductor, the force acting on it will also be doubled. This is irrespective of what strength the field is in which the conductor is placed.

Now, it is quite evident that if we take another centimetre length of conductor carrying the same current and place it in the same strength field, that it, too, will experience the same force.

It follows, therefore, that the force in dynes acting on a conductor carrying a current in a magnetic field is equal to—

1st. The strength of the field in lines per sq. cm.

2nd. The strength of the current in absolute units.

3rd. The length of the conductor in centimetres.

Or symbolically  $F = H C l$

where H = strength of field.

C = absolute units of current.

l = length of conductor in cms.

Suppose you have a unit magnetic field (1 line per sq. cm.), and in this field you place a conductor carrying absolute unit current, then this conductor experiences a force of 1 dyne.

Now move this conductor 1 centimetre against this force, and what do you do? You do 1 erg of work, but in so doing you cut through 1 line of force. It takes 13,545,000 ergs of work to do 1 ft. lb.

If you increase your field to any other number of lines per sq. cm, then the force on the conductor will be increased in the same proportion, with corresponding increases in the work done in moving the conductor 1 cm. in the field. When work is done by a current a back E.M.F. is produced.

Now work done in ergs =  $Q E$

where Q = quantity of electricity and

E = E.M.F.

$$\therefore E = \frac{\text{work done}}{Q}$$

With the intensity of the field or the lines of force in the field at unity, then the work done in moving the conductor through 1 cm. of the field, and so cutting through one line of force, is 1 erg, and the E.M.F. developed in the conductor

$$\therefore E = \frac{\text{work done}}{Q} = \frac{1}{1} = 1 \text{ absolute unit.}$$

If we take two seconds in moving the conductor through the centimetre length of unit field, the work done will still be the same, 1 erg, for work done is independent of the time taken, but we shall have acted on 2 units of quantity, for evidently if the current remains of the same strength then twice the quantity of electricity passes in 2 seconds as does in 1 second.

$$\therefore E = \frac{\text{work done}}{Q} = \frac{1}{2}$$

or the E.M.F. is then only  $\frac{1}{2}$  its former value. Again, suppose we do the same in  $\frac{1}{2}$ -second, then work done = 1 erg and Q acted on =  $\frac{1}{2}$ .

$$\therefore E = \frac{\text{work done}}{Q} = \frac{1}{\frac{1}{2}} = 2 \text{ absolute units.}$$

100,000,000 of these units equal 1 volt or 1 volt =  $10^8$  C.G.S. units.

This shows that when conductors cut through lines of force, an E.M.F. is generated in them, independent of the current flowing.

This E.M.F. is proportional to the rate of cutting, or in symbols

$$E = \frac{N T}{t}$$

where N = total lines cut.

T = total number of turns cutting N lines.

t = time in seconds taken in cutting.

Before you can calculate this field you have to consider two other points, viz., the magneto-motive-force and the magnetic resistance or reluctance as it is called.

$$\text{Now } C = \frac{\text{E.M.F.}}{\text{elec. resist.}}$$

similarly the magnetic effect produced or the total lines of force

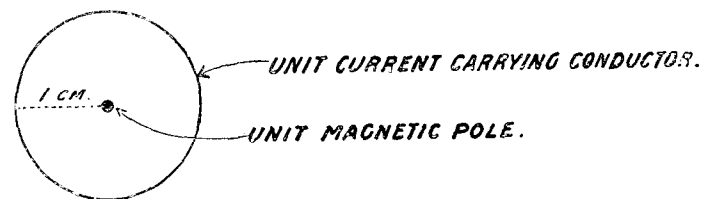
$$= \frac{\text{magneto-motive-force}}{\text{magnetic reluctance}}$$

What, then, is the unit of magneto-motive-force (m.m.f.), and how is it measured? This is measured in a similar way to the unit of current in the case of electricity, by measuring the work done in urging a unit quantity of magnetism round the magnetic circuit.

Now take a solenoid, such as all the students of the Correspondence Classes are familiar with, having number of turns, T, carrying C, a current in absolute units. What work will be done electrically in urging or sending unit quantity of magnetism round this circuit?

Unit quantity of magnetism or unit pole has  $4\pi$  lines of force.

The  $4\pi$  is drawn from the surface of a sphere. Referring back to the unit pole in a unit magnetic field, you can imagine it diagrammatically thus:—



The surface of this sphere =  $4\pi (\text{radius})^2$ , and as the radius is unity the surface is  $4\pi$ , which will be the total lines produced by such a unit pole.

As before stated,  $E = \frac{N T}{t}$ , and substituting for N, the total

lines cut,  $4\pi$ , and they cut through T turns of the solenoid in

t seconds, the E.M.F. developed =  $\frac{4\pi T}{t}$  absolute units.

The quantity of electricity acted upon in this time = strength of current  $\times$  time in seconds, or  $Q = C t$  coulombs.

Now by combining the last two equations you obtain

$$Q E = (C \times t) \times \frac{4\pi T}{t}$$

$$= C \times 4\pi \times T$$

So you see that the time taken does not influence the work done. Therefore the work done in urging unit pole or unit quantity of magnetism round the magnetic circuit is equal to  $4\pi C T$  ergs.

Whence the m.m.f. =  $4\pi C T$

and as we always measure our current in amperes,

$$\begin{aligned} \text{the m.m.f.} &= \frac{4\pi C T}{10} \\ &= 1.2567 \text{ ampere turns.} \end{aligned}$$

The next quantity to deal with is the magnetic reluctance, or resistance if you like to call it so, but you must remember that it is preferable to use the word "reluctance" as resistance is usually the quantity representing the waste of energy and there is nothing of the kind in this case. This reluctance can also be measured in a similar manner to resistance in the electrical case.

$$\begin{aligned} R &= \frac{\text{length}}{\text{sec. area}} \times \text{specific resistance} \\ \text{or } R &= \frac{\text{length}}{\text{sec. area}} \times \frac{l}{\text{specific conductivity}} \end{aligned}$$

The magnetic reluctance is also proportional in exactly the same way, to the length of the magnetic circuit, inversely to the sectional area, and inversely proportional again to the specific conductivity of the material to be magnetised, or as it is more commonly known, the permeability of the material.

$$\begin{aligned} \therefore \text{the magnetic reluctance} &= \frac{\text{length}}{\text{sec. area}} \times \frac{l}{\text{permeability}} \\ &= \frac{\text{length}}{\text{sec. area}} \times \frac{l}{\mu} \end{aligned}$$

The permeability, or co-efficient of induction, is designated by the Greek letter  $\mu$ .

The permeability in magnetic circuits can be looked upon as similar to the conductivity in electric circuits and can be understood to mean the conductivity of the material for magnetic lines of force,  $\mu$  varying with the nature of the material and also with the magnetising force.

Now, you see, you can at once write

$$\begin{aligned} \text{Magnetic effect produced or total lines} &= \frac{\text{m.m.f.}}{\text{reluctance}} \\ &= \frac{1.2567 \text{ amp. turns}}{\frac{\text{length}}{\text{s.a.}} \times \frac{l}{\mu}} \end{aligned}$$

or by symbolising the total lines by the letter N.

$$\begin{aligned} N &= \frac{1.2567 \text{ amp. turns}}{\frac{\text{length}}{\text{s.a.}} \times \frac{l}{\mu}} \\ &= \frac{1.2567 A t \times \text{s.a.} \times \mu}{\text{length}} \end{aligned}$$

The length must always be expressed in centimetres.

The permeability of air is taken as unity, and all other substances are compared with it. So that when you are dealing with air only, the above equation becomes

$$N = \frac{1.2567 A t \times \text{s.a.} \times 1}{\text{length}}$$

which is the same as saying

$$\text{Total lines} = 1.2567 A t \text{ per cm. length} \times \text{s.a.}$$

But what you more often want is to get a certain magnetic density rather than the total lines, and this density must be confined to a certain space, or, in other words, you want a certain density of the lines of force in a given sectional area, and the density or lines

$$\text{per sq. cm.} = \frac{\text{total lines}}{\text{s.a.}}$$

$$\therefore \text{in the case of air, called } H = \frac{N}{\text{s.a.}}$$

The letter "H" is used to distinguish it from "N," the total lines.

$$\begin{aligned} \text{Or } H &= \frac{1.2567 A t \text{ per cm.} \times \text{s.a.}}{\text{s.a.}} \\ &= 1.2567 A t \text{ per cm.} \end{aligned}$$

You must be careful to follow out the formulae of how one fits another or it is impossible to make it clear.

You will thus see that, H, the density of the lines of force per sq. cm. is not dependent on the sectional area of the coil, but simply on the strength of the current  $\times$  the turns, for it follows that if the section is large and the same magneto-motive-force is maintained we shall get the same density as with a small sectional area, and the only difference you will obtain is a larger total number of lines in the former than in the latter.

So far I have only dealt with the magnetisation of air. If you fill the space in the solenoid with a non-magnetic material such as wood, glass, etc., in fact, any other material with the exception of iron or steel, the lines of force will pass through the former non-magnetic materials just the same as they did through the air, and you will thus see that as they offer no reluctance to the passage of the lines of force, they are said to be equal to that of air, so you can at once consider any material except iron or steel as if you were magnetising the same length and sectional area of air.

I will now turn to the magnetisation of iron, confining myself to the one metal to keep the explanations as simple as possible. Take our solenoid again and into the centre place a piece of wrought iron so that it fills the space. Now for a moment just refer to the formula relating to the strength of the field in air, viz. :—

$$H = 1.2567 A t \text{ per cm.}$$

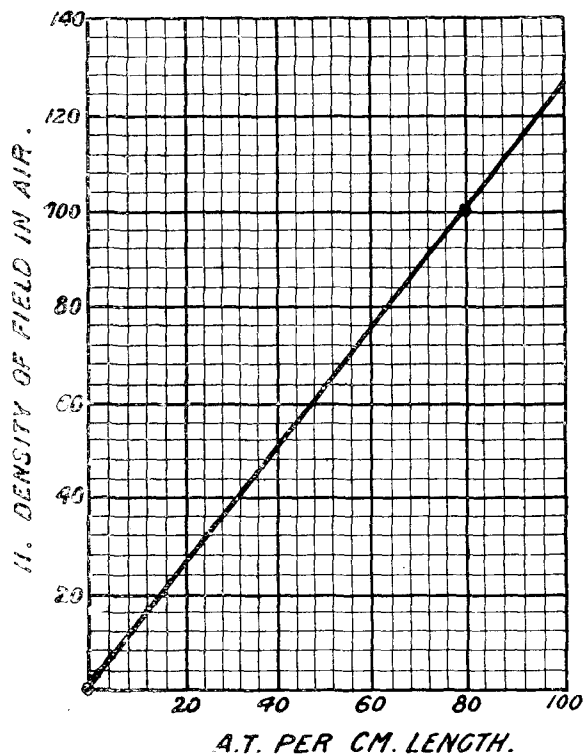
or to make the next explanation more simple

$$H = 1.25 A t \text{ per cm.}$$

from which by transposing you obtain

$$\begin{aligned} A t \text{ per cm.} &= \frac{H}{1.25} \\ &= .8 H \end{aligned}$$

which is to say that the number of ampere turns per cm. length are always .8 times the strength of the field. Now for air this holds good whatever the intensity of the field may be and you could easily plot a curve showing the A t per cm. length horizontally and H, the density of the field in air, vertically. Such a curve will give you a straight line thus :—



$\therefore$  if you desired to produce a field of intensity of 100 for each sq. cm., then you would have to provide 80 turns of wire for every cm. length of the coil. This intensity is independent of the number of sq. cms. you enclose by the turns, so that it does not matter what sectional area your coil is.

Now with the iron core in the solenoid and the A t per centimetre length = 80, what would you expect the lines per sq. cm. to

be? They would be something like seventeen times 100 or 17,000! It is supposed that when the iron is placed in the coil the lines of force are able to crowd together, and the iron has reduced the magnetic reluctance considerably. You could easily consider it thus, one material, air, has been replaced by another material, iron, the former having a very much higher reluctance than the latter, and you are thus able by retaining the same magnetising force to obtain a very much larger increase in the magnetisation.

Or consider it again, electrically, you have replaced the high resistance with a low resistance and retained the same voltage which will give you an increased current.

This magnetisation of the iron or, as it is often called, the magnetic induction, is symbolised by the letter "B."

Now you come to the last quantity—permeability. In the electrical world we only deal with practically four different materials, viz., air, wrought iron, cast iron and steel. I will still confine myself to the one, wrought iron.

When you experiment with a piece of iron by increasing the magneto-motive-force in small quantities and measure the intensity of the field produced at each increase, you will not get a straight line as when taking the solenoid with air in the centre. For a very small magneto-motive-force the intensity of the field is nearly proportional. This can easily be traced out from the curve given in "A" or "B" Courses, but at a certain point a small increase of m.m.f. results in a large increase of magnetic induction, until we come to a certain point when the rate at which the magnetic induction increases begins to diminish, although still increasing, and as you further increase the m.m.f., you reach a point where the magnetic reluctance is increased to an enormous extent.

This is called the saturation point, although you must remember that you can go on increasing the m.m.f., and you may increase the magnetic induction. There is no limit to this, but, commercially speaking, you get the best results at saturation point of the material you are using.

Nothing is gained by trying to go beyond this point.

With good iron this point is reached when the intensity of the field comes to about 16,000 lines per sq. cm., and this would be produced by a magnetising force of 47 A t per cm. length.

Now, just for comparison, what intensity or H would be produced in air for 47 A t per cm. length?

$$\begin{aligned} H &= 1.2567 \text{ A } t \text{ per cm. length} \\ &= 1.2567 \times 47 \\ &= 59 \text{ (approx.) lines per sq. cm.} \end{aligned}$$

Therefore, you see that the iron increases the intensity of the field 272 times ( $\frac{16000}{59}$ ), and the iron is said to have a permeability 272 times greater than air, or if

$$\begin{aligned} \mu \text{ of air} &= 1 \\ \mu \text{ of iron} &= 272 \text{ at that degree of magnetisation.} \end{aligned}$$

Now, you see, that in this latter instance the degree of magnetisation increases the intensity of the field enormously, and such increase of lines is designated by the letter B. You must not confuse these two letters, B and H, because you will at once notice that if  $B = H$ , as it does in the case for air—where  $\mu$ , the permeability or multiplying effect, is unity—B would stand for the intensity of the field just as well as H. They are, in this respect, numerically equal, and, although identical, they are still not the same thing. You want to look upon B more as the effect produced by the magnetising force, and as H represents the magnetising force necessary to produce a certain density of lines in air, B is the density of lines produced in the iron when the same magnetising force, H, is employed. By keeping H constant, and using different classes of iron or steel, or, in fact, any magnetic material, B, the flux density, would vary according to the permeability.

Therefore  $\mu$  depends upon the quality of the iron or material and upon the degree of magnetisation.

And, to sum up, the total number of lines which you could obtain from iron depend on the length, the sectional area, the permeability of the iron and the magnetising force.

If you refer back to the equation for the total number of lines when dealing with air you will find:—

$$N = \frac{1.2567 \text{ A } t \times \text{s.a.}}{\text{length}}$$

$$\therefore N \text{ for iron} = \frac{1.2567 \text{ A } t \times \text{s.a.} \times \mu}{\text{length}}$$

Similarly as H (for air) = 1.2567 A t per cm. length  
the total lines N (for air) = H × s.a.

whence the magnetic pressure or induction, H, for air =  $\frac{N}{\text{s.a.}}$

Again as B (for iron) = 1.2567 A t per cm. length ×  $\mu$   
the total lines N (for iron) = B × s.a.

and the magnetic pressure or induction, B, for iron =  $\frac{N}{\text{s.a.}}$

So you see that it follows that as

$$H = \frac{N}{\text{s.a.}}$$

$$\text{and } B = \frac{N}{\text{s.a.}}$$

and they both indicate the same thing, and are apparently equal to the same equation, but with this little exception that B includes the permeability,  $\mu$ , that

$$B = H \times \mu$$

$$\text{whence } H = \frac{B}{\mu}$$

$$\text{and } \mu = \frac{B}{H}$$

CORRESPONDENCE.

EARTHING OF TELEPHONE BATTERIES.

TO THE EDITOR OF THE NATIONAL TELEPHONE JOURNAL.

TELEPHONE men of the present day regard the earthing of the positive pole of the main battery as standard practice, and, as a general rule, do not enquire why the positive, and not the negative, pole should be earthed, as is generally the case in electric tramway and railway systems.

The writer has searched both English and American text books and periodicals to ascertain the real reason, but so far without success.

Perhaps there are other readers of the JOURNAL interested in this question who will be kind enough to explain and give any references they possess to articles on this subject, if there be such.

Manchester, March 16.

J. P. GARNER.

SUBSCRIBERS' APPARATUS CARDS.

TO THE EDITOR OF THE NATIONAL TELEPHONE JOURNAL.

WITH reference to the cards which are kept in the test-room, it becomes evident daily that their value is an increasing factor, and it therefore becomes necessary that their correctness and reliability should be unquestioned, especially in those districts where perhaps one or two changes of system have taken place and the rental registers are unreliable; notably in the case of where magneto systems have been changed to C.B. systems. This trouble was recently appreciated in our district, and for that purpose a very careful check was taken

Telephone No.	Class of service.	No. of instrms.	Types of instruments.										Sundries.										
			L. I. 1.	L. T. 7.	L. T. 9.	L. T. 10.	L. W. 1.	L. W. 7.	L. W. 8.	L. W. 13.	L. W. D.	Size.		Swbds.	Switchs.	Mag. exten. bells.	Trembling ditto.	Pushes.	Specul. aux. app.	S. L. No. auto boxes	Inst protectors.		

between the subscriber's actual apparatus and the records as shown on the fault cards. For this purpose visiting inspectors were supplied with forms, copy of which I enclose, and as each subscriber's apparatus was visited, a note was taken of what actually existed. This work was also helped along by the fact that the fault inspectors also carried forms, and when clearing faults obtained similar information. By this means the fault cards were corrected where necessary. The information proved of very great value, as it ensured the accuracy of the record shown on the fault cards.

Nottingham, March 17.

P. R. COCKREM.

THE PUBLIC CALL OFFICE.

TO THE EDITOR OF THE NATIONAL TELEPHONE JOURNAL.

WITH reference to "A. K. M.'s" letter in the February issue, the division of Glasgow's National call office stations into one for every 760 inhabitants was based on the population of 760,000 at the last census.

Owing to the constant exodus from the city it is generally understood that the population has remained almost stationary since, and these figures were taken on that assumption. The increase in reality is small. The number estimated a few months ago by Dr. Chalmers, the city's medical officer of health, was 800,410.

The number of call offices outside the municipal boundary are relatively small and were left out of reckoning.

As regards the estimate of one call office for every 500 inhabitants when the Post Office (late Corporation) stations were added, I should explain that the article criticised, although published in the December 1909 JOURNAL, was an abridged report of an essay read over a year before that date to the Glasgow Telephone Society and if "A. K. M." will take the directory for that period he will find the estimate not very far out.

Hull's call office development is admittedly good but the comparison I had in mind which gave rise to the assertion of Glasgow's supremacy was amongst the large cities of over 500,000 inhabitants, a comparison in which Glasgow appeared to be easily first.

Glasgow.

J. M. STEWART.

RE DEVELOPMENT STUDY.

TO THE EDITOR OF THE NATIONAL TELEPHONE JOURNAL.

WITH reference to Mr. W. F. Taylor's interesting article on the above subject in the February number of the JOURNAL, I agree with him that it is impossible to lay down any definite ruling as to the plant to be provided economically for any scheme until a study has been made.

I am rather surprised to read that the engineer is apt to arrange the position of possible subscribers where the existing subscribers cluster most thickly. Mr. Taylor cannot be expressing his opinion of the modern engineer.

The development card in use in London does not, to my mind, meet all the requirements from a contract manager's point of view; and from an engineer's point of view it is very deficient. Below is given a copy of the development card which has been brought into use some time since in Bristol, and has proved to be indispensable. Every month a list of the spares available in each distributing pole is taken from these cards and forwarded to the contract manager, who has also found the cards invaluable when making development studies.

B.—CABLE-HEAD CODE.

Working circuits as at 1/1/09	..	..	..	..	15
Number of circuits asked for by contract manager from 1/1/09 to 31/12/1911	..	..	..	..	15
Spare circuits as at 1/1/09	..	..	..	..	10
Number of circuits provided and date 25/3/09	..	..	..	..	8

"Additions" in "roman." "Cessations" in "italic."

W.O. number.	Date used or made spare.	Name.	Address.	Code.	No. of circuits available.
2,232	Jan. 26/09	H. W. Hawkins	Montrose Avenue, Clifton	Rm	9
2,287	Feb. 6/09	<i>Bristol Corporation</i>	<i>10, Hampton Park, Clifton</i>	<i>Rm</i>	<i>10</i>
6,151	Feb. 8/09	Brightmans Ltd.	99, Whiteladies Road, Clifton	N	9
6,759	Feb. 20/09	<i>S. Lakeman</i>	<i>"Aberfoyle," Waverly Road</i>	<i>C</i>	<i>10</i>
2,266	Feb. 21/09	Evan Lewis	33, Whiteladies Road, Clifton	T	9
7,041	March 5/09	Bristol Tramways Co.	Clifton Down Station (two-Party to D.M.R.)	Rv	8
8,191	May 10/09	C. B. Bains	Aberdeen Road, Clifton (two-Party Working Singly to D.M.R.)	Rv	16

"C" = ceased, "N" = new lines, Rm = removals, Rv = reversions, T = transfers from or to other areas owing to wayleave difficulties, etc.

The following is a brief description of the Bristol card system. One of these cards is made out for each distributing pole in the centre. At the time when the system is commenced the distributing pole has a certain number of working circuits which is shown on the card. From this time onward any addition to or deletion from these circuits is recorded in black or red ink respectively on the card. Reversions are always shown, even if there is no resultant change in circuits. So that from this card it is possible to tell at any time—(1) Circuits that have been joined up; (2) circuits that have ceased, and the dates when such events occurred; and (3) the growth in any part of the area from the date on which the cards were started.

This third item is particularly useful when, owing to wayleave troubles, heavy routes, &c., it is necessary to provide new underground work, and split up

or alter a distributing pole area, as one can tell more readily the future development of the area in question, so that its sub-division or enlargement is more easily accomplished.

In a case where a scheme has been made out, and provision made up to a certain date (say, Jan. 1, 1912), it is very easy to see from this system how the scheme is working out; and how and where the canvassing part of the business should be conducted.

This system requires very little time to keep up, if done daily. It is flexible, as one can easily renew or extend any card without affecting the rest.

The whole of the information is simple, and in a getatable form (very much better than a cumbersome plan).

Up to the present the system has not been found wanting in any respect, and if anyone has any improvements or additions of value to offer, they will be acceptable.

E. L. PRESTON, Engineer, Bristol Centre.

TOOLS.

TO THE EDITOR OF THE NATIONAL TELEPHONE JOURNAL.

EVERYONE who uses tools would do well to read Mr. H. A. Slack's article on screwdrivers in the current number of the JOURNAL. Mr. Slack tells us that the screwdriver is the most abused tool in the workshop, but I am afraid there is no need for this limitation, as it is probably the most abused tool outside the workshop as well as in it. The writer has seen workmen (not N.T. workmen, of course) whose ideas of the purpose of the slot in the screwhead are on a level with those of the cobbler referred to in the article. A certain electrical instrument maker, when engaging a man, just hands him a screwdriver, and directs him to remove a few screws from a piece of apparatus, and from this apparently simple test he knows whether the applicant is worth engaging, or whether he is likely to do more harm to the apparatus he touches than he is worth.

My motive, however, in referring to Mr. Slack's article is not to enlarge on the importance of the subject, as that is self-evident, but to suggest that its author should increase our indebtedness by contributing a companion article on files, for if this tool does not stand first, it runs the screwdriver a very close second in the way it is misused.

Gerrard Street, March 10.

J. H. STEWART.

STANDARD EXPRESSIONS.

TO THE EDITOR OF THE NATIONAL TELEPHONE JOURNAL.

AT a meeting held last session a paper was read entitled "Number please." Many expressions were suggested in place of this, already in use, but none seemed so suitable. The question has, moreover, been discussed in the NATIONAL TELEPHONE JOURNAL, but in spite of all suggestions to the contrary it still remains, and I think rightly remains, with us, and every day and all day the request "Number please" may be heard. Besides this there are many other expressions now standardised and in use, which I do not think could be improved upon, and there are many alterations which have resulted in a decided improvement. For instance, the instruction that when repeating the number to a subscriber the name of the exchange must precede the number has resulted in the elimination of many errors in ringing local subscribers. We have now been carrying out this instruction for some time, and the subscribers have at last got so accustomed to hearing the operators repeating the exchange first that they do so themselves, and so avoid the drag which often occurred in waiting for the name of the exchange, which used to be given after the number, and was very often entirely omitted, with consequent error.

In connection with some of the other expressions, I should like to suggest some alterations:—

"Sorry, called you in error." Some subscribers find it exceedingly difficult to understand this statement. Would not, "I am sorry, it is a mistake," be more easily understood? I think it would.

"Sorry, I don't know; there is no one on your line now." This with the little word "Amen" appended sounds like a short sermon, and is not nearly so suitable as "I will inquire," or "If I want you I will ring you again." Apart from this, it is unnecessary to tell a subscriber there is no one on his line. If there were, he would speak to him. Besides, the reply is very often not at all suitable.

If a subscriber rings up and says, "Well! what do you want?" is it not absurd to reply "I am sorry, I don't know; there's no one on your line now."

"Have you got them?" This is an expression which certainly might be modified, and all operators would be glad of a change.

"Have they replied?" or even "Have you had them?" is much more to the point, because the subscriber knows when you ask him that he has not got them at the moment you are speaking.

With these exceptions, the expressions are generally clearly understood, such as "Temporarily out of service"; although there are people dense enough to want further information when this expression is used, and exception has even been taken to "Two pennies please, one at a time"; and I have been asked if I thought the subscriber silly enough to put in two together. I hardly liked to tell him that from my experience with the average user of a money box, such a proceeding was not improbable.

Telephone Directory.—It is a remarkable fact that subscribers have a strange dislike to refer to the Telephone Directory. Were it a copy of some popular magazine perhaps it might see a little more daylight. I notice that most subscribers either find that the page is out or that they have lost their spectacles, but of course pages will get torn out and spectacles will get lost. We must naturally feel sorry to put our subscribers to the trouble of looking up a number, but the Company having gone to the expense of printing the directories, and issuing them twice yearly, it may seem to some that we are not asking too much when we ask that they should be occasionally used. For this reason we have the standard expression approved: "Will you please look in the directory."

In the event of a subscriber asking for someone whose number does not appear in the current directory, the expression "The number is . . . Will you

please make a note of it?" is a very good rule indeed, and often avoids similar delay on subsequent calls for the same number.

"Number engaged." I was recently asked by a subscriber if I could not suggest an improvement or an alteration in this expression, as he expressed himself as being tired of hearing it, but I am afraid the subscriber will have to get more tired before he can have this expression altered or improved. The same remarks apply to "Junction engaged."

Taken altogether, therefore, the standard expressions call for very little criticism, but I hope those which I have referred to as being capable of advantageous modification may receive further consideration.

Cardiff.

HILDA C. VAN RIEL.

### LONDON NOTES.

MR. F. G. BROWN'S second elementary lecture on "Engineering" was, in some respects, an improvement on the first. As one of the audience put it, "there was more Brown, and less Service Instruction." Many practical points, a knowledge of which could only come from trained observation and experience, were dealt with. The discussion was well sustained.

MR. J. HAYWARD, Local Engineer, Kingston, has gained the St. John's Ambulance Association's certificate. The list of qualified "Ambulance" members of the staff is now fairly large, may one say without being misunderstood that it looks "healthy."

SOME excitement seems to have characterised the semi-final for the Clay Challenge Cup at Ilford. Salisbury House, who hold the trophy, were three goals at half-time, Head Office, their opponents, not having scored. As the result was a win for the latter by four to three, the complete reversal of the game's fortunes in the second half is apparent. The Embankment men were evidently the better stayers. At this stage of the competition the following summary of the matches played will doubtless be of interest:—

First Round.			
Salisbury House .. .. .	3	Workshops .. .. .	2
Head Office .. .. .	2	Western .. .. .	1
White Lion Street .. .. .	5	London Wall .. .. .	1
South-East .. .. .	14	Paddington .. .. .	1
Second Round.			
Head Office .. .. .	4	Salisbury House .. .. .	3
South-East .. .. .	1	White Lion Street .. .. .	0
Final (to be played).			
Head Office v. South-East.			

At the annual meeting of the new board of delegates of the Hospital Saturday Fund, three of the Company's representatives, Messrs. Buckeridge, Wilkinson and Sandell, were appointed on one or other of the standing committees. Two delegates have also been elected to seats on the executive. A very keen interest is taken in the work of the fund by several members of the staff.

THE North-Eastern "Smoker" is now a hardy and welcome annual. This year more commodious quarters were necessary, the Queen's Hall at the "Three Nuns" Hotel being quite filled. In addition to most of the Metropolitan Chief Officers, there were representatives present from all the London divisions. Mr. Tattersall was the embodiment of geniality as chairman, and ruled the gathering well with a minimum of speech. Mr. Clay, who responded to the toast of "The Visitors," was very happy in his stories and reminiscences. The musical programme was excellent. The committee are certainly to be congratulated on a success, and on everybody having gone home happy. A special feature of the evening was the presentation of a roll-top desk to Mr. Martin, Local Engineer, East Ham, on promotion to Kensington, and a clock to Mr. Stephens, Assistant Engineer, Dalston, on the occasion of his marriage. The financial success of the gathering has resulted in a sum of 27s. 6d. being handed over to the benevolent fund.

THE Telephone Society, at its March meeting, had read to it one of the most interesting papers of the session. Mr. G. H. Bryant is to be heartily congratulated on the admirable manner in which he dealt with and presented his subject, "The Telephone Exchanges of London." The clearness of expression in the paper was accompanied by an equal clearness in articulation, and in the explanation of various diagrams. The title was more comprehensive than the matter, as Mr. Bryant wisely confined himself to the electrical branch of the subject, thus avoiding the pitfall of saying too much about things in general, and too little about one thing in particular. The discussion, while not raising many new points, was excellent, and gave a good finish to a successful meeting.

THE Avenue Cricket Club provided a capital concert at the Bishopgate Institute on Feb. 26. The evening was voted a most enjoyable one, and great praise is due to Mr. F. Saunders, the Musical Director, and all who assisted him. The club is this year adopting a more ambitious title, "Avenue" being converted into "Metropolitan." It is hoped that this change will result in many lovers of cricket on the Metropolitan staff becoming members. Mr. Clay has accepted the presidency, and that, it is hoped, will give an impetus to recruiting. The entrance fee is 1s. and annual subscription 5s. Mr. W. T. Ashton, London Wall, the financial secretary, will be glad to hear from intending members. A list of fixtures will be issued soon.

AN exchange line contract has just been obtained from the Grand Duke Michael of Russia for his residence at Hampstead.

THERE was a gratifying attendance of 230 to hear Mr. Deane's paper on "The Telephone Load Line" at the Telephone Society's traffic meeting on

March 15. Unfortunately the time for discussion was short, but an adjournment to the next meeting on April 18 was arranged. The paper was well illustrated by slides of curves and statistics, the former being particularly helpful.

SINCE the middle of last year, when a special committee of Chief Officers undertook the charge of all matters connected with the JOURNAL in London, the circulation has increased by 50 per cent. This desirable result has been mainly due to the efforts of the agents who distribute and push the sale of the JOURNAL in the various districts; they will be glad to hear that their work has been so successful.

THE Benevolent Society held a successful whist drive at "Ye Mecca" on March 16. An unrehearsed and unexpected incident was a raid by an imposing force of City police, consisting of two inspectors. Whether an infringement of the Gaming Acts took place is not yet known, but as the Metropolitan Superintendent's name was given by the secretary to the police officers, developments are anxiously awaited. His probable early appearance at the Guildhall as a defendant did not affect Mr. Clay's good spirits when at the close of play he presented the prizes to the winners. As all the prizes were kindly given by several of the Company's officers, it is hoped that a substantial benefit will result to the benevolent fund.

THE local committee of the Staff Transfer Association have nominated for election to the central committee those London members of the staff who were proposed last year. It is intended to hold the annual meeting of the Metropolitan members of the association early in April. As the new local committee will be appointed, and there will doubtless be speeches on the position of the staff's claims, there ought to be a large gathering.

As the papers for the Telephone Society's competitions must be in prior to the publication of the JOURNAL, any appeal for a large number of entries is now too late. It may be said, however, that all sections of the staff are well catered for, and it is to be hoped that the number of competitors will be such as to justify the committee's enterprise. In order to enlarge the circle of interest, the age limit has been altered to 30—a wise step which should result in an increased number of good-class papers. There are three prizes of 21s. each. The Traffic branch has also issued an attractive programme of competitions, the subjects of two of the classes being fixed, and the other two open. Four prizes of 15s. each are offered.

THE Dalston staff had a good time at their "social" on March 12. The novelty on the programme was a postcard competition, but the report of the proceedings fails to make it clear exactly what that means. Music, dancing and games filled up the remainder of the evening.

### GLASGOW NOTES.

THE usual meeting of the National Telephone Society was held in the Technical College on March 9 at 8 p.m., when Mr. Gilbert presided. Two papers were read, viz., "Capital and Revenue," by Mr. I. M. Anderson, and "Notes on Wayleave Records and Route Diagrams," by Mr. J. V. Elliot.

Mr. Anderson, after explaining the general principles of his subject, applied them to the Company's business. Diagrams of the Company's capital and revenue accounts and of various types of works orders were exhibited. These the lecturer lucidly explained, paying special attention to allocation. He concluded with an interesting reference to personal capital as represented by an individual's wage-earning capacity.

Mr. Elliot kept strictly to the lines of his subject. He demonstrated his system of recording by several diagrams, the ingenious methods of distinguishing the various kinds of poles and conductors arousing considerable interest.

The discussion on the first paper was very animated, and was adequately replied to by Mr. Anderson. Unfortunately lack of time curtailed discussion on Mr. Elliot's.

A visit to the refectory terminated the meeting.

THE fifth meeting of the Operator's Society and Club, which took the form of a "members' night," was held in the Masonic Halls, 100, West Regent Street, Glasgow, on the evening of Feb. 23, when papers on the undernoted subjects by the undernoted writers were contributed.

"Lord Byron, Poet and Man," by Miss I. McKinnon, Operator, Tron Exchange.

"The Value of Books," by Miss J. Findlay, Operator, Argyle Exchange.

"The Observation Office," by Mr. J. Paton, Observation Clerk.

The first two subjects were treated by the writers in an able manner, and each writer was at the close awarded a hearty vote of thanks.

In his paper on the "Observation Office" Mr. Paton dealt with his subject in an explanatory manner, explaining the objects and uses of observation work and how the various observations were taken and timed.

Thereafter the fifth meeting of the club was held when a programme of songs, readings, dancing and games was provided, and a very enjoyable evening was spent.

THE Golf Club has obtained permission to hold all competitions over the Post Office course at Carnynte. This is considered a great boon, as the long waits and consequent uncertainty of finishing before dark, inseparable from a public course, are in great measure dispensed with. The first meeting held at the new home was the February Medal Competition, when Mr. D. B. Heberton was returned the winner. The committee hope that with the close of the football season greater enthusiasm will be shown amongst the members, only eight cards having been taken out last month.



THE staff of the Hillhead Exchange held a whist drive and dance in the Osborne Hotel on Friday, March 11, when a most enjoyable evening was spent. There were 31 tables, and during an interval tea was served. There were four ladies' and four gentlemen's prizes.

THE paragraph regarding "Conscience Money" which appeared under "London Notes" in the March JOURNAL acts as a reminder that even here in Glasgow, the typical city of a reputedly bargain-driving nation, proof has been given that financial morality is not altogether a lost quantity. On July 8, 1908, there was received an envelope containing ten postal orders value £1 and a sheet of note-paper bearing the words, "I send ten pounds to your Company."

Judging from the facts that no information was ever elicited, and that the handwriting was obviously disguised, the logical conclusion is that the remittance was "conscience money."

It may be added that in December last sixpence in stamps, apparently the outcome of some minor twinge, was also received from an anonymous source.

THE largest private branch exchange yet secured in the Glasgow area was successfully started in the Glasgow Stock Exchange on March 1. The contract provided for 24 junction lines with 100,000 calls.

At the recent dinner, over which Mr. W. A. Smith presided, it was remarked that in Glasgow we already had a "Kelvin" Exchange and a "Bell" Exchange, and that in view of the long connection of the chairman with the enterprise in Glasgow the powers that be might give the name "Smith" to some future exchange. In reply, however, the chairman modestly deprecated the idea.

### GLASGOW STAFF DINNER.

THE annual dinner of the Glasgow and district staff was held in the Grosvenor on the evening of Friday, March 4. Mr. W. A. SMITH presided over an attendance of 120, and among others present were Messrs. S. J. Goddard, Walter Webber (the Postmaster of Glasgow), F. Douglas Watson, D. Stewart (Superintending Engineer, Post Office Telegraphs), W. A. Valentine, and J. Macfee (General Manager, Post Office Telephones). The district managers and other representatives from the other Scottish districts were also present.

The loyal toasts having been submitted by the Chairman, Mr. S. J. GODDARD proposed "The Company." Speaking of the progress of the National system since he joined the staff in 1892, he said that in 1893 the number of lines administered was 64,041. At present they were administering 392,064 while the gross annual revenue during the period mentioned had increased from £699,644 to £3,225,715. They had now an organisation which was being copied in several parts of the world. They had more than half a million of stations at work, the exact number in operation on Dec. 31 being 593,643. These carried on an average of 1,472 calls per station, so that if they multiplied these figures they would have the full extent of the traffic of the system. The success of the system, of course, depended on the quickness with which the subscriber received his connection. The best method they had of accurately testing that point was from the observation tables in the larger exchanges in England and Scotland. The average time of answer given in the large exchanges throughout the United Kingdom was 5.1 seconds—that was to say that the subscriber obtained the attention of the operator 5.1 seconds after he first called the exchange. Their patriotism in Scotland would be pleased when they learned that the average time of reply in the large exchanges north of the Border was 4.5 seconds. (Applause.) There was a very general opinion among people—who did not know what they were talking about—that the Company was not developing its system, and that it was content to hand over in 1911 an effete and worn-out plant. He did not think he could give any better refutation of that suggestion than by telling them that out of the total number of stations working, 33.9 were on common battery exchanges. As to the future, he thought Mr. Webber knew more about that aspect than he did. (Laughter.) But he thought he was safe in saying that, whether it be the Post Office or any other body who administer the telephones in the future, the one thing evident was that the best man would get to the top. (Applause.)

THE CHAIRMAN, in reply, referred to the strong appeal which the telephone had made to his mind when first introduced. He remembered that when he invested his first sum of money in telephones, the cashier in his father's office said "I suppose I shall enter this as your investment in the air." (Laughter.) He did not require to tell them that the investment was not an unsatisfactory investment for him. It was interesting to think of what the pioneers of the enterprise expected its development to be. In this connection he recalled now, at a dinner held in the pioneering days, he ventured the opinion that a revenue of £20,000 a year might be derived out of Glasgow. That statement was applauded but was regarded with scepticism. The National was not the child of the United Telephone Company, as many of them supposed. It was the grandchild, the connecting link being the Provincial Telephone Company, of which he was one of the founders and directors. (Applause.) At the end of last month the National had 31,335 stations in Glasgow, and when the municipal telephone system was taken over it numbered 12,824. The revenue from these joint stations amounting to a sum approximating £200,000 a year, so that his supposed wild calculation had been exceeded by 1,000 per cent. (Applause.)

MR. F. DOUGLAS WATSON afterwards proposed "The Guests."

MR. WALTER WEBBER, in responding, referred to reforms of the telephone system, and expressed the view that to pay for what one consumed was the regular way of charging, and accordingly he believed that the "measured rate" was the only possible and just method of charging. Speaking personally, he said he looked forward to the time when the area charges would be superseded by distance charges.

MR. W. A. VALENTINE proposed "The Chairman," to which Mr. SMITH suitably replied.

During the evening a capital musical programme was submitted, and the committee in charge of the arrangements are to be congratulated on the complete success which crowned their efforts.

### LOCAL TELEPHONE SOCIETIES.

**Birmingham.**—The sixth meeting was held at the Imperial Hotel, on March 1, when a paper was read by Mr. W. Bagley, of the Engineers' Department, entitled "Practical Economics of Underground Construction."

The seventh meeting was held in the operators' dining room, Central Exchange, on March 15, when papers were read by Mr. E. F. Price, of the Electricians' Department, entitled "Testing out a C. B. Exchange," and by Mr. M. J. Bowes, of the Traffic Department, on "Exchange Management."

**Birmingham Operators.**—The sixth and last meeting of the session was held on March 10, at Queen's College. Miss E. J. Williams was in the chair, and a paper was given by Mr. Napier, of London, on "Traffic," illustrated by lantern slides. The meeting was followed by a social gathering, in which the following members of the staff took part:—Misses Farmer, Jennens, Loach and Moreton, and Messrs. Allen and Silver. A dialogue given by Mr. Baxter and Miss Farmer was much appreciated.

**Blackburn.**—The fifth meeting of the session was held in Swift's Rooms, Blackburn, when Mr. Frost, Engineer, Blackburn, read a paper on "Underground and Overhead Construction." An interesting and useful discussion followed.

**Bolton.**—On Feb. 3 Mr. J. Wilson, Costs Clerk, Bolton, read an interesting paper on "Points on Costing, Measure Rate Accounting, and the Use of the Telephone." He lucidly explained the commercial value of the telephone, and outlined the accounting of measured rate fees.

On Feb. 17 Mr. T. A. Prout, Assistant Provincial Superintendent, gave an interesting and instructive paper entitled "Homely Telephone Analogies." The subject was treated in a conversational manner, and the various lessons driven home in a pleasant yet vigorous fashion. The evening terminated pleasantly in social intercourse.

**Bournemouth.**—The fifth sessional meeting of this society was held on Feb. 14, when Mr. R. Aitken, of Head Office, gave a paper on "Aerial Lead-Covered Cable," which was supplemented by lantern slides. The lecturer made comparisons between open wires, underground and aerial cables, and gave in detail the method of running the latter conductor. At the close of the paper an interesting discussion took place, in which several members of the staff took part. Mr. W. Howe (District Manager) was in the chair, supported by the vice-president, Mr. E. Harper, and 46 members.

The sixth meeting of the session was held on March 14, when Mr. E. Harper gave his paper "The Designing of Telephone Circuits." The subject, which was illustrated by some interesting lantern slides, proved instructive. A discussion afterwards took place, in which Messrs. Howe, Blewdon, Plummer and Beal took part. Mr. W. Howe, District Manager, presided over a meeting of 43 members.

**Brighton.**—A meeting of this society was held on March 14, when the following three competitive papers were read:—"Testing Instruments and Uses," by Inspector Brickett; "How to Become an Instrument Inspector; and Hindrances to Promotion," by Inspector Brackley; "Simultaneous Telegraphy and Telephony," by Fitter Gambier. An interesting discussion followed each paper, and the prize was awarded to Inspector Brackley. Mr. C. F. Moorhouse (District Manager) was in the chair.

**Bristol.**—The sixth and last sessional meeting was held on March 17, when a lecture was given by Mr. C. E. Morgan, Local Manager, Weston-super-Mare, on "The Staff and Education." An animated discussion took place. The lecturer was complimented on all hands for his able handling of so important a subject. After the discussion had ceased, the announcement of the adjudicators relative to the papers given during the session by members of the staff was made. It had been decided that two prizes should be awarded, one of £1 and one of 10s. for the two best papers by the local staff during the current session. Amid much excitement Mr. Perkins, District Manager, announced the result of the adjudication as follows:—First prize, Mr. J. Wilkins, D.O., for his paper on "The W.O. and Telephone Directory"; second prize, Mr. F. G. Eager, for his paper on "C.B. Instrument Design."

**Bristol Operators.**—The last sessional meeting was held on March 3, when the evening was devoted to competitive papers by various members of the staff. Thirty-five of these were received from all parts of the district and fourteen prizes were awarded. Mr. A. Perkins adjudicated upon the papers and, through the unavoidable absence of Mr. R. A. Dalzell, also awarded the prizes to the various winners. Seniors: first prize, Miss A. W. Newbury, "Fire"; second, Miss P. Hawkins, "Cheerfulness." Senior-Juniors: first prize, Miss N. B. Hunt, "First Impressions of a Telephone Switchroom"; second, Miss I. Melrose, "The Telephone Operator." Juniors: first prize, Miss L. Shelbourne, "Self-Confidence"; second, Miss J. Yates, "Order Wire Working." Junior-Juniors: first prize, Miss W. K. Hook, "Accuracy"; second, Miss I. M. Collins, "Training of Subscribers." Half-time operators' prize, Miss D. Pym (Fishponds Exchange), "Interest." Sub-exchange operators (Bristol Area): first prize, Miss M. Lawrence (Brislington Exchange), "The Sub-Exchange from the Inside"; second, Miss D. V. Hazell (Portishead Exchange), "Confidence between Subscribers and Operators." Out-centre operators (Bristol district): first prize, Miss M. H. Fryer (Trowbridge Exchange), "The Sub-Exchange Operator"; second, Miss M. Baijant (Chippenham Exchange), "Training of Subscribers"; third, Miss P. King-Smith (Swindon Exchange), "Haphazards." Afterwards amid great enthusiasm the junior member of the society on behalf of all the members, presented Mr. A. E. Coombs (Traffic Manager) and chairman of the committee, with two volumes, viz., *Jack's Encyclopedia* and *Pool's Telephone Hand Book*, as a token of appreciation of the keen interest shown by him in the society.

**Cardiff.**—The sixth meeting was held in St. John's Schoolrooms, Cardiff, on Feb. 17. There was a good muster. The first half of the evening was devoted to competitive papers on "Aerial Cable Work," and papers were read by Foreman Greenfield, Smith and Brydon. The first prize was awarded to Foreman Smith, and the second to Foreman Greenfield. The second portion of the evening was occupied by Mr. J. James with a paper, illustrated with

diagrams, on the same subject. A discussion followed and the evening, which had been an interesting one, was brought to a close.

**Cardiff Operators.**—The sixth and last meeting was held on March 15. The meeting took the form of a competitive night and was the best of the session, both in numbers and enthusiasm. The chair was taken by Mr. B. Waite (District Manager). Five papers were read, as follows:—"The Difference between a Careful and Careless Operator," by Miss W. Merrett; "Operators' Irregularities from a Subscriber's Point of View," by Miss Thorn; "Value and Uses of Auto. Boxes," by Miss Whittle; "Uses and Abuses of the Telephone," by Miss Lathey; "Junction Working," by Miss Bryant. All the papers were exceptionally good. At the request of the committee the vice-presidents, clerk-in-charge and supervisors acted as adjudicators and awarded the first prize to Miss Bryant, the second to Miss Merrett, and the third prize to Miss Lathey.

**Cheltenham.**—The eighth meeting of the session was held on March 8, 75 per cent. of the members being present. Mr. A. R. Wran gave a very interesting paper on "Instrument Maintenance," dealing with subscribers' installations.

**Coventry.**—A meeting was held at Priory Row Assembly Rooms on Feb. 15. Mr. E. J. T. Leaney presided over a good attendance, the percentage being 86.36 per cent. Mr. Jno. Mewburn, president of the society, gave a paper on "Traffic." This was followed by a paper by Mr. C. Sadler on "The Various Departments and their Expenditure." Discussion was only of a limited nature, the papers themselves taking nearly all the evening.

A meeting was held in the Priory Row Assembly Rooms on March 15. Mr. J. Mewburn, president, in the chair. The attendance of members was 95.2 per cent. A paper was read by W. H. Oliver (hon. sec.) on "The Staff: its Relationship (1) to the Company; (2) to the Subscriber."

**Dublin.**—The fifth meeting of the session was held on Jan. 12, Mr. P. F. Curral occupying the chair. The occasion was a "members' night," and a special prize of 5s. was offered for the best short paper read by any junior member of the society. Mr. E. H. Cassidy read a very interesting and instructive paper on "Primary Batteries." The subject was very ably dealt with, the evolution, construction and principle of primary batteries being discussed.

The sixth meeting of the session was held on Feb. 23, Mr. P. F. Curral occupying the chair. Mr. H. M. Kenworthy read a paper on "Co-operation." The subject was treated in a non-technical style, the all-round benefits derived from inter-departmental co-operation being dwelt upon in an interesting manner. A good discussion followed, and a vote of thanks to Mr. H. M. Kenworthy closed the meeting.

**East Kent.**—The fifth meeting of the session took place on Feb. 25 in the district offices, Dover, when a joint paper was given by Mr. P. C. Langridge (Chief Inspector), Dover, and Mr. F. E. Faithfull (Chief Inspector), Folkestone, on "Central Battery Calling and Cord Circuits." There was a very satisfactory attendance of members. Mr. Langridge has entered his paper for competition in connection with the premiums offered by the education committee.

**Exeter.**—The sixth meeting was held on March 1, Mr. F. Squire in the chair. A paper, "Some Points on Engineering," was read by Mr. W. Sim, which mainly covered overhead construction, erection of various classes of supports, running out cables, etc. A general discussion followed, led by the District Manager, Mr. H. Reid.

An extra meeting was held on March 3, at the Y.M.C.A. Lecture Room, when Mr. H. Green, A.M.I.E.E. of the Engineer-in-Chief's Department, read a paper on "Cable Design." The paper was very attentively followed, and a few questions were put at its close. Many of the lecturer's points were illustrated by means of a lantern and slides. Mr. H. Reid again occupied the chair.

The eighth meeting of the session was held on March 8, Mr. P. Humphris in the chair. A paper on "Costs" was read by Mr. H. Martin. There was a very good discussion taken part in by most of those present.

**Gloucester.**—The sixth meeting of the session was held on March 11, at the "Y" Room, Clarence Street. The chair was occupied by the Provincial Superintendent, Mr. A. Dalzell, supported by the District Manager, Mr. C. Elliott. The Assistant General Superintendent, Mr. Eustace Hare, read a most interesting and instructive paper, entitled "Service Instructions and Discretion," which was received with much appreciation. A valuable discussion was raised, in which many members took part. The meeting was very well attended, members of the Cheltenham and Stroud staffs, including operators, also being present.

**Greenock.**—The fifth meeting of this society was held on Jan. 13, when a paper entitled "Traffic; its Relationship and Responsibilities in Telephone Business," was delivered by Mr. H. A. Frame, Traffic Manager. The lecture was illustrated by lantern slides, and was much appreciated by all the members present.

The sixth meeting was held on Jan. 27, when the evening was devoted to a whist drive, which was entered into with enthusiasm and greatly enjoyed by the players.

**Hastings and Eastbourne.**—The monthly meeting was held on Feb. 23, at the Y.M.C.A. Rooms, Eastbourne, Mr. H. Mallett, of Hastings, giving an interesting paper on "General Exchange Maintenance." Mr. E. Armstrong, Local Manager, Hastings, acted as chairman.

A meeting was held at Hastings on March 16, when Miss Martin, Clerk-in-Charge, Eastbourne, gave an extremely interesting paper, entitled "Helps and Hindrances to Efficient Operating," which was much appreciated by all present. Mr. Curling, Local Manager, Eastbourne, presided over the meeting.

**Hull.**—A series of competitions have been held in connection with the local telephone society, prizes being awarded for the best papers written on each of the following subjects:—"Commercial," "Traffic" and "Technical." Only four members entered the lists for each subject, but some excellent papers were written, the following being judged the best:—Commercial—First prize, Mr. G. H. Cobby; second prize, Mr. A. H. Sergeant. Traffic—First prize, Miss M. Cutting; second prize, Miss Sergeant. Technical—First prize, Mr. T. P. Steel; second prize, Mr. R. T. Mayman. The first four of these papers were

read at the meeting on March 17 to an appreciative audience. The District Manager was in the chair, and at the close of the meeting congratulated the writers, and expressed his opinion that some such means should have been utilised before to persuade the backward members to come forward with their literary efforts.

**Isle of Man.**—The tenth meeting of the above was held on Feb. 25. A paper on the "Petrol Engine" was read by the District Manager. He explained that as the petrol engine, on account of its light weight and portability, was coming into use very much in the Company's service he wished all to understand its working.

The last meeting of the session was held on March 11. The District Manager, by request, explained the principle of the steam motor car. A. Smith, Line Foreman, showed an improved plan of getting up broken wires. The District Manager read a report of the session's work. Prizes for best time-keeping by junior staff were given to—Storekeeper, W. Quayle; Clerks, E. Quailrough, C. Quayle and T. Cain; Instrument Inspectors, E. Vick and T. Clucas; Labourer, J. Kennedy; Night Operator, H. Kelly. Prizes for papers read were given to J. E. Cowley, Clerk; E. Vick and T. Clucas, Instrument Inspectors. Prizes for suggestions and devices for helping in the work were given to A. Smith, Line Foreman, and W. E. Cain, Instrument Inspector. A special prize for diligence in work was given to J. E. Cowley, Clerk.

**Leeds.**—At the meeting held March 2, presided over by Mr. W. V. Morten, a paper was read by Mr. B. Lister on "Aerial and Underground Cables." The paper gave evidence of much thought and investigation, and was illustrated by diagrams, drawings and samples.

The second of a series of lectures was given to the operating staff at Leeds Central Exchange on Feb. 7. The subjects were "Junctions, Order Wire Working, Cross Area Junctions," and reference was made to "Transmission." A good number of operators were present, and found the lecture very interesting.

**Luton.**—A paper was read by Mr. J. H. Raines, Cost Clerk, on Feb. 28, entitled "Costs," and on March 14 Mr. H. G. Smith, Inspector-in-Charge, St. Albans, gave a paper on "Aerial Cable Construction." Both subjects were treated in a very able manner, and whilst the former endeavoured to show that it is possible to have economy with efficiency, the latter described several instances of apparently difficult and expensive jobs which were made easy and cheap by a careful primary consideration of all the factors. Mr. Smith dwelt at much length on the necessity for judicious staying.

**Manchester.**—On Feb. 11 a paper was delivered by Mr. W. Napier, of Engineer-in-Chief's Department, on "Traffic," which was illustrated by a considerable number of lantern slides of traffic curves and photographs of a number of modern common battery exchanges and operating schools throughout the country. Among other traffic details the new method of operating calls over landing junctions by order wire, known as "tandem order wire working," was dealt with. A number of interesting questions were asked, and suitably replied to. A fairly representative gathering were present, which included several ladies from the Manchester operating staff, and also Mr. Haley, District Manager of Bolton.

On March 4 a paper on "Junction Circuits" was read before the above society by Messrs. J. P. Garner and W. A. Satchwell, both members of the electrical staff. On account of the wide scope of the subject, circuits only used in the Manchester area were dealt with.

The syllabus as regards lectures was brought to a close on March 11, when a most interesting and instructive paper was given by Mr. H. J. Smith on "The Fees Department." The lecture was very much appreciated by the members of the society, and the attendance, which was a large one, was greatly augmented by the presence of ladies from the Fees Department and operating staffs.

**Newcastle.**—The sixth meeting was held at the Roma Café, Grainger Street, Newcastle, on March 1. Mr. R. W. Jackson (past president) was in the chair. Two papers were given, the first by Mr. J. Gwyther on "Traffic," and the second by Mr. A. McEwan on "Training for Telephone Work." After each paper those taking part in discussion were: F. W. Gaskins, R. W. Jackson, E. T. Payne, H. Dent, H. Sadler, A. Brewis, R. Dryden, J. Hastings, H. Waugh and J. Gilroy.

**Northampton.**—A meeting was held in the inspector's room at the Northampton Exchange on Feb. 22, with W. Dickinson in the chair. Papers were given on "Traffic" by Mr. J. Mewburn, and on "Accumulators" by Mr. F. Coote. A discussion followed each paper.

**Nottingham.**—The sixth meeting was held on Feb. 25. A long-expected paper was given by Mr. A. Watts, of Head Office, on "Some Phases of Telephone Design." The paper, which perhaps should be more correctly called an address, was illustrated by numerous lantern slides. Among those present were Mr. J. Scott, Assistant Provincial Superintendent, and Mr. P. G. Head, also of Head Office. Mr. Watts' remarks were closely followed, and great interest was taken in his figures and curves. Eleven members and visitors took part in the subsequent discussion, among those helping being Mr. Scott and Mr. Sibley. The general attendance of members was the best for the present session. Prior to Mr. Watts' paper, Mr. J. Scott presented first prize of an umbrella to Miss H. K. Green for her paper on "Operating" read at the previous meeting of the society. He also presented consolation prizes of purses to Misses E. Cartledge and L. Tuke.

**Nottingham Factory.**—At the meeting held on Feb. 21 Mr. J. W. Ingleton gave a paper on "Accumulators." Their history, importance, methods of manufacture, faults, etc., were dealt with, sample sections of plates being used to illustrate the subject. Miss E. Clements followed with a demonstration of "Enamelling," "Transferring" and "Lacquering" as done in her department. The various processes were fully explained and evoked much interest.

The seventh meeting took place on March 7, 96 present, when Mr. G. C. Pearson, of the Wall Set Department, gave a paper on "Wireless Telephony."

The three systems of "Conduction," "Induction" and "Radiation," were dealt with. The "Orling-Armstrong" method of conduction was briefly outlined, whilst the inductive method was illustrated by experiments and by diagrams. The third system of using electro-static discharges was gone into at some length, the various apparatus being described, and the difficulties met with in practice considered.

**North-Eastern London.**—The fifth monthly meeting was held on Feb. 28 at East Exchange, the vice-president (Mr. H. S. Peck) taking the chair. The paper submitted for discussion was entitled "Notes on Instrument Fitters' Duties," by Mr. A. R. Macfarlane, the Divisional Construction Electrician. The meeting was well attended, and the discussion was both educational and humorous. It is very gratifying to note that the debates at these meetings have become more entertaining and questions more numerous, thereby enhancing the educational value of the society.

**Paisley.**—The fifth meeting of the session was held in Hutton's Restaurant, Paisley, on March 11, Mr. R. Audsley, Local Manager, presiding, when a very interesting lecture was given by Mr. A. W. Grant, Contract Officer, on "The Contract Officer." The lecturer dealt with the various arguments used when interviewing subscribers, which proved very interesting.

**Plymouth.**—On Jan. 3 a paper was read by Mr. W. C. Harris entitled "Instrument Maintenance," and the subject was ably dealt with and fully discussed; 75 per cent. of members were present.

On Feb. 2 Mr. H. Reid, District Manager, Exeter, gave a lecture entitled "Traffic: its Relations to the Service, the Public, and the Company." This paper proved very interesting and instructive, and a number of questions asked were ably dealt with by Mr. Reid. The chair was occupied by Mr. R. A. Dalzell, and 76 per cent. of members were present.

On Feb. 23 Mr. R. Aitken, of the Engineer-in-Chief's Department, gave a lecture on "Aerial Lead-Covered Cables," which was much appreciated. The lecture dealt with the latest methods of erecting cables, and lantern slides were used showing pictures taken of work in progress; 87 per cent. of the members were present on this occasion.

**Portsmouth.**—On Feb. 24 a joint paper was given by Mr. Albany, Contract Manager, Mr. Collins, Chief Clerk, Mr. Legge, Engineer, Mr. Padget, Electrician, and Mr. Pharo, Traffic Manager, on "A Telephone Subscriber in the Making." Each department detailed the part they took in obtaining orders, running lines, fitting instruments, training the subscriber, and so forth, and an interesting discussion followed. The chair was taken by Mr. S. J. Smith, District Manager, and there was a good attendance.

On March 10 Mr. Stanley Wainscot gave a paper on "Atmospheric Electricity and Wireless Telegraphy." Many interesting experiments were illustrated by apparatus which had been constructed by the lecturer, and he is to be congratulated on the able manner in which he held his audience from the commencement to the finish of his paper. Experiments with Giessler tubes, etc., were carried out, and some very interesting lantern slides shown illustrating lightning discharges, etc. Mr. P. R. Denham, who is always ready to officiate as lantern operator, again did so on this occasion. A discussion was taken part in by Mr. Lewis and Mr. Pharo. The chair was taken by Mr. H. Newnham, Service Inspector.

**Sheffield.**—The sixth and last meeting was held on March 11 before a large attendance. This meeting was reserved for the lantern evening. A large number of lantern slides were shown, which proved both instructive and entertaining.

The annual social gathering in connection with this society was held on March 18, the first half of the evening being devoted to a whist drive, the operators being successful in winning the majority of the prizes, which were presented by the District Manager (Mr. R. C. Bennett). The second half of the evening, after the refreshments, took the form of a smoking concert, under the chairmanship of the District Manager, and during the first part of the evening a phonograph concert was arranged by Mr. Barr (Local Manager) for the benefit of the non-whist players.

The Sheffield operators have decided to form a telephone society. After two preliminary meetings, the first meeting was held on March 4, when a paper was read by Miss K. D. Laing, entitled "Night Operating; its Duties and Responsibilities." There were a fair number of operators present, and discussion followed.

**Southern London.**—A meeting was held on Feb. 14, when a paper on "Traffic" was read by Mr. F. Graves. In view of the nature of the subject, an invitation was extended to the ladies of the exchange, who responded with a good attendance. Slides were used in illustration, and an interesting discussion followed the reading of the paper.

**Stirling.**—The last meeting of the society was held on March 15, when Mr. K. McKenzie, District Engineer, read a paper on "The Telephone Line." There was a good attendance of the members, and a very spirited discussion afterwards took place.

**Sunderland and Shields.**—Owing to the severe snowstorm in the district on Jan. 28 the meeting arranged for that date was cancelled.

The fifth monthly meeting was held on Feb. 25 at Sunderland. Mr. E. Spink presided. A paper on "Correspondence" was given by Mr. J. Martin. Discussion followed, in which the following took part:—Messrs. E. Spink, W. J. Douglass, A. Livingstone, A. E. Tinwell, and R. Scott.

**Swansea.** The sixth and last sessional meeting was held at the Docks Exchange Hall on March 15, on which occasion a paper was read by Mr. F. Stevens, Assistant Engineer, entitled "Mechanics of Line Construction." There was a good attendance, viz., 36, and 30 visitors, the majority of the latter being members of line staff. Mr. W. J. Hodgetts, vice-president, occupied the chair.

**Swansea Operators.**—The sixth and final meeting of the session took place at the Docks Exchange Hall on Feb. 28, when the following short papers were given by members of the society:—"General Points in Operating," by Miss F. Pritchard; "Call Office Working," by Miss C. Johns; "Switch-board Distribution," by Miss D. Geoghegan. The papers were extremely well

written, and resulted in an animated discussion, participated in by the majority present. The presentation of awards for papers given during the session followed these proceedings.

**Torquay.**—The sixth meeting was held on Feb. 21, when the Provincial Superintendent, Mr. R. A. Dalzell, read a paper, "Problems in Connection with Distribution." The lecturer showed the advantages of distributing in accordance with day and night loads, and the necessity of studying the question minutely before attempting to redistribute the lines at an exchange. Numerous curves and diagrams were shown illustrating the points raised. A number of questions were put to the lecturer, and a good discussion followed.

The seventh meeting of the session was held on March 14, when a paper on "Statistical Records" was read by Mr. F. V. Squire. Mr. G. Williamson occupied the chair, and an animated discussion followed on the points raised.

**Warrington.**—The eighth meeting of the session was held on Feb. 16, when one of the best papers the members of the society have had the pleasure of listening to was given by Mr. Street, of the Engineer-in-Chief's Department, London, on "Dry Air Working." The paper was illustrated by lantern slides.

**Western London.**—The sixth meeting of the session was held at Gerrard Exchange on Feb. 24, upon which occasion Mr. J. C. Fuller read a very interesting paper on "Military Telegraphy and Telephony," illustrated by lantern slides. A quantity of apparatus was shown and explained.

**Weymouth.**—The fourth meeting was held at Butchers' Rooms, St. Thomas Street, on Feb. 14, when a paper was given by Mr. F. W. George (Contract Manager) on "Contract Work," the chair being taken by Mr. Attwooll (Local Manager). The attendance was very good in spite of the inclemency of the weather, and those members who were present spent a profitable evening.

**Wolverhampton.**—A meeting was held at the Midland Café, Wolverhampton, on Feb. 25. Two papers were read, one by Mr. W. S. Kay, Chief Clerk, North Midland district, on "The Development of the North Midland District," pointing out in some interesting comparisons how the districts figures had increased from the start of the district, and also in recent years. The second paper was by Mr. C. Law on "Power Plant." The various connections were lucidly explained from diagrams and models. Both papers were keenly followed and numerous questions were debated and answered. Total present 37, or 46 per cent. of total membership. The chair was taken by Mr. R. S. Grosvenor, Local Manager, Walsall.

**Dundee.**—Mr. W. Brown presided over the March meeting. A paper, "Notes from Common Battery Operating," by Miss A. Martin, was read. Mr. A. Mackenzie read a paper on "Operating," and an interesting discussion followed.

**Brighton.**—A meeting was held at the Duke Street Office on Feb. 14, when an address on "Telephone Work, the Prosaic Present and some Curiosities of the Past, with Special Reference to Office Work," was given by Mr. L. Parsons, Chief Clerk, to a fairly good audience. The reminiscences of old times proved most interesting, and an animated chat followed, one or two suggestions being thrown out as a result, calculated to increase the obtaining of business for the Company. The members present then elected Mr. Parsons as an additional member of the telephone society's committee.

## STAFF GATHERINGS AND SPORTS.

**Edinburgh.**—The operators at Edinburgh held their dance in Aitchison's Rooms, Queen Street, on Feb. 24; 157, including friends, were present. This year the enjoyable gathering was due to the initiative of the ladies themselves.

The last of the series of whist drives of this season was held on March 18. Fifteen tables were played. The prizes were won by Miss J. McKenzie (Fee Department), Mr. David Christian (Leith testroom), and Mr. William Fraser (district office), and were presented by Miss A. St. Clair Johnson, Chief Operator. Thanks were conveyed to her, and also to Miss Arthur and Mr. James Pirie, who have carried out the arrangements this season.

The annual meeting of the Ampère Golf Club was held on March 9. The secretary and treasurer, Mr. John H. Allan, presented a very satisfactory report and balance sheet. Office bearers were elected, and the following competitions arranged:—Special spring competition over Gorebridge on April 9; Stewart Medal competition over Musselburgh on May 21; a hole-and-hole foursome; and a single hole-and-hole match. Among the correspondence submitted was a letter from Mr. J. D. W. Stewart acknowledging with thanks the miniature of the medal presented by him to the club.

**Swansea.**—The staff of the Traffic Department held a most successful whist drive and dance at the Hotel Grosvenor on March 18, the number present, including friends, being about 60. During the evening light refreshments were served. The prize winners were—ladies, first, Miss Fry; "consolation," Miss M. Sweeney; gentlemen, first, Mr. Jack Davies; "booby," Mr. Quirk. Messrs. H. C. Thomas and J. C. Meager ably carried out the duties of M.C.'s. The prizes were presented by Miss A. Ellery (Clerk-in-Charge), to whom much praise is due for carrying out the whole of the arrangements so satisfactorily.

**Hull.**—A smoking concert was held at the London Hotel on March 11, and the occasion was taken to wish "good luck" to Messrs. Booth, Lowery and Slingsby, who are leaving the Company's service for Australia. A capital programme was arranged, the artists including a number of the staff, two professionals and a quartette party.

**Sheffield.**—The Sheffield Employees' Social Club held their annual dance and whist drive on Feb. 25 at the Imperial Rooms, Pinstone Street; 183 members and friends were present, and spent a most enjoyable evening.

**Wolverhampton.**—A whist drive was held in the Midland Café on March 18 in connection with the District Recreation Society. There was an attendance of 60, and a very enjoyable evening was spent. The prizes, which were handed to the winners by the District Manager, Mr. Archer W. Smith, were won by Miss G. K. Veale (ladies' first prize) and Miss L. Robinson (second prize); gentlemen's (first) by Mr. A. Collin and (second) by Mr. S. Owen. Messrs. W. S. Kay and T. Reed acted as M.C.'s.

**Blackburn.**—A whist drive was held on March 3 in Booth's Café, Blackburn. Seventeen tables were occupied, and a most enjoyable evening was spent. Much credit is due to Messrs. Abbott, Anderson and Slater for organising the gathering.

**Manchester.**—The first annual dinner of the engineering staff took place at the Merchants' Hotel, Oldham Street, on March 5, the Engineer, Mr. A. Magnall, presiding. Sixty-two sat down to dinner, after which a musical programme was submitted, and a very enjoyable evening spent.

**Eastbourne.**—The annual dinner of the combined Hastings and Eastbourne staffs took place on Feb. 23 at the Clifton Hotel, Eastbourne, a company of about 25 spending a very enjoyable evening under the chairmanship of Mr. E. Armstrong, the Hastings Local Manager. A musical programme was presented by Messrs. Bilton and Thompson, items being contributed by Miss Langridge and Messrs. Cumming, Robinson, Cole, Hickmore, Bilton and Thompson.

**Birmingham.**—On Jan. 25 a dance was held at the Imperial Hotel. The arrangements, which were in the hands of a few members of the staff, were carried out splendidly, and special thanks are due to them for the enjoyable evening spent. Each department was well represented, the Assistant Superintendent, Mr. Scott, accompanied by Mrs. Scott, being amongst those present.

A football match, another of a series of the inter-staff games begun some time ago, took place on March 5, at Yardley, between teams representing the District Office and Inspectors' Department. The weather was delightful and a good number of the staff turned up to watch the contest. The Inspectors were much the heavier side and did a considerable amount of pressing all through the game, but were unable to take much advantage of their opportunities. The score at half-time stood at one goal each. On resuming after the interval the Inspectors were very aggressive, and although they were pressing all the time could only penetrate the stubborn defence of the District Office once. It seemed to be a foregone conclusion that the District Office would be beaten, but a few minutes before the close from a breakaway they drew level amid much excitement, the game ending with two goals each.

**Portsmouth.**—The annual dinner of the district staff was held at the "Wiltshire Lamb." Close on 100 members of the staff sat down and Mr. S. J. Smith, District Manager, was in the chair. On the tables being cleared, a musical programme was carried out. Those contributing were Messrs. Albany, Padgett, Pharo, Yates, Welch, Hogan and many others. The instrumental music was provided by the District Office Orchestra, including Mr. H. Albany violin, Mr. Hughes' cello and Mr. Mason piano. The usual loyal toasts were drunk and the party broke up with "Auld Lang Syne," after a very enjoyable evening.

**Ipswich.**—The second whist drive of the season was held in the small Co-operative Hall on Feb. 19. The committee had the hall beautifully decorated with flowers and evergreens for the occasion. The ladies' committee (as on the last occasion) very successfully took charge of the catering arrangements, and Miss Wilding, Chief Operator, Ipswich, presented the prizes. Miss Blizzard, Operator, Needham Market, won the rose bowl given as first ladies' prize, and was the only member of the staff successful in that respect.

**Brighton.**—On March 3 the Brighton staff held their final whist drive and dance of the season at Forfar's Restaurant, Western Road, 50 being present. After the conclusion of the whist drive dancing was indulged in, Mr. P. Prudden acting as M.C., Mr. H. Drury performing the same duties with regard to the whist drive. The prizes were as follows:—Ladies: first, Mrs. Drury; second, Miss Beard; third, Miss Curtis. Gentlemen: first, Mr. P. Hart; second, Mr. F. H. Best; third, Mr. S. H. Eady. Miss Agutter and Miss Webb assisted in the arrangements, and at the close a vote of thanks was passed to these ladies for their services.

**Paisley.**—The second of a series of whist drives was held in Hutton's Restaurant on Feb. 11, when a match was played between Paisley and Greenock, resulting in a win for Greenock by 55. The prizes were presented by Mr. R. Audsley, Local Manager, and consisted of a bottle of perfume and a box of cigarettes. These were won respectively by Miss Rolling and Mr. Jno. A. Swanson.

## NEWS OF THE STAFF.

Mr. J. SINCLAIR TERRAS who was transferred to Birmingham from Reading in August last, has been presented by the members of the staff in the Thames Valley district with an illuminated address, as a mark of their esteem.

Mr. R. S. GROSVENOR, Local Manager, Walsall, has been appointed Local Manager, Coventry.

Mr. W. DALTON, Inspector-in-Charge, Kettering, has been appointed Local Manager, Walsall.

Mr. J. NEWTON LOWE, Local Manager, Coventry, has been appointed Local Manager, Leicester.

Mr. W. GUDGES, Lineman Inspector, Coventry, has been transferred to be Lineman Inspector, Northampton.

Miss ALICE STONE, Traffic Clerk, Portsmouth, has been transferred to the Herts and Beds district as Travelling Supervisor. It will no doubt be remembered that Miss Stone was one of the two operators who obtained 100 per cent. marks for the "M" Course in Mathematics a short time ago. She was presented by the Portsmouth operating staff with a gold bangle set with turquoise and pearls, and a travelling case, and she carried the good wishes of all with her. The presentation was made by Mr. S. J. Smith, District Manager.

Miss ALICE A. CARMICHAEL, Typist, Glasgow, who left the service at the end of February to take up a similar position in Inverness, was presented with several handsome books by her fellow-workers.

Miss CHRISTINA STEVENSON, Operator, Douglas Exchange, Glasgow, was presented with a silver-backed brush and comb, and hat-pin in case, on leaving the service, as a mark of esteem from the Douglas staff.

Miss ANNIE HENRY, Travelling Supervisor, Ayrshire district, has been transferred to Argyle Exchange, Glasgow, for health reasons. Miss M. ANDERSON has been appointed Travelling Supervisor, Ayrshire, *vice* Miss Henry. Miss Henry was presented on leaving with a pendant and umbrella by the Ayrshire staff.

Miss EDITH YOUNG, Operator, Hastings, has resigned her position in the Company's service, and has been presented with a gold brooch by the Hastings staff.

Miss GERTRUDE HEWITT, Operator, Central Exchange, Birmingham, has been transferred to Bournemouth in a similar capacity.

Miss MINNIE GOULD, Operator, Cardiff, has left the Company's service in order to take up a position with a large firm in Cardiff, who have recently had a private branch exchange installed by the Post Office. Prior to her leaving the service she was presented by her colleagues in the Traffic Department with a silver-mounted oak biscuit barrel and an electro-plated jam dish, as a token of respect, and with best wishes for her future.

Mr. F. W. TRAYTE, Storekeeper, Southampton, was presented by the staff with a voltmeter in case, silver match box and a pocket wallet on his resigning the Company's service to take up a position in the motor industry. Mr. Trayte was a capable and popular official, and carries with him the best wishes of the staff for his future career.

Miss IVY THACKARA, Fee Clerk, Southampton, was presented with a silver-mounted umbrella and a handbag on her resignation from the Company's service to take up an appointment at Bournemouth. The presentation was made by Mr. F. W. Richards, the Chief Clerk.

Mr. H. E. BENNETT, Inspector, was transferred from Portsmouth to Bacup on Jan. 20, and was presented by the electrician's staff with a dressing case.

Mr. F. TRAVISS, Faultsman, was transferred from Portsmouth to Boxmoor on Dec. 13 as Linesman Inspector.

Mr. E. W. SMART, District Office Clerk, Gloucester, on his transfer to Cardiff district office, was the recipient of four handsomely bound volumes of poetical works, which were subscribed for by members of the staff as a token of their esteem. Mr. C. Elliott made the presentation on behalf of the staff.

Mr. T. P. STEEL, Inspector, Beverley, has been promoted to the position of Test Clerk, Hull. Before leaving, he was presented by the Inspector-in-Charge on behalf of the staff with a writing-case and collar-box as a token of esteem and good wishes from his late colleagues.

Mr. R. T. EASTERBY, Inspector, Scarborough, has been transferred to Beverley in a like capacity.

Mr. A. G. LOWERY, of the Hull Contract Department, who has been in the Company's service seven years, was presented by the office staff with a kit bag, as a token of their esteem, on his leaving for Australia.

Mr. A. N. WILKINS, one of the Brighton Contract Officers, had the misfortune to be a passenger by the ill-fated express train which met with disaster at Stoa's Nest recently, and although he was not actually injured, the shock was so great that on reaching London he had to go on the sick list, and at the time of preparing these notes had not returned to business, although expected back on the following day. He was travelling in the wrecked part of the train, and was thrown out on to the line and severely shaken.

Inspectors T. BAYS and E. K. WICKS, Birmingham, upon resigning the Company's service to take up missionary work in North-West Canada, were the recipients of shaving outfits, belts, and other gifts from their colleagues in the Electrician's Department. The presentation was made by the Chief Electrician, who, on behalf of himself and the staff, wished them God-speed and every success in their new sphere of life.

### London Traffic Department: Promotions and Transfers.

Miss AMY LARK, Operator, North, has been promoted to be Supervisor, London Wall.

Miss JESSIE MOORE, Supervisor at Bank, has been promoted to be Senior Supervisor-in-Charge, Stratford.

Miss ETHEL SHAKEL, Operator, Hop, has been promoted to be Supervisor, Lee Green.

### MARRIAGES.

Mr. G. DURRANT, District Office Clerk, Exeter, was on the occasion of his marriage with Miss VANSTONE, late Clerk-in-Charge, Torquay, presented by the staff with a piece of furniture. The District Manager, Mr. H. Reid, made the presentation with a few kindly words.

Miss ADA CRISP, Operator at the Southbourne Exchange, was presented by the staff with a salad bowl and a pair of plated vases on the occasion of her approaching marriage. The presentation was made by Mr. E. HARPER, Local Manager.

Miss F. HAMMOND, Leading Cable Hand, Nottingham Factory, was the recipient of a handsome trinket set and pair of vases from the Receiver and Cable Departments on the occasion of her wedding.

Mr. S. G. TREGILLUS, Stores Clerk, Plymouth, who was married on Jan. 29, was presented by Mr. Hooper, District Manager, on behalf of the Plymouth staff, with a set of table cutlery.

For "Obituary," see p. 10.

### DEATH OF MR. KRARUP.

WE regret to announce the death of Mr. C. E. Krarup, a prominent Continental telephone engineer on the staff of the Danish Telegraph Administration. Mr. Krarup was identified with methods of increasing the inductance of telephone cables by lapping the copper conductors with iron wire, and submarine cables of his design were laid between Fehmarn and Lolland and other places in the Baltic. Mr. Krarup read a paper on his method of loading cables before the Budapest International Telegraph Congress, September, 1908.