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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XXVI.—

MR. M. C. PINK.

MR. M. C. PINK, Assistant Controller, London Telephone Service, entered the Post Office service in 1898, after an open Civil Service competitive examination, as a second division clerk in the Accountant-General's Department, and he gravitated towards a career in a technical department through sheer natural aptitude for technical work. After three years in the Accountant-General's Department and four more in the Secretary's Office, years of valuable administrative



training, he found his *métier* in the Post Office London Telephone Service, to which he was appointed as an Exchange Manager in January, 1905. Here he found scope for the acquisition and exercise of the technical knowledge which he loves, and his abilities, industry and zeal carried him rapidly through various grades to his present high position.

Some cynic or other has asserted that most men are misfits in their business or profession, but this cannot be said of Mr. Pink. Telephones seem to be as the breath of his being, and anyone endowed with so much love of his daily work, given the necessary ability, is bound to go far.

THE WORK OF THE PARIS TELEGRAPH CONFERENCE, 1925.*

By F. STRONG, *Accountant-General's Dept.*

(Continued from page 87.)

Naturally, however, the battle royal of the Tariffs Committee was the fixing of new rates for European States.

The charge for a foreign telegram is built up of the terminal rates of the countries of origin and destination together with the transit rates of any intermediate countries. In addition, where a submarine cable is employed a cable rate is usually required. Thus, for a telegram from this country to Switzerland the charge would include a land terminal rate for Great Britain, a cable rate for the Anglo-French cable, a land transit rate for France, and a terminal rate for Switzerland.

Two scales are provided for European countries, one applying to telegraph traffic with other countries within Europe, and a higher scale applying to traffic with countries outside Europe. The scales are, however, reduced for States whose territory or development of telegraph system may not be considered sufficient to warrant their application, or they may be increased for large States, or for those where the costs of exploitation are exceptionally heavy. The rates fixed by the Conference are maximum rates, and any Administration is free to reduce its rates for traffic with any other country.

It will be appreciated that, although no suggestion had been made for controlling the rates charged by States outside Europe, these being left as formerly to be settled by the individual States at their discretion, these extra-European States, as well as the Telegraph Companies, would be affected by whatever decisions were taken in the matter of the rates of European States; and that any example set by the European States, acting in common accord, in the way of increasing charges, might very well be followed by extra-European States and by the Companies, even though the circumstances of the two cases might be widely different.

Now the rates of the European States were lowered at the Lisbon Conference of 1908, and several Administrations objected to the reduction on the ground that the rates previously in force were insufficient to cover the costs involved. Nevertheless, it was urged that a reduction of the charges was necessary in the interests of progress, and further, that the resultant diminution in receipts would soon be made good through a corresponding increase in the traffic. The circumstances of the last 10 or 11 years have been such as to throw up the expenses of Administrations beyond what could be expected to be covered by growth of traffic. Consequently, deficits in many cases had increased to a point where Administrations were no longer disposed to put up with foreign telegraph rates which they considered too low. In view of the delay in convoking the Paris Conference, several of those States which had been on the reduced scale of rates had defied the proprietries, and had arrogated to themselves the full rates without waiting for the Paris Conference.

As was to be expected, therefore, there was a strong movement at Paris on the part of the Continental States for a substantial increase of their terminal and transit rates. That some increase in the scale of rates was clearly justified and necessary could hardly be contested; but the question was "what increase?"

Many states are prepared to conduct their inland services at a loss, but they look to the foreign telegraph service not merely to cover its own costs but to produce a profit. It is probably true to say of any country that the average cost of a foreign telegram is less than the average of an inland telegram; yet in many cases, undoubtedly, the average revenue from a foreign telegram is not less than that derived from an inland telegram.

Another aspect of the matter was that even though it may not be justifiable to ask Administrations to support a loss indefinitely, they should, as occasion arises, be prepared to risk a loss in the expectation of a development of traffic to a degree sufficient to recoup the temporary loss sustained. But it is still a highly contentious question whether an increase in rate would produce an increase in total receipts; and whether, if there resulted a shrinkage in the traffic, any saving in the working costs could be effected.

These and other similarly debatable considerations were fully canvassed, but the overshadowing factor was the immediate need of many countries

to increase their general revenues—indeed, to find revenues to meet their day-to-day expenditure; and in view of the existing state of Europe, when probably the thing most to be desired now is that the States should balance their budgets, it involved a serious responsibility to press the Telegraph Administrations to agree to any scale of rates which would leave them with a deficit in their foreign telegraph services.

After protracted discussions the sub-committee appointed to deal with the question recommended the adoption of maximum rates which, having regard to all the circumstances, could not be considered as ungenerous; but the scale proposed did not meet with the approval of a number of countries, who combined to make a strong protest on the main Committee, going so far in one or two cases as to threaten withdrawal from the Telegraph Union.

The matter was accordingly referred back to the sub-committee, to which representatives of a number of the protesting States were added, and ultimately a revised scale of maximum rates was recommended to the main Committee and carried. This scale of rates involves for telegrams between European States the possibility of increases in the present charges to the public of varying percentages up to more than 50%. Lest, however, those of you who have occasion to employ the foreign telegraphs should be unduly alarmed, let me assure you that the Department will, I am persuaded, take full advantage of the fact that the rates laid down are *maximum* rates, and that such increases in the present charges to the British public as are inevitable are likely to be very small.

Before leaving the question of rates, some reference should perhaps be made to a matter which came into considerable prominence, namely, whether the rate of charge for a telegram which is sent by wireless should be the same as that for a telegram to the same destination which is sent by wire, or whether the wireless service should be at liberty, if desired, to charge a lower rate.

Ever since the St. Petersburg Convention of 1875 it has been accepted as a principle by the European States that reductions of rates which may be arranged ought to have for object, not the creation of a competition in rates between the existing routes, but to open up to the public as many routes as possible at equal charges. There is, I think, little doubt that, viewing all the circumstances, the adoption of this principle has in the past operated to the general advantage of the European public. Nevertheless, the principle has not been invariably observed, and the extensive development of recent years in the wireless telegraph services rendered necessary a close reconsideration of the matter. Particularly was this so in view of the substantial increases in rates which had been proposed, and it became a serious question whether a country like, say, Spain, or Great Britain, situated on the outer fringe of Europe, and having a substantial traffic with other countries involving a land transit through intermediate countries, should withhold from its nationals the advantage of the lower rates of charge which might be possible by the employment of direct wireless services avoiding out-payments of land transit charges to intermediary countries.

It was, of course, a question where even a small increase per word meant a fairly considerable sum in the total, and the fear of the consequences of dropping the principle of non-competition was enough to result in the abandonment of the demand on the part of many States for substantial increases in their land transit rates. The position is, then, that the rates of charge for telegrams between any two countries in Europe shall be the same whether sent by wire or by wireless.

In the case of extra-European telegrams, however, the circumstances are different, and there will be no restriction of competition in rates between the cable and wireless routes.

The next committee to be mentioned is the Regulations Committee, the presidency of which was devolved on Mr. John Lee, the Controller of the Central Telegraph Office. Many vexed questions came up for consideration, and it is gratifying to be able to record that the conclusion of its work was marked by a demonstration of appreciation and goodwill to its chairman which was not equalled during the Conference—a remarkable tribute to his impartiality, firmness, and tact.

On this committee also wireless telegraphy provided some difficulties.

I have already referred to the fact that the wireless telegraph services between countries (called "fixed point" services) are conducted, in general, in accordance with the provisions of the International Telegraph Regulations, and the question arose whether these regulations should be altered in detail so as to provide specially for both classes of communication, wire and wireless. Technical wireless questions would certainly have to be left for treatment by the Radiotelegraph Conference; but the Paris Conference decided, as a practical measure, to include in the Telegraph Regulations a general provision to the effect that, where the term "telegram" &c. is used, such term should be considered as covering wireless telegrams exchanged by the "fixed point" services, except, of course, where the context clearly indicates the contrary.

Another matter of some interest. All of you will be entirely familiar with the term "broadcasting," but I expect many of you only associate the term with 2LO and the B.B.C. It may, therefore, interest you to know that arrangements have existed for some time in Great Britain and other countries for the acceptance of messages containing general news, market prices, Stock Exchange quotations, and so forth, to be transmitted by wireless telegraphy for simultaneous reception at a number of wireless telegraph

* Paper read to a meeting of members of the Accountant-General's staff, Dec. 15, 1925.

receiving stations situated in various foreign countries. The receivers then disseminate the information in their own country.

It was considered that the existence of this international broadcasting ought to be recognised in a general way in the International Regulations; and some provisions on broad lines were accordingly agreed upon. The main points are that the Administration of origin fixes the conditions of acceptance and collects its own charges for sending; and each Administration of destination fixes the conditions of reception and collects the charges it decides to make. There is therefore no international accounting involved. Administrations are to communicate, mutually, particulars of the senders and recipients in each service which may be authorised in order to facilitate control; and general provisions are made as to the form of address, and as to the language which may be used in the text.

In limiting the regulations to generalities, the Committee had in mind the necessity of avoiding anything which might hinder the natural development of these young services. One needs only to think of a wireless telegraph station like that of Rugby, possessing a world-wide range, to realise the very great possibilities of these broadcast services; and their regulation internationally is likely to prove one of the more difficult problems of the immediate future.

Turning to another branch of electrical communications, the Telephones.

The position as regards the International Telephones is a little curious. Prior to the Berlin Conference of 1885, the International Regulations contained no provisions for the conduct of international telephone services, and, of course, such services had not been in mind when the Convention of 1875, which is operative to-day, was drawn up. At the 1885 Conference, however, it was decided to include some regulations of a quite general character for the guidance of Administrations. At later Conferences the provisions were somewhat amplified, but the object was still merely to fix general principles. They contain, for example, as regards procedure and the basis for the tariffs only very general stipulations, the actual regulation of the international telephone services being thus left in each case to special agreements between the interested Administrations.

There has accordingly grown up an extraordinary diversity in practice between the various services in existence, and the general development has no doubt been retarded to some extent by this fact. Nevertheless, of late years the development of the telephone services has been notable, and considerable extensions are projected. As an instance it may be cited that Germany conducts telephonic services with 16 other European countries; and all the Administrations have recognised the necessity for the better regulation internationally of this means of communication. The difficulty was, however, to secure agreement as to what were the best means to adopt, having in mind the fact that internal practice varies considerably in the different countries, and that regulations laid down for the conduct of the international services would have an effect on the practice of the inland telephonic services.

For some time past a Technical Committee, composed of representatives of certain European States, has been engaged in elaborating detailed working arrangements in line with modern developments which would be suitable for general adoption; but this Committee, which has not yet completed its work, was not set up under any authority derived from the International Regulations, and at the recent Conference a strong desire was expressed that more detailed regulations should be at once included in the Règlement. Several complete new sets of regulations were down for consideration, as well as the usual detailed amendments of the existing Regulations, and the Telephones Committee had its hands full.

In the outcome, however, it was decided to continue to limit the International Regulations in the main to broad general principles of such a character as would facilitate the general organisation and foster international telephonic relations, and at the same time to recognise formally the Technical Committee in question as an advisory body in matters of detailed working as between the various States. Although the Committee is advisory only, its views will carry considerable weight, and its recommendations on the questions of traffic procedure and the basis of the international tariffs will be awaited with much interest.

A number of modifications have been made in the existing Regulations, and one or two of them may be of some interest to you. There is one, for example, which permits the application of reduced rates during slack periods of the day; hitherto, reduced rates have only been applicable during the night period. You will probably be aware that differential rates of charge are already applied in the inland long-distance telephone service.

Another modification is the adoption of the principle of charging for calls after the expiration of the first indivisible period of three minutes by periods of one minute, each minute in excess of the first three being charged for at one-third of the ordinary charge. This practice is not at present followed in the British services, and its introduction may occasion some initial loss of revenue. Nevertheless, the charges for international calls are substantial, and the adjustment of the charges so as to make them more closely proportionate to the actual duration of the call was considered to be only equitable.

A third modification gives Administrations the option of establishing international services of "eclair" or "lightning" calls—that is, an extremely rapid service. The charge for these calls is to be at least 10 times the rate for an ordinary telephone call. To take an illustration. The charge for

an ordinary call of three minutes' duration from London to Amsterdam is 10s.; so that the charge for an "eclair" call to the same place would be at least £5. This illustration is not meant to imply that there is any prospect of the service being introduced between those places.

The telegraph side, by contrast, felt itself unable to agree to a similar modification of the telegraph regulations.

There remains the work of the Drafting Committee. The Conference rules placed on this Committee the work of drafting a revised text to give effect to the decisions in principle of the Committees previously mentioned.

The revised text prepared by this Committee is read over at a full meeting of the Conference, when any delegation can, of course, question any decision taken by any one of the several Committees, and if there is sufficient support from other delegations, obtain its reversal.

In practice, the actual drafting falls into the hands of a few zealous individuals, who present their work for the consideration of the Drafting Committee. At this stage it is very necessary not to relax vigilance, for there is opportunity to twist the text, or to admit ambiguity, or to introduce a meaning beyond, or short of, the intention of the Conference. The introduction of surreptitious legislation was not unknown to rectify supposed omissions or errors in the decisions of the delegates. Such undercurrents resulted in a not unentertaining piece of work, humorous in its humourlessness, in which hot debate not infrequently ensued between three or four delegates respecting the precise meaning of this or that, when even the dictionary was fetched to prove a shade of meaning and brought no conviction.

Nor were the debates wholly confined to questions of phraseology. In many cases propositions had been adopted with so many amendments that there was often some dubiety as to the precise scope of the decision taken by the responsible Committee, and once or twice the Drafting Committee was in danger of unconsciously changing its character and examining a question afresh.

The Drafting Committee has a character all its own, or rather, I should say, that each of the other four Committees possesses characteristics which are not observable in the Drafting Committee. In the case of the other Committees, where the ends pursued by each Administration may be widely divergent, the debates reveal some interesting glimpses into the mentality of the different delegations—the political antipathies; the desire for prestige; the demand of the East to play a greater part in the council chamber—these and similar motives find expression. But in the case of the Drafting Committee, all delegations are animated by the same desire—to produce a well-drafted text; and the only antipathies aroused are the very natural ones which arise when someone else wants to alter one's own drafting.

I have endeavoured to give a more or less intelligible account of some of the activities of the five main Committees. Of the decisions of the Conference in regard to other aspects of the services, special mention need perhaps only be made of the decision to set up a consultative Committee on Technical Telegraphy, in form somewhat analogous to the Telephone Technical Committee to which I have already referred. This Committee will study questions concerning long-distance telegraphy, the later types of telegraph machines, and the steps necessary to secure the best results from telegraph lines. Its particular value will be in educating backward Administrations in modern methods of working.

In other directions the Conference had adopted many improvements in practice, and while the disturbance in economic life which has occurred during recent years has made it impossible for the Paris Conference to reduce the telegraph tariffs, the results of the Conference as a whole testify to the great goodwill with which the delegations reconciled the interests of their Administrations with those of the general public.

Having touched, however inadequately, on some of the immediately practical matters with which the delegates had to deal, let us for a moment stand further back and endeavour to view the Paris Conference as it will appear in perspective.

It is inevitable that, in the normal course, such gatherings, when called together at regular intervals, should have frequently a largely routine character, and that the exercise of their energies should be mainly directed to the questions always arising from the continual need for the adjustment of ways to means. It is safe to say that in retrospect the Paris Conference will prove to be more than merely another milestone on a straight road. It promises to mark the coalescence of the international control of the three electrical communication services of telegraphy, telephony, and wireless into one Union, having one common legislation subscribed to by all.

It is true that something had been done before to this end, and that something still remains to be done; but Paris will have the distinction of having taken such practical measures as to bring its achievement within the region of probability. Much, no doubt, can be said in favour of a system in which there would be the option of separate adherence to the dispositions governing each part of the service; but the evolution, as a result of the work of the Paris Conference, of one charter governing the whole field of international electrical communications, adopted in its entirety by all the Administrations, would, I venture to think, result in a spaciousness and unity which could not but be in the interests of progress and for the benefit of the peoples of the world.

TELEPHONE SERVICE OF TOKIO.

BY A JAPANESE CORRESPONDENT.

THE introduction of telephone services in Tokio, *i.e.*, in Japan, dates as far back as September, 1889, when telephone communication was inaugurated in and between Tokio and Yokohama with a very small number of subscribers. How little knowledge the public in those days had about the telephone may easily be seen from the fact that Tokio and Yokohama could enlist only 179 and 45 subscribers, with all the efforts on the part of the authorities to persuade the public to subscribe.

Here is a funny story fully illustrating the difficulty the then authorities experienced in canvassing for subscription. As ill luck would have it, just at the time of the establishment of this system of quick communication, an epidemic was raging, and the people of the two cities hesitated to have telephones installed in their houses for fear the telephones should convey disease just as they transmit conversations.

However, it is a matter for congratulation that the nation soon awoke to the necessity of importing western civilisation, and different kinds of industries sprang up so that Japan now can rank with other first rate powers in international activities. Along with this phenomenal progress of the country, the telephone service has also made a rapid development. After its 30 years' growth, namely in 1923, Tokio could boast as many as 82,810 subscribers with more than 112,700 telephones, which is 1 telephone per 22 inhabitants.

The demand for telephones increased too quickly year by year to be wholly met, with the result that, in Tokio alone, there were about 100,000 applicants vainly waiting for the installation of telephones. The sad fact that a great number of applicants had been waiting in vain as long as ten years forced the authorities to decide to accept no further "ordinary" applications after July, 1918.

The telephone service of Tokio as it stood in 1923, was still in a transitory stage, and almost all sorts of telephone systems were going on side by side. Of the 20 exchanges (one of which is a toll exchange also) then operating, three adopted the magneto system and one the lamp system (a kind of magneto system), while other 16 were being operated by the common battery system.

The time, however, to put an end to this confused and undesirable state and to carry out a wholesale innovation unexpectedly came. The earthquake of Sept. 1, 1923, deplorable as it was, furnished a god-sent opportunity to realise the long-cherished desire to unify the telephone system of Tokio and to install automatic plants which, to our great regret, could not be equipped on account of lack of opportunity. Introduction of the automatic system will indeed be an epoch-making reform of the telephone service of Japan.

The havoc wrought by the earthquake was really terrible beyond description. Two-thirds of Tokio were reduced to ashes, only residential quarters having been left intact. Commercial and industrial districts forming the backbone of Tokio became a wide desolate field. The casualties were no less than 100,000 killed and 300,000 wounded.

To make a brief statement of the damage done to the telephone and of its rehabilitation, fortunate exchanges which were safe from the devastating hands of the quake and fire were only five, located in high residential districts, all other 14 local and one toll exchanges having been destroyed or burnt down by the disastrous quake and

fire. The subscribers on these ruined exchanges totalled 62,590, representing 76% of the total number of subscribers.

As for the reconstruction of the telephone service of Tokio, a temporary exchange was erected to connect offices conducting important government and relief business as well as chief cities of the Empire, the service being commenced on the 5th of the same month. As regards ordinary telephones, their recovery was to be effected on the following principle.

1. Subscribers whose machines as well as exchanges were safe be given first priority.
2. Subscribers whose machines were safe but whose exchanges were destroyed be given second priority.
3. Subscribers whose machines as well as exchanges were out of order be given last priority.

On this principle, all the five exchanges that have fortunately escaped destruction began operation on the 29th day after the catastrophe. But speedy restoration of telephone service for the subscribers under the 2nd and 3rd categories was next to impossible as the reconstruction work was difficult and the building material was extremely scarce.

In these circumstances, the authorities have taken public utility subscribers into the operative exchanges. They have besides worked out a plan to increase the capacity of the five exchanges by enlarging their buildings or extending their equipments so as to accommodate more subscribers according to their increased capacity. The subscribers to be thus admitted were determined by lot, and lucky ones could regain their telephones in a period of 35 to 164 days after the calamity.

On the other hand, an emergency arrangement was made in which a group of 30 or more subscribers were allowed to establish and maintain at their own cost a temporary private branch exchange which was to be operated by operators paid by the Government. The number of exchanges of this kind amounted to 122. Moreover, to meet the demand for telephone communication within urban districts or with provincial towns, 33 public call offices were opened in the city as a temporary measure.

Thanks to the measures mentioned above, the telephone service of Tokio has now almost regained its pre-quake state with 11 exchanges (one of which also acts as toll office).

In conclusion, it must be added that the existing exchanges are all operated by common battery, but that about ten exchanges to be re-established in the course of this and next fiscal years will be equipped with automatic plants. Not only will all exchanges to be built in Tokio in future adopt the automatic system, but the authorities are contemplating conversion of the manual system of the present exchanges into automatic exchanges. It is expected that all the pre-quake subscribers will be accommodated by the end of 1926.

CENTRAL TELEGRAPH OFFICE LIBRARY.

It is always a good sign to see a progressive report in connexion with a library, and when such an organisation has been established for close upon forty years and yet shows reliable evidence of virility its Committee and its Secretary are undoubtedly to be congratulated upon the results of the care and thought and time which they must have bestowed on it. The annual report of the C.T.O. Library was in the writer's mind when he wrote the above paragraph, for this report shows an increase in membership for 1925 over 1924 of 103—although 1924 was itself a record year—an issue of 32,466 books as against 26,173, an increase in subscriptions of £30, and so on as regards every item. Mr. Pethurst should be a proud man, for despite any disclaimer he is sure to make, one knows very well his enthusiasm is the moving spirit.

J. J. T.

NOTES ON TELEGRAPH PRACTICE.

BY G. T. ARCHIBALD.

XIII.—Concerning Telegraph apparatus used by the Post Office—
Past and Present—Multiplex and Start-stop Printing
Systems.—(Continued.)

THE policy as regards receiving apparatus is not so well defined. Clearly the ideal receiver is one which will furnish a clear copy on an ordinary telegram form, but unfortunately no such machine is available. At present, therefore, the choice is between tape printing and column printing on continuous rolls of paper. The paper tape arrangement is perhaps the more flexible and the least costly both in manufacture and maintenance; the slip can be gummed neatly to ordinary telegram forms, and telegrams dealt with in this way are satisfactory to the public. The weakness of this system is that it is doubtful whether one receiving operator would be able to gum up and check the output of a fully loaded channel, working at a very high speed.

On the other hand one operator can readily deal with the output of a column printing machine working at 40 words a minute, but the finished copy is not entirely satisfactory; short telegrams are sometimes contained on a slip of paper which looks rather scrappy and is not sufficiently distinctive for business purposes. It is impossible, too, to provide a legend similar to that of the ordinary telegram form, and although many devices have been tried it has now been decided to use paper with the legend printed continuously along the margin of the rolls of paper employed. No further column printing apparatus is being installed at multiplex circuits at present.

Experience has shewn that the quadruple arrangement is the most convenient for traffic conditions, and it is proposed to convert the few sextuple and quintuple installations to quadruplex in the near future.

Experiments have been made with circuits made up of Murray keyboards and transmitters with Morkrum column printers, also with Murray keyboards, Western Electric printers and Baudot receivers, and with Post Office typewriter keyboards, but a standard form of multiplex apparatus for all circuits has not been laid down. It has, however, been decided to adopt the Murray phonic wheel drive with mechanical correction; a standard layout for type keyboard has also been approved.

The latest development in printing telegraph systems follows the line of using a relatively cheap printing telegraph system to meet the needs of routes which, although not justifying conversion to multiplex, merit, according to modern ideas, the adoption of a more economical method of dealing with the traffic. The original idea was to use a machine which would act as a feeder by means of a reperforator to the multiplex circuits serving the main routes, but it now seems doubtful whether such an arrangement would be economical even if a suitable system were available.

What has happened is that a system known as the start-stop system has come to the front and has been found very suitable for the less heavily loaded routes in the British service.

The first apparatus of this kind to be used was the "Teletype" manufactured in America. It is a five-unit system consisting essentially of a typewriter keyboard transmitter and a tape printer mounted compactly on the same base. The apparatus is geared to work at 40 words per minute. Above that speed the keys lock. The motor runs continuously, but the transmitting and receiving apparatus is at rest when signals are not being transmitted.

The receiving mechanism is similar to that of the Baudot receiver but only one magnet is used in the reception of signals instead of five.

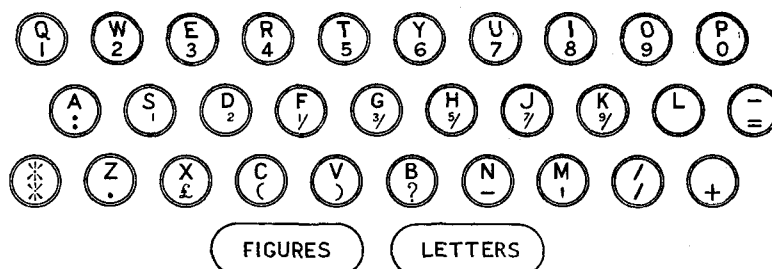
So far 23 circuits have been equipped with this type of apparatus with uniformly good results. Individual operator outputs of upwards of 80 telegrams are not uncommon, and this figure has frequently been exceeded. The normal output per channel under

favourable conditions, i.e. when the traffic is available, is about 70 telegrams per hour.

Another American system tried employs column printing, and has given satisfactory results for inter-office work, but it is not entirely suitable for public telegrams since it is not possible to provide for the invisible correction of errors.

There is a fairly wide field for development in this direction, and British manufacturers of telegraph apparatus are now turning their attention to the production of start-stop apparatus.

STANDARD KEYBOARD PERFORATOR
FOR INLAND MULTIPLEX CIRCUITS. (TAPE PRINTING)



To sum up it may be said that in future the British telegraph service will rely mainly upon printing systems with keyboard working for (i) Wheatstone (ii) Multiplex and (iii) start-stop systems. On the receiving side the aim of the Post Office is to obtain a suitable column bar printer. For the present, however, tape printing is more satisfactory for the reasons already explained.

So far the principal development in printing telegraphy has been along the lines of quadruple multiplex working at a channel speed of 30 words per minute on a single telegraph line or loop. Whilst this system possesses many advantages it is not perhaps entirely satisfactory. It enables considerable economies to be made in external equipment, but it involves a high standard of maintenance, because in general, all channels of communication between the offices served by such circuits are provided on a single line or loop. A line fault, or a fault in the distributing and synchronising apparatus is sufficient to interrupt communication on all the available channels, and unless the trouble can be speedily removed traffic congestion and delay must result. Another aspect of this question is worthy of mention. Multiplex apparatus requires the most expert attention, and for that reason it is necessary to employ at each circuit a skilled officer whose duty it is to see that the apparatus is maintained in good running order, etc.; this together with the relatively high maintenance costs of the apparatus seems to indicate that in certain circumstances it may be found more economical and more efficient to use a larger number of lines fitted with start-stop printing apparatus.

Start-stop printing apparatus does not require the same high degree of technical skill to maintain running adjustments; the maintenance charges are relatively low and the apparatus works at a minimum channel speed of 40 words per minute. From a traffic point of view it would certainly be advantageous to use "straight" rather than multiplex circuits; there would be less liability to total breakdown, and therefore, less liability to congestion and delay, to the diversion of traffic to other routes, and to the use of the recognised alternative to multiplex—Wheatstone working.

This question has already received some consideration, and an interesting experiment was carried out during the summer of 1925 on the Manchester—Blackpool route. This route which is about 45 miles in length was formerly equipped with multiplex apparatus, Wheatstone—Creed facilities being provided as a standby. In May, 1925, duplex start-stop apparatus with a channel speed of 40 words per minute was installed on three circuits, two physical, one superposed, and it is now clear not only that, as a result of the change, working costs have been reduced by at least

£500 per annum, but that the traffic has been disposed of with less delay than formerly. As is well known the Blackpool traffic is exceedingly heavy during the summer months, but it was successfully dealt with on the three circuits except on one or two days when additional outlets had to be provided. It is probable, however, that the four multiplex channels would not have carried the traffic on those days. Upwards of 1,000 telegrams have been disposed of in a single day on one start-stop circuit on this route.

The result of this experiment may have an important bearing on the future of the means of communications, and the matter is now receiving earnest consideration.

XIV.—Concerning Circuit Procedure.

The telegraph business probably demands a much closer system of co-operation between individuals than any other industry, and this co-operation is all the more necessary because of the distance separating those responsible for the smooth working of the circuits. Particularly is a good understanding essential at omnibus circuits, i.e. circuits which connect a number of small offices to a larger office, and since the great majority of circuits provided during the early days of Government control were of this variety it was necessary, in order to economise line time and to prevent dispute as to the priority of use of the lines, to lay down very definite operating rules and to impose disciplinary action in cases of flagrant disregard of the regulations.

The old telegraph companies had arranged codes to indicate the names of telegraph offices under their control, and every effort was made to incorporate in the code of an office only letters included in the name of the town or village concerned. Two-letter codes were allotted to the larger towns and three-letter codes to the smaller places: thus the Central Telegraph Office, London, became known as TS, presumably because of the fact that at that time it was located in Telegraph Street, E.C., and BM, GW, LV and MR were the codes used to indicate Birmingham, Glasgow, Liverpool and Manchester respectively.

Mnemonics could not, of course, be given in every case, and as the number of offices increased, following the transfer of the service to the State, it became more and more difficult to memorise three-letter codes, many of which have no sort of resemblance to the names of the offices to which they had been applied. SRX does not provide a likely clue to Branscombe, and QHY is not altogether representative of Bwlchgwyn. These codes are seldom changed, for obvious reasons.

It is interesting to note that the parcel post service has made use of telegraph name codes for record purposes ever since the introduction of that service.

Sub-office three-letter codes were used, at first, only to indicate the name of the office in the official particulars on the various forms, a one-letter code being used to gain the attention of the office required. The sub-office nearest to the head office on the wire took the first letter, and so on. As regards two-station circuits, however, the attention of an office was gained by signalling the code three times, followed by the code of the calling office, i.e. GW GW GW-LV. The official reply to this signal was the code of the called office and "G" (Go on), e.g. GW-G. In 1910 the calling signal was dispensed with except on omnibus circuits, it having been found that the signalling of the prefix of the telegram to be disposed of was sufficient to gain the attention of the distant office on two-station circuits. At the same time it was decided to omit the office code from the reply on two-station circuits which was therefore reduced to "G." Concurrently, the single-letter call on omnibus circuits was superseded by that formerly in use for calling purposes on direct circuits; these arrangements are still standard on all but printing telegraph circuits.

As regards the order of disposal of traffic it was provided in the Telegraphs Act 1863 that telegrams should be dealt with strictly in the order of handing-in time, and that no favour or priority should be accorded to any telegram other than a Government priority telegram. The intention was undoubtedly right, but those responsible for framing the act could not have foreseen

the difficulty of adhering rigidly to such a principle in actual practice.

It soon became obvious that the strict application of a general rule of this kind must be a matter of difficulty, since the circumstances affecting the transmission of telegrams vary very greatly. The traffic awaiting transmission over any circuit at a large transmitting office consists partly of telegrams handed in at that office and partly of telegrams from other offices handed in at earlier times. The strict letter of the rule would require that the whole of the telegrams originating at that office should be kept back until all transmitted work of earlier code times had been disposed of, with the result that telegrams which have to pass through one or more transmitting offices would be expedited at those offices, but it would have the disadvantage that it would increase the transit time of all originated work at the transmitting offices and of delaying the disposal of purely local traffic. It had, in practice, the serious defect of slowing-down the circuit working rate, owing to the fact that telegraphists were called upon to arrange the traffic in time order.

Between 1870 and 1900 a certain practice gradually became established in determining the order of signalling of telegrams, although this practice was never recognised in the rules on the subject. Telegrams originating at any office were signalled in strict code turn over each circuit from that office; those received from other offices for onward transmission were signalled forward in relation to locally originated telegrams according to the time at which they reached the circuit. The exception to this arrangement was that code time was always strictly observed at omnibus circuits. When two offices on such a circuit wish to send a telegram they must first indicate the handing-in time by signalling the time code letters, and the office with the prior code then proceeds to gain the attention of the office required. If a second telegram awaits transmission at the office using the line, the time code must be signalled after the completion of the first telegram, in order that other offices may either claim priority or await the completion of the second and any succeeding telegram bearing a prior code. By this means frequent challenging of codes is avoided.

About 1886 an excellent method known as "Up and Down" working crept in for manual simplex working on two-station circuits. In this form of working the office which first offers a telegram is allowed to proceed, and thereafter each office sends and receives one telegram alternately. If no traffic is on hand when a receiving operator sends the acknowledgment signal, he must transmit the "Clear" signal as an indication to the distant operator that another telegram may be transmitted. If congestion arises at either office and duplex working is not justified, i.e. when there is a preponderance of traffic in one direction, a mutual arrangement is made between the responsible officers to send two or three telegrams in one direction to one in the reverse direction until the transit time at both offices is equalised.

The whole question was reviewed in 1902 when the view was taken that the Act did not require the Post Office to deal with telegrams throughout the whole course of their transmission in the order in which they are handed in, irrespective of the volume of traffic, or of the number of intermediate transmitting offices. It was held that the reasonable interpretation of the rule against favour or priority did not seem to require more than that as between telegrams having the same office of origin, the order of signalling should, at any circuit, be determined by the order in which they are handed in, and that that condition was met by the practice described above. No attempt was, however, made to amend the rule until 1914, when it was definitely laid down that telegrams should be signalled from the office of origin in code turn over the respective circuits, and that they should reach the signalling telegraphist in that order. On direct circuits, however, transmitted telegrams and telegrams received by tube from other offices should be signalled not necessarily in code turn but in the order of their arrival at the circuit. At the same time "up and down" working was regularised, and no further change has since been made in the rules governing the order of signalling.

The original instructions regarding the method of working on single-needle and bell circuits provided that the sending telegraphist should pause after signalling each word to enable the receiving operator to indicate by the signal "T" or "E" whether he had received the word or required a repetition. Experienced telegraphists were, however, allowed to depart from that rule and defer acknowledgment until the end of the telegram. The rule is still in operation at the few circuits of this description in use. Needle apparatus is now practically confined to circuits serving railway stations, and every effort is being made to substitute telephone working. Wheatstone ABC procedure is not worthy of special mention.

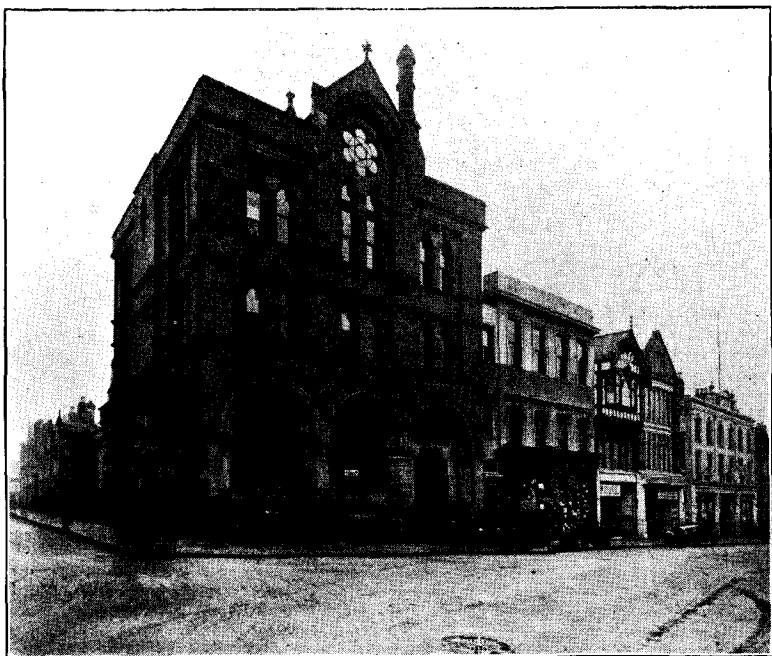
(To be continued.)

CONVERSION OF SHREWSBURY EXCHANGE TO AUTOMATIC WORKING.

THE first town in 1926 to benefit by the change to automatic working is Shrewsbury, the county town of Shropshire, where a 1,000-line Strowger Automatic Exchange was cut into service at the Head Post Office at 2.0 p.m. on Saturday, Jan. 9, the Mayor, Councillor R. D. Bramley, inaugurating the event by dialling the Deputy Mayor, Councillor R. Bates Maddison. The equipment, which is of the standard Strowger type adopted by the Post Office for its telephone development programme, was manufactured and installed for the Department by Automatic Telephone Manufacturing Company Ltd., Liverpool.

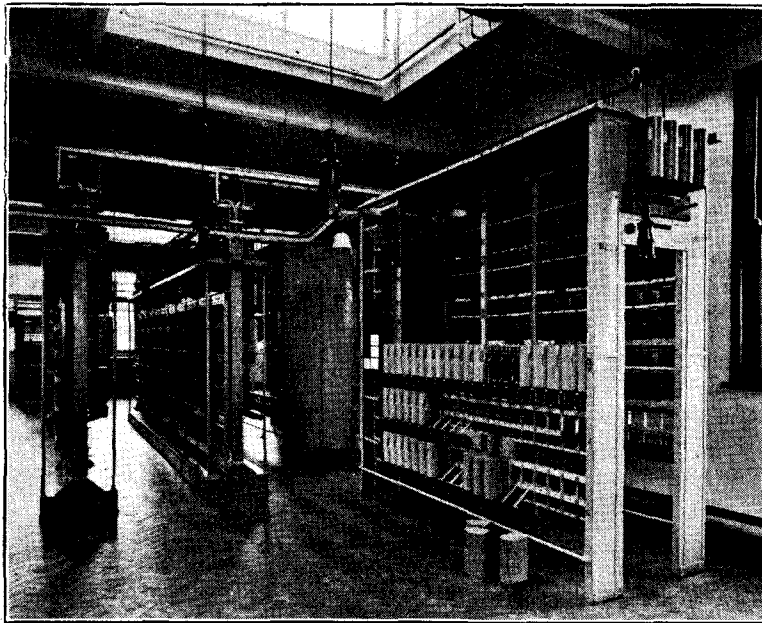
Shrewsbury, colloquially termed "Shrowsbury," occupies a mound, almost an island, in a bend of the River Severn. Although not actually Roman in origin, it is adjacent to the Roman Wroxeter, and was probably founded by Kyndylan, a British Chief, after the sacking and burning of Uriconium the Roman "white town in the valley," by the West Saxons in the sixth century. William the Conqueror gave Shrewsbury, and much of the surrounding country to Roger de Montgomery, who styled himself Earl of Shrewsbury, built the castle, and later founded the Abbey of S.S. Peter and Paul, in which he died. His son, Robert de Belesme, walled the town, and having espoused the cause of the Duke of Normandy, was besieged in the Castle by Henry I, who first ousted and then outlawed him. The battle of Shrewsbury, 1403, between the forces of Henry IV and Henry Percy (Hotspur) was fought at Battlefield, four miles north of Shrewsbury. Of the town walls only a short length, on the south side, still stands, and of the original 20 towers, but one remains. In the original school building, 16th to 17th centuries, now used as a library and museum, were educated Sir Philip Sydney, Judge Jeffreys, Sir William Jenner and Charles Darwin, the latter being born at the Raven Hotel.

Curiously enough the present Post Office Superintending Engineer now lives in the house formerly occupied by the famous author of the "Origin of Species." Noteworthy features of Shrewsbury to-day are the fine old half-timbered buildings, some of which once lodged such notabilities as Charles I, Prince Rupert, James II, Mary Tudor, Henry Tudor, Admiral Benbow, &c.



SHREWSBURY HEAD POST OFFICE.

The new automatic exchange is located in a building in St. Mary's Street, adjoining the General Post Office. The switchroom equipment comprises 9 standard rotary line switch units and 1 P.B.X. unit. These units are of the usual Strowger type, equipped on one side with rotary line switches (50 per gate) and on the other with final selectors. The latter are mounted on three shelves per unit, each shelf having capacity for eight final selectors. The present equipment of the exchange is for 1,000 lines, of which approximately 800 are already taken up, but provision is made for ultimate expansion to 1,800 lines.



LINE SWITCH UNITS AND SELECTOR TRUNK BOARDS, SHREWSBURY.

The system is four-digit, Shrewsbury Automatic Telephone subscribers' numbers lying between 2,000 and 2,999.

Special numbers are allocated as under:—

- 0—Trunk Records and Junction Calls.
- 90—Phonograms.
- 91—Enquiries.
- 92—Special Services.
- 93—Rural Party Lines.
- 99—Test Clerk.

Associated manual equipment is provided, enabling outer area subscribers to gain access to Shrewsbury automatic subscribers through the medium of operators who will extend these incoming calls on receipt of verbal instructions in the usual course. The various group selectors are mounted on two selector trunk boards, each accommodating six shelves per bay, and having capacity for 240 selectors. Other auxiliary equipment includes an M.D.F., link distributing frame, 4-bay meter rack and repeater rack.

Current supply to the system is furnished by two main batteries (one reserve) of Premier Accumulator Company's manufacture. Each battery consists of a set of 25 h.a. 7 type elements in h.a. 10 lead-lined boxes. The present capacity per battery is 493 a.h. when discharged at the 9-hour rate, but the boxes are large enough to extend the capacity to 705 a.h. when the necessity arises. The batteries are mounted on single-tier racks.

The charging motor generator has an output of 90 amperes at 57 volts, and comprises an enclosed ventilated shunt-wound motor for operating on 420 volts d.c. supply, direct-coupled to a shunt-wound dynamo with the above output, the voltage regulation being between 50 and 68 volts. The speed is 1,000 r.p.m. Ringing dynamotors are in duplicate, one of these machines being designed to work off the supply mains, and the other off the Exchange battery. Control of the power supply is centred in a 2-panel power board, the first panel of which carries starters and switches for controlling the ringing machines.

On the second panel are mounted an ammeter and voltmeter, with associated multi-way switches; generator field rheostat; charging resistance, S.P. circuit-breaker, and battery charge and discharge switches. The actual motor starting panel comprises a welded iron frame supporting a d.p. main switch and motor starting switch.

The population of Shrewsbury at the 1921 census was 31,000, so that even allowing for subsequent growth the present telephone density of the area (about 1 telephone to every 40 inhabitants) leaves much to be desired. No doubt the increasing popularity of the service which is the inevitable outcome of substituting the speedy and reliable automatic system for the slower manual switching of local calls will help to improve this record. Moreover, Shrewsbury is an important agricultural centre, and telephones for farmers and rural areas are daily becoming more and more necessary to bridge the greater distances which separate agriculturists from their markets. The new system at Shrewsbury should assist this development also.

TELEGRAPHIC MEMORABILIA.

NEVER perhaps, at any of the previous gatherings of the London Telephone and Telegraph Society has so large an audience assembled as that which greeted Mr. John Lee, C.B.E., Controller of the C.T.O., on the 15th ult. in the lecture hall of the Institute of Electrical Engineers. Graced by the chairmanship of Sir Evelyn Murray, K.C.B., Secretary of H.M. Post Office, who was supported by W. A. Valentine, Esq., Controller of the London Telephone Service, Mr. Lee held his audience for over an hour with a unique lecture on "Sidelights of the Telegraph Conference of 1925."

As a verbatim report of the lecture appears in the columns of the present number readers will have a full opportunity of appreciating the art of a lecturer who has been able to put life and colour and reality into what at first blush might well appear to promise a dry-as-dust piece of history. Readers who were also *hearers* of Mr. Lee's effort will doubtless miss the light and shade and the dramatic touch which the living voice gave, and maybe also some of the quiet humour that played in and out between the more serious phases of the subject, and which, artistically blended as it all was, left the listeners unwearied even at the expiration of over sixty minutes.

Sir Evelyn paid a happily worded tribute to the lecturer, and Mr. Grant, one of the delegates who accompanied Mr. Lee, followed with what may be accepted as the corporate expression of gratitude of the entire British delegation to their leader for the happy and skilful manner in which he had steered them through six weeks of storm and stress.

Captain Eckersley of the B.B.C., in the course of a few words of appreciation of the lecturer, also gave voice to a generous tribute to the efficiency of the British Government Telephone system and its reliability, a tribute which no newspaper appears to have made public, but which Post Office officials will surely place with intense satisfaction upon the Credit side of the Criticism Balance-Sheet of the Telephones.

Mr. Lee made mention of the introduction of the cheaper class of cablegram by the Government Imperial organisation. The Western Union Telegraph Company however, claim, and that with some considerable justice, the credit for the introduction of the Cable Letter and Deferred services in 1912-1913.

If ever a secondary battery was severely tested surely the chloride battery at the power station of the Aluminium Company will long hold the following unique record. The failure of the dam at Dolgarrog, North Wales, the consequent terrible flood, and the wreckage and deaths which resulted are not likely to be forgotten for many a long day. Four weeks after the disaster the battery above-mentioned was found deep in the mud to the extent of half a foot over the top of the cells. Remarkable to relate, although nothing has been done to the battery it is again in use, being charged and discharged as usual, despite the fact that a certain amount of sand found its way through the usual vent-holes.

AUSTRALIA.—There sailed from Greenwich, on Jan. 15, the cable ship *Colonia*, the largest cable ship in the world. She is to lay a duplicate cable over the 1,800 nautical miles between Cocos (Keeling Islands), in the Indian Ocean, and Freemantle, Australia. More than ordinary interest attaches to the operation because the cable is of the new loaded type, and is the first British owned and manufactured loaded cable to be put down. It is the property of the Eastern Extension Australasia and China Telegraph Co., Ltd., one of the Eastern Associated Telegraph group, and will be operated by British interests. Whereas the existing line from Cocos to Freemantle has a working capacity of 145 letters a minute, the new line is designed for a speed of 2,100 letters. The new cable is not in substitution, but in duplication, of the existing facilities, and will give the Eastern group yet another route connecting Europe and Australia. That means developing further the lines between Freemantle and Adelaide, a matter now under consideration. The *Colonia* was expected to arrive at Cocos about the middle of last month and to complete the laying of the cable at Freemantle early in March.

Although, says the *Sydney Morning Herald*, during October, 1925, the number of people holding listening licences increased, no fewer than 3,513 licences were cancelled during that month. The State where broadcasting was first developed, New South Wales, was responsible for almost the entire number of cancellations. During the month, 1,672 new licences were issued, but 3,361 were cancelled. In New South Wales, 37,203 licences were in force in November, 1925, compared with 28,442 in Victoria. In making these figures available, the Director of Postal Services said that the Department had got in touch with a large number of persons who had not renewed their licences, with the object of finding out if any common motive had inspired them. Only a small proportion said that the programmes did not appeal. The others had all sorts of private reasons in which the expense of renewals figured largely. Mr. Brown added that steps were being taken to introduce more effective policing to discover unlicensed listeners.

AUSTRIA.—The President of the Austrian Republic, M. Hainische, inaugurated the new broadcasting station at Rosen Huegel, near Vienna, on Jan. 30; it is said to be one of the most powerful in Europe, and is operating on a wave-length of 500 metres.

According to *The Times*, a wave-length has been apportioned to the new station for the time being only, and is liable to be altered when the International Union at Geneva is ready to allocate new wave-lengths. In any event Vienna may possibly broadcast for some weeks to come simultaneously on two wave-lengths.

BAKU.—The Commission of Posts and Telegraphs is about to begin the restoration of the submarine cable between Baku and Krasnobidsk in the Caspian sea. This cable was damaged in many places and has been out of service since 1920. A period of three months will be required to complete the work.

CANADA.—*Reuter's Trade Service*.—Port Arthur, Ontario, reports that the first test of wireless direction finding on the Great Lakes has been completed. The necessary equipment was installed by the Canadian Marconi Co. on the steamer *Alencayles*, and the results are reported to have been most satisfactory. During the coming navigation season the system will be operated in conjunction with lake-shore stations erected for the purpose.

CEYLON.—New transmitting plant designed for both ship-to-shore commercial work on i.c.w. and c.w. and broadcasting was inaugurated in December by the Governor of the island. The plant was designed by the chief engineer of the Post Office (Mr. E. Harper, M.I.E.E.) and erected by the Department. The power in the oscillatory circuit for broadcasting is 1 kw, which can be increased later as required. Excellent reports regarding the transmission have been received from places as far distant as Calcutta, India, approximately 1,000 miles distant. The broadcasting service in Ceylon is conducted by the Post and Telegraph Department.

CHILE.—*Commerce Reports* states that the Chilean Government has granted a concession to the Compania Radio Chilena, of 30 years' duration, in conformity with the stipulations of the electric service law, and the company is therefore obliged to install two retransmitting stations in the zones which the Department of Electric Services indicates. One will be located in Concepcion, about 220 miles in a direct line south of Santiago. The entire system must be in operation by June, 1926. The station at Santiago, which is to be rated at 1,500 watts, will broadcast on a 480-metre wave-length and will have the call letters CMAB. It will be permitted to broadcast four hours daily. It has been estimated that there are now 25,000 receiving sets in use throughout the Republic.

CHINA.—It is reported that a radio station is being constructed at Paotouchen, Suiyuan Special Administrative Area, and the work is expected to be completed shortly.

Interest in radio broadcasting is increasing in China, says the *Daily Mail* special correspondent, who explains that news is broadcast from a shop in Shanghai and music from a local dance hall. He says: "Many of the wealthier Chinese own expensive high-powered receivers. Receiving sets are forbidden in China by a quaint law which classifies them as munitions of war. However, officials ostentatiously ignore its infraction. There are thousands of sets in Shanghai, how many no one can even estimate. The majority are of local construction from 'knockdown' kits imported from America. They range from the humble cat's whisker type to ten-valve super-heterodynes that howl miserably in the night. The lesser sets must depend upon the Shanghai shop aforementioned and the voluntary ministrations of amateur transmitting stations, of which there are many. The majority of the latter are European-owned."

DENMARK.—According to the recently-issued report for the year ending March 31, 1924, by the Danish Telegraph Authorities, the telegraph system in Denmark at that date comprised 5,388 miles of overhead lines, 525 miles of submarine cables, and 238 miles of underground lines—a total of 6,151 miles.

EL SALVADOR.—*Reuter's Trade Service* informs us that the Department of Telegraphs and Telephones of the Salvador Government notifies that the new 500-watt broadcasting station erected in the capital, San Salvador, will be opened for public traffic shortly. The wave-length employed will be between 400 and 500 metres. The demand for radio receivers of the less expensive types shows signs of expansion, and dealers are making larger stock purchases.

FRANCE.—*Reuter's Paris* correspondent announces that proposals for an all-round increase in French inland letter, telephone, and telegraph rates are before the Finance Committee of the Chamber. The scheme is estimated to bring in an additional revenue of 315 million francs, and provides for a change in the method of charging for inland telegrams. It is suggested that they should in future be divided into two categories; those destined for the same department or neighbouring departments, and those for more distant departments. The first category would be charged for at the rate of 20 centimes a word, with a minimum of ten words, and a surtax of 50 centimes on each telegram; the charge in the second category would be 25 centimes per word. Local telephone calls from public boxes would be increased from 25 centimes to 50 centimes, and from private telephones, from 15 centimes to 25 centimes; semi-local calls would cost 1 franc and 50 centimes respectively, and for calls within the same department not classed as either of the above, a uniform rate of 2 francs.

Up to the time of going to press no news has reached us regarding the fate of this proposal.

Reuter's Paris agency also reports that many protests have been raised against the proposed new taxes on wireless apparatus, which is classed as a luxury. The French Wireless Union has unanimously adopted a resolution pointing out that wireless is by no means a luxury, as 90 per cent. of the sets belong to modest employees and workers; that it is a powerful element in furthering social progress, and that still wider development of wireless would bring into the Treasury greater resources than the proposed tax, which would restrict such development. The resolution expresses the determination to oppose any tax on ordinary sets, the price of which does not exceed 2,000 fr.

HOLLAND.—We are indebted to the *Daily Mail* and *Times* respectively for the two following items:—Subject to the necessary consent of the Government, a second transmitting installation is to be erected at the broadcasting station at Hilversum, which will allow of regular weekly programmes in addition to those broadcast by the religious and educational societies.

The Hague telephone administration has succeeded in working out the plans for a system by which it will be possible to distribute wireless programmes to telephone subscribers. The wireless connexion will be automatically cut out when an ordinary telephone call is put in and come into operation again when the call is finished. One large antennae and a receiver will have to be installed in the Central Telephone Office. Connexion will be obtained through apparatus which will be supplied to telephone subscribers for ten florins (18s. 6d.). Additional earpieces can be supplied at 14s. 6d. each, and the annual charge for the service will be 30s.

Later information states that the Hague Town Council, on the first of last month, accepted the proposal to use the ordinary telephone service as a means of broadcasting.

ICELAND.—The new broadcasting station at Reykjavik has begun testing operations. According to the *Evening News* it transmits at 11 p.m. on a wave-length of 430 metres. The transmitter, which is to be under official control, works on a power of 500 watts, and was installed by Standard Telephones & Cables, Ltd. (Western Electric Co.), one of whose engineers is at present in charge of the station.

INDIA.—The *Daily Telegraph* states that the wireless station which is being erected at Kirkee, near Poona, in the Bombay Presidency, in connexion with the Imperial wireless chain, is expected to be ready in six month's time, and to be able to operate at the rate of 1,000 (*sic*) words a minute. (We hope you are ready C.R.O. London and that Bombay has enough traffic!) There will be five steel masts, each 280 ft. high, in a line pointing directly to the Skegness reciprocal station. Shortly the station will be enlarged to communicate with Tokio, and also with South Africa. The receiving station at Dhond, 50 miles away, is also progressing.

IRISH FREE STATE.—The Staisium Craoibscaoileachain Ath Cliath, otherwise 2RN, commenced to broadcast on Jan. 1, 1926, but already, according to the *London Times*, its adverse critics largely outnumber those who praise its achievements. So far the station has been broadcasting only for two hours every evening, from 8 until 10 o'clock, and there has been no programme at all on Sundays. In view of the fact that a wireless licence in the Free State costs a guinea, purchasers of crystal sets in the Dublin area complain that they are being treated unfairly, more especially as the standard of the 2RN programmes has not been very high.

LATVIA.—According to the *Electrical Review* it is reported from Riga that a new telegraph cable is being laid between that city, Dunaberg, and Roisten.

LIVERPOOL.—At the Liverpool Centre of the Institution of Electrical Engineers, Mr. E. H. Shaughnessy, of the wireless section of the Post Office, recently lectured on "Post Office Wireless Stations." He said that listeners would experience less interference if they used coupled circuits on their sets. One of the advantages of the spark system from the shipping point of view was its broad tuning, though that was a defect from the point of view of the broadcaster. Loose coupling made spark signalling less offensive to the listener, but it could not be carried too far as it reduced the range of the transmitter. There were still something like 3,000 ships fitted with crystal receiving sets, which had a limited range, and until they were replaced with more sensitive and longer-range valve sets the Post Office would be obliged to use spark transmission.

LONDON.—Wireless concerts for air travellers were inaugurated on the Paris-London airway on Feb. 1, when all the passengers by the Air Union noon aeroplane from Le Bourget enjoyed a concert broadcast by the Radio-Paris station.

An invention for the automatic steering of ships made by a London engineer, Mr. J. W. Kirkland, will, it is claimed, take the place of the gyroscope compass now in use in many big vessels, says the *Daily Mail*. It is based on the use of two valves set at an equal angle with the keel. They are so adjusted that the electric currents passing through them to relays which operate the steering gear are exactly neutralised. If the ship deviates from its course the change in the earth's magnetic field is sufficient to upset the balance and the motor operating the rudder is set in action. With this apparatus the course of a ship can be set and the vessel then steers itself automatically.

At a meeting of the Marconi Company in London it was recently stated that the directors are of opinion that the Beam services between this country and Canada and South Africa should be ready for working in April, and that the services with India and Australia will be in operation about the middle of August. A Beam station is being erected at Dorchester for communication with the United States and with South America. A corresponding station is being built in Brazil for the account of the consortium of the four Wireless Companies operating in South America. The company is also constructing stations connecting Portugal and her Colonies and linking up Portugal with the rest of the world.

SPAIN.—Reuter's Trade Service reports from Madrid that the Casa del Aficionado, of Barcelona, manufacturers of wireless telephone material, is about to install a wireless station at Barcelona. This station will be the fourth in that town.

SWITZERLAND.—A wireless telegraph reception and transmission station is to be installed at the aerodrome at Dubendorf, near Zurich.

UNITED STATES.—In connexion with the congestion of the ether through the rapid growth of broadcasting, an important step has been taken by the United States Government in ordering proceedings to be instituted against the Zenith Radio Corporation, Chicago, for pirating a wave-length. When the Zenith Co. applied for a licence it was informed that there was no separate wave-length available, and it was only given permission to share a wave-length with a Denver station. Recently the Zenith Co. commenced broadcasting on a wave-length allotted to Canada, but hitherto unused. The forthcoming action will be the first test of the Government's power to regulate wave-lengths.

Some few months ago a remarkable series of experiments and studies were completed by the American Bureau of Standards, Washington, D.C., in connexion with the uses of Piezo-Electric crystals for radio work. It is known that certain crystals undergo a slight expansion or contraction when an electrical pressure is applied to them, and, oppositely produce a slight voltage when compressed or pulled.

A piece of quartz crystal 1 or 2 in. long has a high natural frequency of the same order as the frequencies of currents used in radio communication; the frequency of vibration of the piece of quartz is extraordinarily constant and is very useful as a radio standard. In association with a small electron tube it acts as an oscillator or a generator of current, the frequency of which is that of the mechanical vibration of the piece of crystal. As the frequency thus produced is accompanied by numerous harmonics, the crystal is a standard giving several radio-frequencies; it is thus a remarkable supplement to the wave meters which have hitherto been used as standards of radio-frequency.

The Bureau worked out means of producing audio-frequencies and also radio-frequencies by utilising suitable crystals. Such crystals can be used to control or determine the frequency of a transmitting station and to hold it strictly constant, which means a great advance in radio-transmission technique.

The crystals are also useful in the accurate setting of receiving apparatus and for controlling the frequency of radio-frequency generators used in laboratory measurement work. The value of these various applications is particularly great at the frequencies above 2,000 kilocycles which are now rapidly coming into use. Part of the work resulted in the design of an outfit for use by the U.S. Department of Commerce radio inspectors and adapted to the rapid and accurate standardisation of frequency meters.

VENEZUELA.—Reporting to the Department of Overseas Trade on the economic conditions in Venezuela (under date September, 1925), Mr. H. A. Hobson, H.M. Consul at Caracas, mentions improvements that have been effected in the Caracas wireless station, and states that communication with Trinidad has been well maintained; the Maiquetia station has also been in constant touch with Puerto Rico. The Puerto Cabello and Maracaibo stations no longer work, no satisfactory results ever having been obtained from them. The French Cable Company's report shows an increase of some 12,000 telegrams (about 20%) in 1924 over the 1923 figures. A concession was granted on Sept. 25, 1924, to a military official in the Telegraph Service to import and sell wireless apparatus and to establish a service of radio concerts. Up to the present, however, no scheme has been formulated, and consequently not a single wireless set (except the official experimental ones) has been introduced into Venezuela!

Television has advanced yet another step towards that much desired goal of—a practical proposition. Matters have indeed progressed so far, thanks to the persistent ingenuity of Mr. Baird that no longer is the image projected into space received as a more or less indefinite foggy representation of the televised figure but as a portrait clear and recognisable. Five hundred television receivers, it is understood, are being constructed which, says *Amateur Wireless*, it is hoped will be retailed at £30 each. The inventor, however, does not pretend that he has reached perfection, but judging from the improved results, it would appear that Mr. Baird has struck upon a fundamental basis which should lead to success.

The following are from notes by Norman Edwards on short waves and their importance:—"Mr. Reinartz, the American amateur declares, when working on 20 to 60 metres that he has noted that signals become weaker at sunset instead of stronger, as might be expected of waves of 100 metres or more and that signals are stronger at a distance than at stations close at hand."

Experimenting at the hour of noon, he also noted that there was one particularly "best wave" for strongest reception and that the wave limits were very narrow. For example, supposing best reception was obtained on 50 metres, a shift from that value by 1 metre in many cases prevented the signals from being heard at all. He also found that, as the afternoon progressed, the best value for the wave length would gradually become greater.

In daylight transmission he found that there was a region near the transmitter in which signals could be received, and then a region in which nothing could be heard at all, and, again, another region where signals could be heard up to great distances. The first region mentioned might be no more than a quarter of a mile in radius in the morning; the third region was found to be less towards the east than towards the west, while at noon it was found to be the same east and west; in the afternoon it was found to be less towards the west than towards the east. In fact, Mr. Reinartz has found that the wave-length has to be gradually shortened to maintain contact between two distant stations, more rapidly about sunrise and less and less rapidly towards noon. After noon the wave-length must be gradually lengthened, and even more so after sunset.

Now, it is thought that the reason why such amazing distances can be covered when using these short waves is that they strike the Heaviside Layer and are reflected back to earth again, enabling them to be detected perhaps 5,000 miles from the transmitter, although they may be undetected at five miles or less!

Mr. Reinartz arrives at the very important conclusion that, if the conductivity of the Heaviside Layer is brought about largely by the sun's influence, it may be expected that the conducting region extends nearer to the earth's surface in the day time than at night time. So that, for all practical purposes, the Heaviside Layer is lower during the day than at night!

This very suggestive and interesting theory is admittedly empirical—but recent experiments in short-wave work, where only a very small power is used would appear to support the theory.

PERSONAL.—Hearty congratulations to our old friend Mr. S. W. Belderson upon his promotion from the Postmastership of Lydney to that of Neath. No doubt we shall read S.W.B.'s "Impressions" before long regarding his new environment.

One by one familiar faces pass out of G.P.O. West, having signed "on" and "off" for the last time. Two members of the Engineer-in-Chief's staff who knew and loved the craft of telegraphy either have or will have performed this final salute by the time many of my readers peruse these lines. Of these Mr. T. H. Newlands was ever the brightest and cheeriest of colleagues, blessed with an unflagging optimism which was infectious. Helpful without being too official, he had no compunction in breaking a rule if such rule stood in the way of efficiency or a needed kindness. "Brother Tom" leaves us followed by the good wishes of all those in the galleries who have had the pleasurable experience of his co-operation.

The second engineering friend to leave us was Mr. Andrew Fraser, whose reminiscences of examinations have recently appeared in these columns, a personality the very essence of kindness and sweet charity, whose over-awing duty it had been to squeeze every scrap of technical knowledge out of one, but whose integrity and fairness was impeccable, and whose consideration for the really nervous candidate all right-thinking men have recognised. To both these much respected ones from the North, a happy lengthy autumn.

Then there is Mr. W. E. Halfpenny, an Assistant Controller, C.T.O., who it is pleasing to note though retiring on reaching the age-limit, shows but few signs of lack of vitality. Mr. and Mrs. Halfpenny expect to leave London this month in order to take up their new residence in the Isle of Wight, near Shanklin. Into that happy retreat the kindest of wishes follow them.

The following interesting features regarding the high-frequency cable which forms part of the variable inductance in the high-power radio-frequency communication at Rugby are supplied by the *Electrical Review* :—

The cable in these giant inductance coils contains 6,561 wires, each separately insulated with enamel, and connected together at each end to form what is, to all intents and purposes, one conductor, i.e., all the wires are in parallel. The reason for the separate insulation of each wire in the conductor is the alternating-current "skin" effect, as it was called, which becomes of importance when the frequency reaches many thousands of cycles per second, as it does in wireless transmission.

The cable has two characteristics: The first is that, considered as a conductor, it is divided into a number of separate elements or wires, and the second is that the wires are plaited together in such a way that every wire over a given length passes through the same phases as every other wire with regard to the neutral axis, so that there is no tendency for a greater retardation, or impedance due to the high frequency on any one wire more than another. The wires in an ordinary cable, although rotating around the axis, always remain at the same radial distance from the axis. In this unique inductance cable, owing to the different distances from the axis of the various wires from point to point, slight differences of potential are generated. If all the wires were bare, there would be short circuiting and the desired result would not be fully attained. To avoid this, the wires have been lightly insulated with enamel.

In the construction of this cable, the insulated wire was first covered with a layer of cotton to protect the enamel; three wires were then twisted together to form a unit, three of which units were next twisted again, and the operation was repeated until 81 wires had been assembled, when they were covered with a coat of silk to give further protection. Three such bunches were twisted again, and the operation repeated until the cable contained 6,561 wires. The "Henley" Telegraph Works were responsible for the manufacture and delivery of these huge coils, the *spiders* for which measured over 17 feet in diameter.

NOT RADIO INTERFERENCE!—*The Electrical Review* has ascertained that with regard to the "hum" which it was alleged by the lay Press was annoying the Hastings townspeople, the borough electrical engineer declares that the disturbance was caused through the ash pit at the electric light works acting like a loud speaker!

The ash pit, it appears, tapered down from the front, and then continued with a gentle slope to the back; the remedy was to put in concrete so as to make a gradual slope from the front to about 10 in. under the chain-grate stoker at the back. The cause of the trouble was discovered by a member of the operating staff, and by placing corrugated sheet iron underneath the stokers the correct angles which suppressed the sound were found.

Negative Goodness.—He that does good, having the unlimited power to do evil, deserves praise not only for the good which he performs but for the evil which he forbears.—Sir Walter Scott, *Ivanhoe*. J. J. T.

STROWGER AUTOMATIC TELEPHONES IN SOUTH DEVON.

BOTH residents and visitors to the two South Devon Coast resorts, Torquay and Paignton, will henceforth enjoy the advantages of automatic telephone service, both installations having just been cut into service by the Post Office Telephone Department.

Torquay is a well-known seaport, holiday and health resort, located amid picturesque surroundings on the north side of Torbay, and has a population of over 40,000. The town is of modern growth, and has an exceptionally mild and equable climate which conduces to its popularity in winter and spring. The urban district parish and coast town of Paignton lies only two miles south of Torquay, and has a population of over 15,000. Paignton is also a popular holiday resort, especially with Londoners, and offers splendid bathing facilities. Incidentally it has a growing reputation for Devonshire cream and cider which is manufactured locally from cider apples grown in the neighbouring orchards.

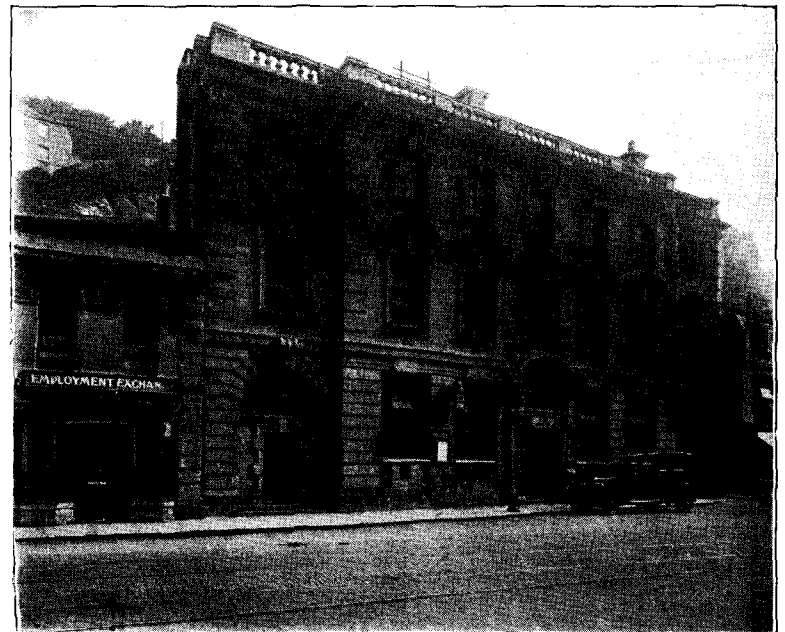
In the Post Office programme of telephone exchange conversion from manual to automatic operation both Torquay and Paignton had the good fortune to figure early. Contracts for the Strowger automatic equipment were placed by the Post Office some time ago with Automatic Telephone Manufacturing Co., Ltd., Liverpool, and both installations are now completed in so far as immediate requirements are concerned, although there is an extension of some 200 additional lines in hand for Torquay which is to be ready for service early next year.

The Torquay Automatic Exchange is located at the Post Office in Fleet Street, and comprises 19 strowger units equipped with rotary line switches and final selectors. Of the 1,800 lines initially provided for, 1,600 are regular subscribers' lines, and 200 P.B.X. lines. Provision is also made for 40 coin box lines.

The first and second group selectors are mounted on three racks, one of which is a combined second group selector and repeater rack.

Auxiliary equipment includes a combined main and intermediate distributing frame, a six-bay rack for subscribers' meters, and a one-bay meter rack for traffic meters.

The Torquay System is 4-digit, so that all Torquay subscribers will dial four-figure numbers for local calls, the numbers for Torquay being in the two and three thousand group. The present equipment of the Torquay Automatic Exchange is arranged to accommodate St. Marychurch subscribers whose numbers lie in the seven thousand group.



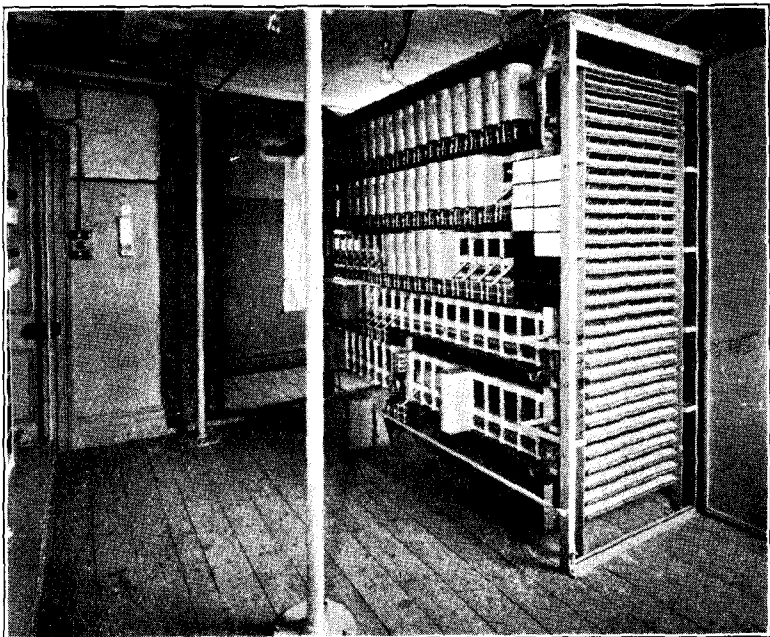
TORQUAY HEAD POST OFFICE.

Access to Brixham, a satellite to the Paignton exchange not yet converted to automatic operation, is obtained by dialling "57" when the Brixham operator completes the call. Conversely, Brixham operators are provided with facilities for dialling in to Torquay and Paignton subscribers, and will thus complete the connection on instructions given them verbally by Brixham subscribers.

The Power board at Torquay exchange comprises four panels. On the left hand panel is mounted the Supervisory equipment; the second panel carries the starters and switches for controlling the ringing machines while the third panel is allotted to the ammeter, voltmeter and multi-way switches,

together with the generator field rheostat, S.P. circuit breaker and battery charge and discharge switches. Panel No. 4 is associated with the manual equipment. The main batteries are in duplicate, comprising two sets of 25 B.P.W. 9-element chloride cells, in lead lined wood boxes. The present capacity of each battery is 602 ampere hours but the containers are large enough to accommodate additional plates up to a capacity of 870 ampere hours thus providing for future extensions. One battery is supported on a single tier and the other on a double tier rack. The charging motor generator has an output of 110 amperes at 57 volts. It comprises an enclosed ventilated shunt-wound motor running off the 500 volt D.C. supply direct-coupled to a shunt-wound dynamo, voltage regulation being between 50 and 68 volts. The speed is 1,000 r.p.m.

Ringling Dynamotors are in duplicate, one being designed for direct connection to the Supply Mains, and the other for working off the main battery in series with an impedance coil. Both machines are mounted on a Ringler Table.



PAIGNTON AUTOMATIC EXCHANGE. SELECTOR TRUNK BOARD.

The Supervisory equipment, also located in the power room, comprises all the necessary relays, lamps, bell buzzer, keys, etc., for the efficient automatic supervision of faults, and the distribution of the various "tones" necessary to the convenient functioning of the exchange. The alarm signals controlled by the supervisory equipment constitute one of the vital factors in the continuous and reliable operation of the various Strowger Switches. They are divided into two main groups, in order of urgency; the former, calling for prompt action actuate a bell, whilst the latter or "delayed action" signals are audibly notified by buzzer. Urgent alarms include such contretemps as the blowing of the main fuse, power board pilot or meter rack fuse. The non-urgent alarms indicate transient or non-persistent faults such as selector release, N.U. tone fault, etc.

The main Alarm panel is auxiliary to the audible bell and buzzer alarm signals, and indicates by means of lamps, the exact nature of a fault and its location. A glance at this board on hearing the audible alarm, enables the Maintenance Officer to at once proceed to the switch or switches involved and make the necessary adjustment without delay or interruption of the service.

In connection with this supervisory alarm service it is desirable to point out, in justice to the efficiency and reliability of the mechanism, that a proportion of what are termed "faults" as indicated on the main alarm panel arise from improper use of the service by the subscriber. For example, a subscriber may remove his receiver before consulting his telephone directory, thereby holding up a first group selector for an appreciable interval, whilst he looks up the telephone number he wishes to dial. In such event a time-lag relay will ultimately function and actuate the selector release alarm, just as surely as if the selector shaft had mechanically jammed and ceased to function correctly. Similarly, if a subscriber fails to replace his receiver at the conclusion of a conversation he will eventually actuate the corresponding time alarm and thus draw attention to his delinquency at the exchange.

Line faults also are indicated both visually and audibly, the blowing of a heat coil through contact with trolley or power circuits, or the blowing of a fuse by excess current, are severally provided for and automatically registered as and when they occur.

The Paignton exchange is located at the Post Office in Palace Avenue, the equipment comprising eight 100-line units; accommodating a total of 700 lines, 600 of which are regular subscribers' lines and 100 P.B.X. lines. Of these units one is specially equipped with 20 rotary line switches for coin

box service. There are in addition a main distributing frame, two-bay meter rack, a composite selector board and two repeater racks. As in the case of Torquay, the Paignton system is four-digit and subscribers' numbers will lie in the five thousand group. Paignton subscribers will be able to dial direct to Torquay and St. Marychurch subscribers, and like Torquay will have access to the manual operator at Brixham by dialling "57."

The Paignton power board comprises an enamelled plate panel mounting the necessary apparatus for controlling the battery charge and discharge circuits. The equipment comprises ammeter, voltmeter and associated multi-contact switches, generator field rheostat, S.P. circuit breaker and battery charge and discharge switches. The main batteries, which are in duplicate, consist of two sets of 25 H.R.G.3 "Plantide" type elements, supplied by the Chloride Electrical Storage Co. They are in glass containers, supported on double tier racks. Each battery has a present capacity of 176 ampere hours, with cell accommodation sufficient to bring the ultimate capacity up to 352 ampere hours by the addition of extra positive and negative plates. This space in at present occupied by displacement tanks.

The charging motor generator has an output of 25 amperes at 57 volts, and consists of a 440 volt D.C. motor mounted on a common bedplate direct-coupled to a shunt-wound dynamo. The speed is 1,000 r.p.m. There are two ringing rotary converters, both designed to work off the exchange battery, these machines are mounted on the supervisory panel. Similar supervisory and fault alarm signalling equipment to that described in connection with the Torquay exchange is installed at Paignton, and derangements of the mechanism, whether transient or persistent stand little chance of passing unnoticed by the maintenance staff on duty.

OPENING OF NEW TELEPHONE EXCHANGE AT COATBRIDGE.

On Saturday, Nov. 14, the Coatbridge Exchange was transferred to a new building, and the system changed from magneto to C.B. No. 10. The transfer was highly satisfactory, and after the change over, which was a matter of seconds, only one fault came to notice.

On the Monday following, at the invitation of the Department, there was a formal opening by the Provost of Coatbridge at which was also present several of the Bailies and Town Councillors and representatives of public bodies and subscribers. The Department were represented by the Surveyor, Mr. Dunlop; the Superintending Engineer, Capt. Crompton; the Sectional Engineer, Major Cameron; the District Manager, Mr. Gauntlett; and other officers of the engineering and traffic staffs, together with the acting-Postmaster Mr. Little.

The proceedings were opened by the Surveyor, who detailed the circumstances leading to the change, which had materialised in the exchange and plant the party saw before them, and called upon the Provost to formally declare the exchange open. This, Provost Smith did in very appropriate terms, and congratulated both the Department and the town of Coatbridge in now possessing an up-to-date telephone system.

The visitors were then conducted round the building, and had the apparatus and working fully explained, in which considerable interest was taken.

The Lessor, Councillor Rankin, then invited the company present to luncheon, at which felicitous speeches were made, and the Lessor, Architect, and Contractors presented the Provost with a silver inkstand as a memento of the occasion.

The new exchange is in leased premises and was formerly a tenement dwelling. The Lessor agreed to reconstruct completely the whole building to the requirements of the Department and his architect and contractors had certainly made a good job of it.

On the ground floor is the apparatus room, night telephonist room, etc., with a night call office in the lobby. In the yard are inspector's and linesman's rooms, works order and sectional stores, truck and cycle sheds, and ladder rests, with a good lock-up yard.

On the first floor is the switch room along the front, and battery room at the back, while on the floor above is the operators' retiring and cloak rooms, etc.

The whole forms a very compact suite.

The plant is a C.B. No. 10 by Messrs. Siemens, with two 40-volt Hart batteries. The charging plant is fed from the Corporation mains. The present equipment consists of five A and two B order wire positions, one J. E. Junction B and one mixed A and B position, and one A position with pulgging up facilities—a total of 10 positions with 4 panels per multiple; fitted for 580 subscribers' lines with capacity for 1,100; and 40 incoming and 80 outgoing junctions.

The building is centrally heated throughout.

The
Telegraph and Telephone Journal.

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

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Managing Editor - - -		W. H. GUNSTON.

NOTICES.

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

Vol. XII.

MARCH, 1926.

No. 132.

"CHARLES, HIS FRIEND."

IN the more unsophisticated days of the drama, there often figured in the list of *dramatis personae* a colourless character whose name followed that of the hero and who was not uncommonly described as "Charles, his Friend." Charles's simple function was usually to act as a foil, to be sympathetic, and to help out the exigencies of a plot more ingenuous than ingenious by explaining events and motives not otherwise evident, to the audience. The Charleses of real life are equally useful fellows. It is not so much that they are fain to magnify our talents and exaggerate our importance, but that they are often called in to strengthen the plot of the human comedy. It is perhaps an amiable weakness of those of us—the large majority—who, like Pasha Bailey's lovely wives in Gilbert's ballad, lead unexciting lives, that we should wish to intensify the drama of the daily round. Hence the importance of the friend in the cast. It is he who has met great men whom we never meet, who has seen events which we were not fortunate enough to witness, and agonised in catastrophic and historic happenings of which we have only read or heard. One knows the formulae: "A friend of mine, who knows the great X well, assures me," "I was told by a friend, who is just back from Y, and actually saw—" "A friend, who is in close touch with the editor of the Daily Z, informed me"—and so on. He has something exclusive, first hand, recondite, significant, enigmatic, or what not, to impart to us, and we feel that we are moving, although in a sort of distant outer circle, with moving times.

The "friend" has lately made his appearance in the lucubrations of the telephone critic. The telephone is, as we know, a delicate device. Its working is subject, despite the most elaborate precautions, to occasional interruptions, due to climatic and other misadventures and to the fallibility of the human agencies which necessarily intervene. Even in the most admirably conducted service, a small percentage of faults will loom large in the mind of the subscriber afflicted by its failure, and move him to complain bitterly; but we imagine that first-hand experiences will always furnish the most satisfactory text for a complaint. We feel, therefore, that the introduction of "a friend" in the case (not as *amicus curiae* but rather as *advocatus diaboli*) ought not to pass without a mild protest. "A friend recently was told that he may expect to wait three months" says a recent paragraph in the Press. Another writer has a friend who 'gets through' more quickly from Rotterdam than from London; a third knows a friend who always finds a telephone installed in his hotel bedroom in America; and so on. Perhaps, however, we should take it as a compliment to the improved quality of the telephone service that those who want to complain of it have now to resort to the testimony of "Charles, his friend."

HIC ET UBIQUE.

OWING to the prolonged dispute between the employers and the employees of the Warsaw Telephone Company, says the *Morning Post*, the Government has decided to enforce the law enabling the State to take over the administration of public utility services. The Minister of the Interior has, therefore, appointed Mr. Urbanowicz, a lawyer, Administrator for the Telephone Company in order to assure a normal service and safeguard the interests of the shareholders and the workers.

Further on, the same journal says, describing the strike:

"The telephone girls are all sitting in their places, but pay no attention to anyone but the Government or a newspaper. The Telephone Company has formally dismissed them, but is having to lock up the cloak-rooms and offices in order to persuade them to go.

"Warsaw folk feel the lack of a telephone in private life far more acutely than would Londoners, for the Polish telephone is run on the admirable Swedish system, which permits you to pay down 16 zloty (c. 9s.) at the beginning of the month and then get as much fun out of it as you can. Nobody, therefore, ever writes a letter, and nobody hesitates to spend a whole morning gossiping over the wires to a friend. Warsaw's inhabitants, therefore, feel that three happy days—paid for in advance—have already been stolen from them, and that drastic action should be taken to prevent further theft."

We fear this description of the happy subscriber is an unintentional slander on the "admirable Swedish system." A system under which you can spend the whole morning gossiping over the wire with a friend is exquisitely adapted to produce the greatest happiness (and fun) for the smallest possible number. We wonder if the writer ever considered how the "number engaged" trouble is chiefly brought about.

The following is a human document from a native lineman in Dar-es-Salaam (Tanganyika Territory):—

To the Mr. P.—, Telegraph Inspector,—Respected Sir, I have the honour to inform you that please I am very deeply regret to say that, but ! what I shall

to do. I am very need for some of two shgs. because my on Father he came this morning, and myself I have not got anything present time. I hope to be excuse for this trouble which I give you now. Can you lend me some of two shgs. till end of the month I shall returning Please forgive me for my mistaking which I deed. - Sir, I have the honourable to be you, Sir, I am your Obediently Servant

ABDALLAH BEN

Linesman.

A popular "science" paper has the following astonishing paragraph:—

Direct telephonic communication from Cairo in Egypt to Lhasa, the forbidden city of Tibet, is now possible, thanks to the untiring labour and ingenuity on the part of the telephone engineers. In order that this might be possible the Nile had to be spanned by a telephone wire stretched far across the desert, by King Tutankhamen's grave.

We are not so much amazed by the tidings that you can obtain trunk communication over a distance of 3,000 miles in the deserts of Asia and Africa whilst you cannot obtain it for a distance of 1,000 miles in Europe, as by the perversity of the "ingenious" engineers who stretch a wire from Cairo on the right bank of the Nile westwards across that river when they want to go east, and then carry it southwards to Thebes! Where does the writer imagine Tibet is situate, we wonder.

Extract from a letter complaining about interference with wireless broadcast reception:—

If these complaints are enquired into by your department, I should esteem your investigation. If not, the worst I must wish you is that you have a hole in your stocking this Xmas, and an empty whisky bottle.

OBITUARY.

Mr. F. E. H. WEBB.

LONDON readers will hear with regret of the death of Mr. F. E. H. Webb, who retired from the London Telephone Service in February, 1924, on account of ill health. He never really recovered his strength, and passed away (from pneumonia) on Sunday, December 20th, in St. Bartholomew's Hospital.

Mr. Webb's activities in the Service will be well remembered by those with whom he worked. He always took a keen interest in the social life of the staff, and was never happier than when organising dances, concerts, etc., for the pleasure of his colleagues. If any of his colleagues were in need of help Webb was always one of the first to organise an appeal, and no appeal on behalf of any unfortunate, whether in the Service or out, was ever made to him in vain.

In private life Mr. Webb took a great interest in the local affairs of Kew and Richmond—the district in which he lived. He was a member of the Richmond and Kew Conservative Association, and served for many years on the Committee of the North Sheen Ward Ratepayers Association, of which body he was chairman for some time.

During the War, Mr. Webb did admirable work with the Volunteers, Red Cross Brigade, and as a Special Constable.

He leaves a widow and one son, and his memory will always be respected by his many friends for the very kindly disposition he displayed.

SIDELIGHTS ON THE INTERNATIONAL TELEGRAPH CONFERENCE, 1925.*

By JOHN LEE, C.B.E. (*Controller of the Central Telegraph Office*).

It would be possible to give an economic and historic study of International Telegraph Conferences. That is a work which yet remains to be done. My object to-night is rather to look at the recent International Telegraph Conference at Paris from the point of view of its human interest and possibly from the point of view of conjecture as to its future in respect of human interest, including in human interest its influence upon the industrial and commercial life of the world. We met in the Great Hall of the Sorbonne. It was a beautiful hall, though not perhaps ventilated as some of us would have wished. The mural pictures on the walls were very striking. Behind the President's chair was a picture of the doctors of the Sorbonne clad in wonderful academicals and forming a vivid contrast to the somewhat drab president, rapporteurs, and exalted officials of the International Telegraph Bureau who were seated at the high table below. At one end of the room there was a strange painting representing a vision of the future. Its psychological effect was very curious. The first few weeks we could make nothing of it, except that it was a kind of shadowy mist, but as we got accustomed to it, dim forms seemed to fashion themselves out of the mist, and we began to get the idea of what really was a wonderful suggestion that the future might have in its possibilities of which we could not dream. Allegorically, it seemed to suggest to us that, after all, our work at this International Conference was in the interest of mankind, and though that interest might be shrouded in a mist, at length the clear vision of mankind would emerge. Indeed, both in the Great Hall and in the Entrance Hall and the antechambers, the mural paintings were a great delight, and it is my regret that none of the works of reference to which I had access gave a sufficiently detailed account of these pictures. Coming back to the Great Hall where the sessions were held, what struck one as being most remarkable was the wealth of gilt chairs. They were wonderful to look upon, and during the course of the Conference some half-dozen of them were less wonderful to sit upon, for they gave way, and with singular impartiality plunged delegates to the floor whether they came from East or West, from Europe, Asia, or from Africa. It was not, I think, the fault of the chairs. Clearly, the delegates were not accustomed to the delicacy of the historic furniture. But they soon learned what tender and beautiful and fraternal hospitality can be. They were fêted in many ways and on frequent occasions. They visited historic places and were banqueted in historic halls. As one of the spokesmen said at the Hotel de Ville, they acquired that exquisite dual patriotism, the love of their own country and of Paris.

To a man who had spent a lifetime in telegraphy there was something very moving in the sight of 60 administrations taking part in this Conference. In addition to those which took actual part there were 12 nations which we call non-adherents, of whom the United States was the most distinguished. Then 47 Telegraph Companies, both cables and wireless, were represented, and in all there were 250 delegates. Of the non-adherent nations the most prominent, as I have said, was the United States, and there was something singularly impressive in the block of six delegates of the United States sitting in silence whilst we discussed questions affecting the legislation of International Telegraphy for the future. Though they sat in silence so far as the actual Conference was concerned, they carried very considerable weight in their private discussions with us and with other nations, and it set one hoping that the time would come when the difficulties which stand in the way of the United States forming one of the contributory nations of the International Conference would be swept away. I am not likely to sound what might be called a "jingoistic" note, but one would be less than human not to desire that the Anglo-Saxon brotherhood should bear its proper share in the International Conferences of the future. It would be welcomed by all the nations. This Conference of 1925 met after 17 years of tragic interruption. The war and all that has followed the war has interrupted the sequence of quinquennial conferences. As a consequence it has necessarily followed that practice has stepped aside from precept, and at once we found ourselves face to face with formidable difficulties.

The procedure of the Conference is by way of what are called "Commissions." Two great Commissions were established at the outset, one of them to deal with tariffs and the other to deal with règlement. Herr Lindow, of Germany, was elected President of the Commission on tariffs, and I was elected President of the Commission on règlement. In addition there was a Commission on telephones presided over by M. Milon, of the French Administration, and also there was the exceedingly valuable Commission on redaction presided over by M. Roosen, of Belgium. There was still another Commission to which I must make brief reference at the outset. There had been in the air many discussions of fusion between the Telegraph Conference and the Radio Telegraph Conference. Proposals

* A Paper read at the London Telephone & Telegraph Society, Feb. 15, 1926.

had been made and distributed, and naturally enough at the outset of the proceedings there was a sense of uncertainty as to the exact position in respect of telegraph procedure, particularly as regards radio telegraphy, at this International Conference at Paris. A Commission was appointed under the presidency of Sir Geoffrey Clarke to consider the question of the Convention. It must be remembered that we were discussing a question which we had no power to discuss, since the Congress at St. Petersburg and the resulting Convention had ambassadorial authority. However, the discussions were skilfully piloted, and they resulted in an admirable resolution directing the attention both of the Telegraph Conference and of the Radio Telegraph Conference to the desirability of taking steps for fusion. This took place rather early in the proceedings and it had the advantage, I think, of directing many of our discussions on subjects in the neutral territory between Telegraphy and Radio Telegraphy in such a way that the new règlement prepared the way for an ultimate fusion, or at any rate removed some obstacles from the path of ultimate fusion.

The volume which contained the propositions submitted for our discussion was an impressive affair. We began with over 1,100 propositions. Of course, they varied in gravity, but it represented a task which no-one could regard at the beginning without fear. Some of the propositions were revolutionary, above all, the propositions which dealt with code language. It was evident that many Administrations were anxious at the position into which code language had drifted. I think "drifted" is the right word, because much of the difficulty has arisen from the fact that during the war and immediately after the war it was not possible to apply the scrutiny of legitimate code words which had been occasioned by the acceptance of artificial words by the Conference of London in 1903 and which had been definitely adopted by the Conference at Lisbon in 1908. Further, it was clear that the criterion of pronounceability was not a sufficiently safe criterion to distinguish groups of cryptic-looking letters from pure cipher. Consequently we were faced by propositions of a drastic kind. A number of Administrations were in favour of a 50% addition in the case of all code words, a proposal which had obvious disadvantages, inasmuch as, apart from the additional burden on the commercial public, it could hardly be imposed without frankly accepting code words which could not be distinguished from cipher. Put a little differently, the proposed additional charge was bound to involve some relaxation of the strictness of interpretation of the regulation as regards pronounceability. Fortunately for me this question was ranged under the tariff Commission, but it formed the subject of almost continuous discussion, and special Commissions were appointed to consider it and to consider various proposals which were made from time to time to find a remedy in another direction. One of these proposals came across the Atlantic. It was put forcibly and not without its own attractiveness. It was suggested that we should take the drastic step of altering code from a 10-letter to a 5-letter basis, adjusting the charge accordingly, though there was a little vagueness in respect of this adjustment, and we were never quite clear whether it was or was not intended to increase the charge as against the commercial public. Obviously the addresses would need separate consideration, and the relationship of the proposal to deferred telegrams, night letter telegrams, and other of the cheaper traffic was never made quite clear. At one stage of the proceedings the German delegation proposed that the whole basis of counting international telegrams should be changed, and that whether in respect of plain language or of code, the basis should be 5 letters to a word.

This was very drastic, and we could not bring ourselves to the acceptance of a departure from the counting of the words of languages on a basis entirely different from that in common use. Some of us began to fear that we might come back to London with a telegraph system in its international aspect entirely revolutionised. However, we pegged away at our opposition, giving reasons at all times for the opinions which we held, warning the Commissions lest too hastily an irrevocable step should be taken. Nevertheless, we were bound to be moved by the difficulties in the present handling of code. Further, we were bound to admit that there is a danger that without some anchorage code language might get worse than it is. Specimens were shown to us in Paris of 10-letter code words ending in such consonants as PCVL, and I do not see how any native of a Western nation could say that such groups of consonants are pronounceable. Various proposals were made to substitute a visual for an aural criterion. At one stage a delegate suggested a limitation to three consonants together, but a German delegate, with a very ready knowledge of English, promptly pointed out that this would exclude the word "strength." So we agreed that a Commission of Enquiry should be set up to study the question of code, and to present its report before the next International Conference. It fell to the British delegates to prepare the questionnaire which is being sent out to all Administrations with a view to obtaining definite facts as regards the development of code words and the tendency of further developments, and the actual difficulties in transmission. We had to recognize as fair-minded men that many modern codes are in effect 5-letter codes, two words being grouped together as one, and that this is an argument on the side of those who wish to adapt the code regulations to modern developments. On the other hand, we recognized also a duty to those code makers who had kept strictly to the old arrangement that code words should be genuine dictionary words, or words which might be assumed to be genuine in the eight languages, and who had refrained from building up artificial words with a pretended pronounceability. The whole problem was very difficult, and over and above any apparent solution is the danger of increasing the tariff under the guise of meeting difficulties in respect of code language.

The next most thorny question was the question of tariffs. It calls for a little elucidation. In its relationship to tariffs the International Conference is essentially European and two scales of tariffs are arranged for

European countries; one refers to Extra-European traffic and the other refers to Inter-European traffic. The cumulative charge consists of three items, the terminal charge, the transit charge, and a special cable rate where there is cable. The primary difficulty at Paris entered with regard to small nations. In previous legislation the small nations to which the reduced tariff applied were a minority of the whole, and the creation of a considerable number of small states by the Treaty of Versailles turned the scales, and the small nations in voting strength were able to force the pace. In fact, there was a bloc of 17 smaller states which cast their votes together in mutual interest. There had been some dissatisfaction with the rates since the Conference at Lisbon in 1908 on the alleged ground that they were insufficient to cover expenses, and some of the small states, in fact, had taken advantage of the postponement of the Conference for 17 years and had already increased their rates. Thus we were faced in Paris at once with a demand that the rates for small nations should be increased by about 100%, and it was put to us in the form of an accomplished fact in respect of a number of the small states. As regards extra-European rates much the same claim was made, though it was made on the part of large states as well. Great Britain certainly could not face these large increases, and the question was how we were to combat them, knowing that we were in a hopeless minority. Sub-commissions were appointed and they reported, only to be turned down at once by the Commission owing to the solid bloc of votes above mentioned. In the end increases were passed which we thought were unreasonable, and the only votes against them were Great Britain and Holland.

However, it was evident that there was considerable unrest on the subject. Arguments which we had put forward on the economic and even telegraphic results of these increases were not without their effect. Arguments which were put forward as regards the encouragement which these increases would give to wireless routes with the undeniable advantage of escaping transit charges undoubtedly had their effect also. In fact we hesitated for a thrilling week-end to give Great Britain's assent to uniform wire and wireless rates within Europe until we could see our way clear to surrender the need for such wireless competition within Europe as might check the general increases of tariffs to the public. The rates as laid down by an International Conference are maxima, and it is open to any states to arrange lower rates. It was clear that this was our line of strategy, and accordingly we made a sufficient number of contracting-out agreements to justify us in not taking the drastic step of vetoing the results of the Conference on the question of tariffs, or of pressing competition in wireless rates within Europe. In the main, therefore, the rates remained the same so far as the public is concerned with one or two exceptions concerning which there was undoubtedly a good case for an increase. But the net result from the point of view of international general tariff, was not satisfactory. Again and again we reminded the small nations that an international union was in their interest and that by forcing up rates in this way they were robbing themselves of the ultimate protection of an international union. I think it was this argument in the end which helped us more than any other to make the special arrangements which prevented a general increase to the public for international telegrams. As regards extra-European traffic it must be said that if the increased terminal rates are applied on the Continent of Europe and they are not absorbed by the Companies, it may result in higher charges from Continental countries to the world at large than from Great Britain. One other point should be mentioned. It does look a little odd that an International Conference should legislate not for rates all over the world but for rates at the European end only. Outside Europe the states may charge what they like under the present arrangements, and possibly this was a scound arrangement in 1875, when the St. Petersburg Congress fixed the Convention and extra-European Administrations differed so widely between one and the other. But there can be little doubt that the need for an international basic terminal and transit rate, applicable according to the conditions which obtain in each country, is eminently desirable.

In respect of the International Telephone Service, of course, things are only at the beginning. Comparisons have been made between the great continent of North America and Europe in this respect, much to the disadvantage of Europe, but one of the American delegates who watched the discussions in the Telephone Commission told me that he had no idea of the complexities and difficulties which stood in the way of establishing a long-distance telephone service in Europe. First there is the obvious matter of frontiers with the attendant difficulties due to the allotment of charges as between terminal and transit. Then there are questions of language, of monetary units, of differences in the national methods of conducting telephones; and all these affect any attempt to make a generic international telephone system.

Then there are the special problems affecting the quasi-local telephone service which, though crossing frontiers, in fact connects contiguous towns. The International Conference had already included telephones within its purview, and the famous Chapter LXVIII of the Regulations dealt with telephone procedure. It was admittedly legislation in bare outline, and there was a general demand for more precise legislation to govern detailed practice. Here another difficulty arose. In order to foster international telephony in the interests of the nations, the Western nations of Europe had established an organisation generally called the International Consultative Committee, abbreviated into the three letters C.C.I. This Committee had done exceedingly good work, but like other institutions which had done good work, it had excited some hostility. One nation was displeased because it had not been called to the earliest meetings, and for a while it looked as though this displeasure would result in a proposition that there should be an entirely new organisation set out to deal with the technique of telegraphs and telephones, leaving the C.C.I. without purpose.

Other nations had other criticisms to offer. Our brethren who represented telephones dealt patiently and carefully with these criticisms, and I am glad

to say in the end they succeeded in establishing the C.C.I. as the real organisation for the immediate administration of long-distance telephones in Europe. They countered certain proposals for fixed bases of charges and prevented other doctrines being accepted which would not have been helpful to the development of telephony as we understand it. It seemed to me that there were two streams of thought. One of them we might call, for convenience, the Continental stream of thought, and the other, equally for convenience, the Anglo-Saxon stream of thought. Each of them was quite logical and was based upon an economic foundation fundamentally different from the other. We can see this illustrated perhaps to the best purpose in the matter of ineffective calls. I take it that it is the English ideal—and until recently it was the American ideal—that ineffective calls should not be charged for. The economic explanation or apology would be that in a developing service, where we were attracting the public, it was well to base the charge upon services actually rendered, and an ineffective call rendered no final or effective service to the public. Put into the language of the economist this is really charging on the basis of the value of the service given. The Continental logical mind argues that the telephone service should be given on the basis of the work done in giving it. Let me again translate this into the language of the economist and it means that the service should be charged on the basis of the productive cost. Thus an ineffective call costs a lot of trouble, the use of transit lines, the use of plant at each end, and therefore should be charged against the originating subscriber, even if no final or effective service is rendered. These two opposing streams of thought affected all sorts of questions, and, obviously, they could not be compromised.

It would of course be possible, and at one time we had to use this argument, that we could add to the charge for an effective call a proportion based upon the percentage of ineffective calls, so that transit countries might be sure of their revenue even though no charge was levied for the actual ineffective call itself. In the end we succeeded in modifying the somewhat hard doctrine to the extent of giving liberty to the originating country to make its arrangements with other countries for the treatment of ineffective calls, and it is as much as we could achieve. There were other exceedingly interesting questions, such as the relationship between state calls in respect of charge and priority, and public calls in the same respect, and in dealing with this question we were very near to the very foundations of nationalised telegraphy and telephony. The Russian delegates, for example, both in respect of telegraphy and of telephony, wished to put State messages into such a position of invariable priority as to place difficulties in the way of a service of equable quality to the public. It was no easy matter to surmount this difficulty, but I think it is only just to say that in the end the discussions of all these questions ended in laying the foundation for immediate administrative action on the part of the C.C.I. which will develop Europe as a telephone unit for purposes of international speech without being hampered by premature adoption of this or that rigid doctrine. It is true to say of the telephone discussions in a way which, perhaps, it could not be said of the telegraph discussions that they were very close to practice all the time. A singular fact is that the development of international telegraphy and telephony differs fundamentally. Long-distance telegraphy is as old as short-distance telegraphy. There was an Atlantic cable long before the local telegraph systems were developed. As regards telephony it is somewhat different. The development is urban at the outset, then district, then national, then international. It proceeds from a series of nuclei which spread into mutual contact, and this striking difference in the history of international telegraphy and telephony was bound to have its reflection upon discussions in Paris.

Coming back to telegraph matters, the Paris Conference will be historic for having legislated for the first time for cheaper types of telegrams. Of course, it is true that deferred telegrams at half rates have been accepted for some years, but there has been no general legislation on the subject. There can be no doubt, and this was very evident at Paris, that all international telegraph organisations are beginning to realise the need for catering for other constituencies as well as the commercial constituency which uses the ordinary tariff. It is, I think, one of the chief reasons for pride of the Imperial Cables that they have been almost pioneers in the development of this expansion of telegraph international service, and in the discovery of new graded services which have received the delicate tribute of imitation. The deferred service began in a tentative way as an attempt to cater for more or less social traffic at half rates, but it has come to be used very considerably by the commercial public, and in this way has revealed to us the utility of long-distance telegraph services at different grades of rapidity. But there is another condition. It is obvious that code cannot be accepted at these cheaper rates, as it is laid down that the messages shall be in plain language, under certain limitations as to the choice of language. The Paris Conference legislated definitely for this need and in one curious way it made special concession to China. It is no use permitting China to send telegrams at cheaper rates with the condition that they are in plain language. Since Sir Robert Hart's day in China, it has been necessary to translate the pictorial Chinese language into figures for the purpose of telegraph transmission, and the Conference in Paris felt that it was only just, in respect of China, to give a concession whereby deferred telegrams to and from China may be written cryptically in four-figure groups, subject to the assurance that those groups really mean Chinese words. Another concession, in the interest of international economic life, permitted bankers' messages at the deferred rate to include one code word at the beginning of the text.

Another expansion of the practice in the past was the permission to use a language other than the language of the office of origin, or French, or the language of the office of destination. For example, a Japanese telegraphing

to Italy might like to use some language other than that of the country of origin, or of the country of destination, or of French, so another language may be included by the administration. The Conference was under no misunderstanding that in most cases this additional language would be English. Some of us would have liked legislation at this stage for day and night or week-end Cable letters at quarter rates, but it was evident that this must wait for future Conferences, and that we must be content with having emphasized a threefold tariff for urgent, ordinary and deferred telegrams.

Another piece of legislation of very great importance was that which provides for wireless messages simultaneously telegraphed to multiple addresses. It may be that at this point we were touching the issue which is often discussed, and especially at dinner-tables. For my own part I do not think there is a real problem, but it is often stated as though Wireless and Cables were to be perpetually in crude rivalry until one of them is finished. I am sure that there is a realm for each of them, a realm in which each can perform functions of public service which the other cannot perform so efficiently, and I refer to it at this point as I am dealing with wireless telegrams to multiple addresses. Manifestly, this is not work which cables can do with the same simultaneity as wireless, but there are other functions of communication which wireless cannot perform as well as cables. In truth, we are only at the beginning of the discovery of graded needs for the international telegraph service. We shall discover more and more needs, commercial and social, as we proceed and as actual practice reveals them. We shall discover further possible associations between long-distance communications and local telephones or internal mails. Other changes in international telegraph legislation I can only mention briefly. In respect of procedure the general purpose was to simplify. We were a little disappointed not to carry a complete unified procedure for international telegraphy which would lay the foundations for a fused telegraph and radio-telegraphic practice, but at any rate we did succeed in eliminating certain differences and in making the work of future Conferences less difficult in respect of a common procedure as between Cables and Wireless. One other concession I must mention, because of all the events at Paris the reception of this concession by the Press has been the most amazing. Hitherto international Press messages at the half tariff have been accepted only at certain hours when it has been assumed that the lines were idle. At Paris we legislated for the acceptance of Press at the Press tariffs night and day, and the astonishing thing is that it has almost escaped the attention of the Press of the world. It will come into force in November. I have only seen two references to it, and both of those were in American journals, yet it must be a concession of great importance to the Press and of great importance to the mutuality of international enlightenment. In association with this concession, at the instance of the British Delegation, we provided for the insertion of editorial words or of communications to the editor within the content of the Press messages. Here, again, I must express my surprise that the concession has passed unnoticed. A new prefix was introduced to provide for the expeditious treatment of messages in connexion with the safety of human life, an indication of a changed valuation of purpose. Several proposals were adopted with a view to closer co-ordination as between Cables and Wireless on the one hand and Air Mails, Express Service, Telephones and Post on the other hand, and in all these respects the Paris Conference, I think, makes a mark of its own in telegraph history.

In all Conferences it happens that the casual conversations between the delegates have an importance, or at any rate a significance, greater than would appear by their casual nature. In our conversations in Paris, over lunch, or in the Great Entrance Hall, where we had our coffee, or in the course of the dinners and banquets and excursions, it was commonly the position of British delegates to find themselves the subject of questions covering a wide variety of themes. One delegate from North Africa was exceedingly interested in the various ways in which broadcasting could be provided under the aegis of the State and without direct State operation. A delegate from an Eastern country, let me indicate it as lying somewhere between India and the Balkans, was very much interested in the employment of women. He asked me the rate of payment and the methods of appraising services, and frankly expressed his horror at the suggestion that women should take responsible positions in charge of other women. The matter of general remuneration came up again and again in these conversations, but I think on the whole on staff questions, the most pointed questions were directed to the working of Whitley systems, or, as the Continental delegates preferred to call it, Factory Councils, and to the influence of Trade Unions and the like. Then there were many discussions as to plant. Many delegates asked how we were getting on with the Teletype and similar machines, and it was quite clear that telegraph eyes all over the world are looking in this direction for a solution of problems which are only too obvious. Indeed, on one occasion there was something approaching a small debate on the question of the merits of multiplex as compared with what I will call numerous electrical routes which work by individual printing machines, such as the Teletype. It is an indication of how rapidly things move that multiplex, which to all of us in America and in Europe is a comparatively new development, should already be regarded by foresighted administrators as about to be displaced by what I will call electrical, rather than mechanical, methods of distributing the instruments over the lines of communication.

Questions of organisation of telegraph offices, of the delimitation of responsibilities, of the relation of technique to traffic control, all these were raised from time to time, and it seemed that the whole realm of what I would call executive-administration was covered in these apparently casual conversations. A Balkan delegate who had pressed me on the subject of the organisation of large telegraph offices rather astonished me by saying

at the close of a very interesting conversation. "The Chief Directors in England are so well paid that they can afford to have opportunities for thought on these questions." I pass no comment on that remark except to note it for future guidance. I give it as one indication of an attitude to Great Britain which was very remarkable. Time after time when we were struggling against increases of tariff or arguing for this or for that method of working or method of charging, it was said to us that England was a rich country, and by a kind of what our wireless friends would call "harmonics" that we ourselves were rich men. Psychologically there is a place for pride in being envied by others, but in this case the envy was based on such a misunderstanding of the truth that I am afraid it did not give rise to pride. Perhaps it did give rise to sympathy. It was out of this general need for interchange of views on matters of technique that a new committee came to be established. In dealing with telegraphs I mentioned a proposal to establish a new organisation to control telegraphs and telephones technically and administratively. In respect of telegraphs we agreed to a committee to sit periodically for the interchange of opinion on technique. That committee will be called at Berlin in the early summer, and one of the first questions with which it will have to deal will be the complicated question of finding a common five-unit code for the new machines. In the usual way in which national preferences have affected telegraph opinions there are especial difficulties in respect of the five-unit code. Everyone I think agrees that we ought to try and find a common code for universal purposes. Nevertheless, it is a fact in history that there were two Morse codes and still are two Morse codes, though what is commonly called the Continental Morse code has gradually triumphed, and it is one of the ironies of telegraph history that wireless has helped it considerably. The demand for a universalised five-unit code, suitable for all forms of printing telegraphs which use the five-unit method, is a healthy demand, and it indicates a desire for a universal basis for telegraphy which up to the present has been the most prominent need.

And so I come to sum up this scattered paper. What is the future directive authority of international telegraphy, Cable and Wireless, to be? I could postulate, I think, that it must be something bigger and bolder than the International Conferences of the past, based upon a Convention drawn up 50 years ago. As I pointed out in dealing with the tariffs, there is a real need for a universal method of fixing terminal and transit rates. More than that, there is a real need for unswerving adhesion to the regulations even when those regulations seem to impinge upon freedom of competition. Further than that again, though internal administrations must be left free for their own development, it should be understood, I think, that they are absolutely neutral in respect of international traffic, and that the public in all countries have the right to direct their traffic by the particular route which they prefer, if it is connected with the organism. Unordered traffic is another matter, and it may be argued that the public who do not choose a particular route when there are several routes available, by that act trust the administrations to choose the best route. But as regards directed traffic, I do not think international telegraphy will ever be on a really sound footing until all internal administrations, whether publicly owned or privately owned, accept directed traffic without favour. Thus I think that the coming fusion of the Telegraph and the Radio-telegraphic Conferences will bring into the foreground questions even bigger than that fusion itself.

The machinery of International Conferences seems to be clumsy, and it would be very easy to make hasty suggestions for improvement. It was manifest in Paris that the Sub-Commission method was not altogether satisfactory. On many occasions the reports of Sub-Commissions were turned down, and on nearly all occasions they excited initial hostility from the nations which had not been selected for the Sub-Commissions. On the Règlement Commission, as President, I adopted a somewhat different method. Where several nations had made propositions, instead of calling on the Commission to discuss each of those propositions, I asked the representatives of those nations to agree to a fused proposition. In several particulars this was successful, but, of course, it is not a change in machinery: it is only what one might call a presidential device. As the Conferences grow and become more inclusive, I am rather inclined to think that there will be a bigger demand for discussions in full, and that the only facilitation we can expect is in some method of preliminary fusing of many propositions to provide the basis for such discussions. Of course, in Paris, we never forgot that we were representing in our way something more than the British Administration.

When matters were particularly difficult we asked our friends of other British interests to meet us for discussion. We included also the Empire delegates, and these meetings were most helpful. It was also in the spirit of the principle which I have tried to enounce that internal administrations should adopt the historic attitude of the British Administration and be scrupulously just in respect of traffic directed by the public for transmission by particular routes. Our delegation worked as a team. Its headship was never, I hope, a headship of mere domination. With perfect sincerity and frankness each of us pulled together, and such as we were able to achieve we offer it to our Administration as an act of loyal service on the part of us all. If I may add one personal word, to me, at the end of a long Post Office career, it was a proud thing indeed to be associated with men in whom this spirit of public service, in the highest sense of the word, was so manifest throughout. The Paris Conference, as I have tried to say, makes its mark in telegraph history, but I think that when future recorders, with their better opportunities of perspective, come to write of it, they will say that the best that was done at Paris was that international telegraphy and telephony passed through a severe ordeal in those long weeks from which it has escaped, strengthened and more firmly established.

TELEPHONE NOTES.

"A.B.W. on] Broadcasting.

"In the wireless sense I fear I am not what is called a good listener, writes "A.B.W." in *The Times*. "What are the wild waves saying? Is a question I seldom ask, and, when I do, it is ten to one they are saying 'It ain'ta gonna rain no mo' or 'Good-night, everybody, good-night,' or something else equally unexciting. . . . But what may lack nourishment as a food may serve well enough for a condiment, and that is how I generally take my wireless programme—condimentally. A good bit of stiff reading—Paley's 'Evidences,' say, or 'Solomon's Higher Algebra' is made, I find, quite palatable by the *sauce piquante* of jazz from the Savoy Orpheans or Havana band. . . . There are sentences that fall easily into a fox-trot and others that stride bravely in the new (or Parisian) tango. . . . I have known masterpieces of prose, with scarce a break, gently swirl and eddy to the mere piping of the saxophone. Here then is a new wireless boon." He then proceeds to criticise a certain piece of "tomfoolery" which had recently been broadcast under the title of drama, on which criticism from so distinguished a writer, it would be an impertinence for one to comment. Its tenour may be guessed from the following "For myself," he says, "I shall return more than ever disposed to confine myself to the humbler use of wireless." Finally, he concludes: "The same night . . . I heard a male quartet—yodelling for all they were worth. The music . . . (kept) time with admirable precision to the phrases of a little treatise on a branch of Industrial Economics, to which I had turned." And thus has the writer been at last rewarded with "A.B.W.'s" views on broadcast drama. In the opening words of "A.B.W.'s" criticism on the first appearance of "Milestones"—"It was bound to happen."

A Streak of Rust and the Village Pump.

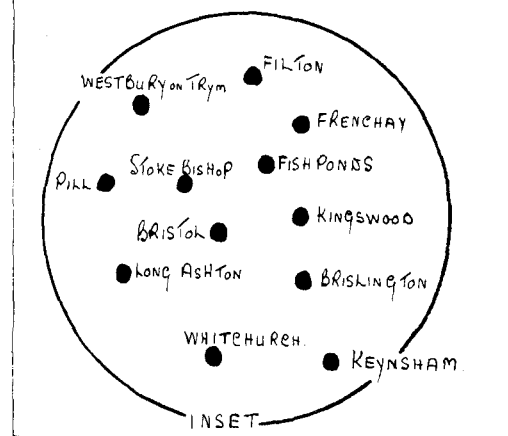
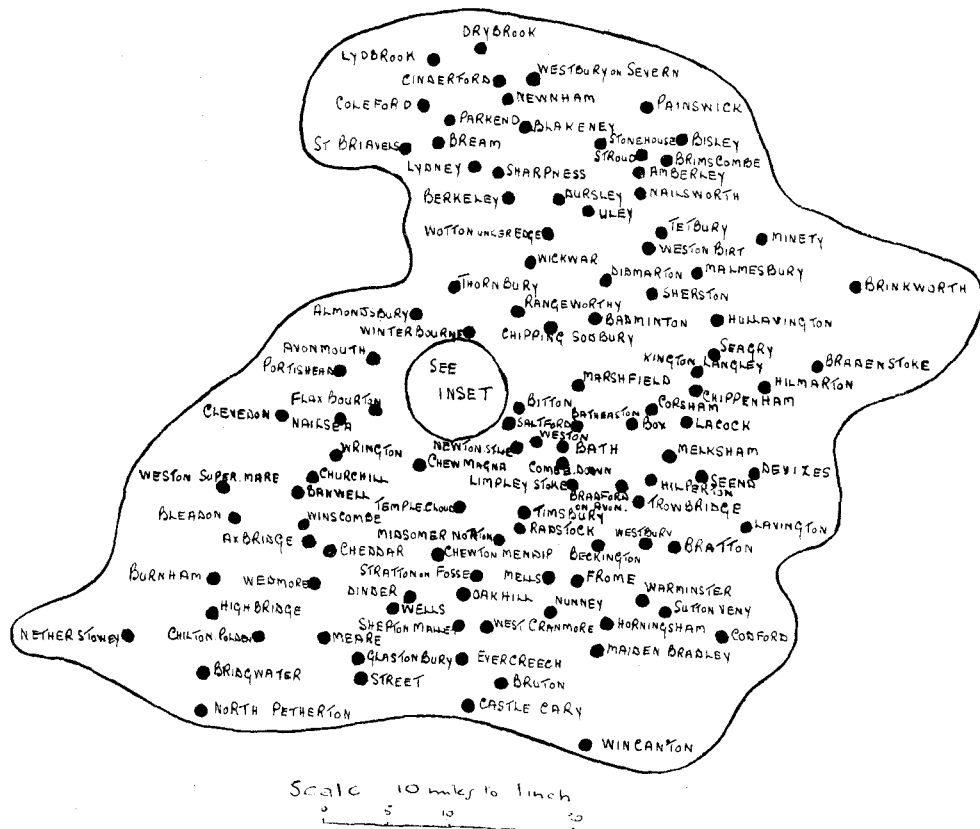
J. C. Crowley, Junr., Secretary-Treasurer of the Minnesota Telephone Association, in a paper read before the convention suggesting the grouping of small exchanges in order to ensure profitable operation and proper maintenance, says: "Under present conditions, at these exchanges service is given for a limited number of hours per day only, and they depend largely upon God, wind and the weather for maintenance." Turning to our old friend, the "type of rural lines owned and operated by farmers," he continues, "these are probably more troublesome to the manager of a telephone exchange than all other types of service combined. . . . In many sections the lines have depreciated to a point where many of them are a menace to the travelling public along the highways." Then he calls attention to the growing demand "for a higher grade of service than that which was looked upon as adequate a few years ago. 'No longer,' he concludes, 'will our young men and women students returning from their respective universities or colleges be satisfied with a streak of rust, that has been in mid air for a period of years beyond its natural life, for one side of the line, and the pump for the other, with from 15 to 30 stations on a circuit.'"

The Stockholm Taxicab Exchange.

Hugo Jonsson, Controller of the Stockholm Telephones, has just been entertaining "his famous American colleagues with a talk on telephone conditions in Sweden," through the pages of *Telephony*. Of particular interest is that part of the entertainment in which he describes the Stockholm taxicab exchange. Service for this, he says, is provided by the telegraph department, but paid for by the taxi owners' organisation. The local Stockholm exchanges each have a large number of lines leading to this exchange, and from it, in turn, lines are carried to street telephone instruments set up at all cab stands in various parts of the city. When a chauffeur arrives at a cab stand, he inserts a plug into a jack on the telephone instrument, causing a corresponding lamp to glow on a very large wall city map at the exchange, thus denoting that there is a taxi at this particular stand. When a call for a taxi is received by an operator, she just glances up at the map, sees at which stand nearest to the calling subscriber there is a taxi available, calls up this stand and gives the chauffeur the necessary instructions." Millions of taxi orders are said to be filled in this manner each year.

Television Broadcasting.

"I do not transmit photographs, or want to; that has been done long ago" says Mr. J. L. Baird. "I transmit whatever comes before the transmitting end of my apparatus, its movement and form with full detail." Application is said to have been lodged with the Postmaster-General, by Mr. Baird, for permission to establish "television broadcasting stations in different parts of the country," and that a company has been formed to market the receiving devices or "televisors." The inventor's theory is to project an image of the object to be transmitted in a piecemeal fashion upon a light sensitive appliance by means of a multitude of lenses which rotate in such a



MAP SHOWING EXTENT OF BRISTOL TELEPHONE GROUP.

BRISTOL TELEPHONE GROUP.

manner as to focus each momentarily on one part only of the object to be transmitted; owing to the retentivity of vision the successive area images appear simultaneously to the eye when thrown on a ground glass screen. The light sensitive device must respond instantaneously to very small quantities of light. But, it is declared that the face can now be clearly transmitted, not as mere black and white effect, but with gradations of light and shade, and the detailed features are readily recognisable at the receiver, and that all movement is faithfully portrayed. Thus progress is being made, but claims to complete success must still be treated with caution.

An important goal has been reached in the matter of traffic control in the Bristol district. The Bristol group is one of the largest in the provinces, comprising 123 exchanges, 52 of which are in direct connection with the Bristol local exchange. Until recently certain exchanges could not be included in the group for purposes of traffic control, as the circuits connecting these exchanges were operated in the Bristol trunk exchange on a "delay" basis, there being an insufficient number of circuits to enable a service of "junction" quality to be afforded. The last of these circuits was transferred to the Bristol local exchange on Oct. 1, since when communication with all exchanges in the group has been provided on a "no delay" basis.

Germany : Russia : America.

The German telephone service on trains was inaugurated on Jan. 5. Apparently the first person to use the service was a newspaper man who spoke to his chief in Berlin. Another user on the same journey was a woman who called her husband in order to tell him to close the housewindows in case it should rain. And a third was a fat man who called his wife in Hamburg to say he was coming home—hungry! The cost is about 6s. for 3 minutes conversation with any subscriber in either Berlin or Hamburg, with additional charges for great distances.

The provision of this service entailed a considerable amount of preliminary work in the examination of the nature of the traffic passing over the routes affected, in order to determine to what extent additional circuits would be required to carry the heavier traffic, which inevitably follows the provision of a speedier service. Several alterations were also involved in the routing and controlling charts in use at most of the exchanges in the group.

The Government of Russia desires to increase the number of telephones in the country from its present figure of some 120,000 to 1,000,000. It is also anxious to establish long distance communication from Moscow with Warsaw, Berlin, Paris and London, and has approached American companies with these objects in view. Some of these appear to have informed the Soviet Government that they are not prepared to re-enter Russia until it has recognised its responsibilities in confiscating plant after the revolution, and the Government is said to be willing to discuss terms of a reasonable adjustment of the compensation claims.

The transfer of so many short distance trunk circuits to the Bristol local exchange has added appreciably to the amount of trunk work dealt with at that exchange, where the number of trunk calls controlled and brought to account on Form T. No. 7 now averages 1,100 daily with a revenue of £25.

"The Telephone breaks in on the work of a busy office, interrupts thought, and so is really a time destroyer instead of a time saver," says one, R. M. Smythe, and he should know, for he was one of the first ten subscribers to be connected to the telephone system, and his offices are in Wall Street, New York. Whether it has been destroying his time for nearly fifty years, we are not informed, but, if so, we gather that the process is mercifully slow.

The transfer of these circuits to the Bristol local exchange was carried out gradually, in order that the extended control placed upon the "A" operators might not be felt to an appreciable extent. The arrangement is working well, and several subscribers have commented favourably upon the quick service which is given to towns formerly obtained via the Bristol trunk exchange. The exchanges which formerly worked to the Bristol trunk exchange have also welcomed the new system, which enables them to obtain subscribers on Bristol and sub-exchanges more speedily.

The success of the arrangement was due in no little measure to the rapid assimilation by the Bristol local exchange supervising and operating staff of the requirements of the extended control, and to their zeal in doing everything possible to operate calls quickly.

RETIREMENT OF MR. EUSTACE HARE.

FORTY-THREE years ago at 17 years of age Mr. Hare entered the Accountant's department of the United Telephone Company.

As head of the travelling audit-staff and statistical department of the National Telephone Company for many years up to December, 1907, Mr. Hare became universally known to telephone men of all ranks all over Great Britain and Ireland. For the last four years of the Company's life he was the Company's Assistant-General Superintendent.

During his 14 years service in the Post Office he has filled the responsible position quaintly described until recently as "Principal Clerk" in the Telephone Branch of the Secretary's Office, and on reaching the Civil Service "Hill 60" at the end of January, 1926, he was the senior "Principal" and "Clerk-in-Waiting" at St. Martins-le-Grand.

Owing to a strong repugnance to appearing in the limelight Mr. Hare's many-sided nature and interesting qualities were apparently not so well-known to many of his post office colleagues as they deserved to be. When, however, the time to say "good-bye" arrived no one was more surprised than Mr. Hare himself to find how numerous were his friends among his colleagues in the Secretary's Office, in the London Telephone Service and in the provinces—who insisted on his accepting as some expression of their esteem and affection a "Chesterfield," a silver entrée dish and a collection of table glass. Accompanying these gifts was a suitably-inscribed album containing the signatures of the numerous contributors.

It is a gratifying coincidence that for the last few years of his post office service his old love, the statistical section, again came under his charge.

Mr. Hare's literary contributions to this *Journal* were frequent, and no subject—except sport, which he would not touch with a poker—came amiss to his facile pen. Many happy Dickens allusions speak of a close acquaintance with that author's works. Music must, however, be put down as probably his greatest passion. He has long studied musical composition and form under Dr. Charles Macpherson, of St. Paul's Cathedral, is a tenor singing member of that Cathedral's special service choir, and has composed several instrumental pieces.

Although not an eminent exponent of the art of "suffering fools gladly" in other subjects Mr. Hare was always most ready and willing to give his assistance in training local choirs, in playing the organ at his church, or working in any other direction helpful to the cause of music.

The friendliest good wishes follow Mr. Hare on this occasion of his retirement from the post office service, and as his activity and ability appear undiminished although the familiar initials "E.H." will disappear from official minutes, his talents as an exponent of the art of letter-writing will easily survive the necessity of changing the prefix to his composition of "I am directed by the Postmaster-General to. . ."

PROGRESS OF THE TELEPHONE SYSTEM.

A REVIEW of the past year's working shews that the growth of the Telephone System has been fairly well maintained, notwithstanding the fact that there is still depression in many industries. A decline in the volume of new business in the summer months was followed by an improvement in the October-December quarter, when the net addition to the number of stations was 30,870, the highest figure so far recorded for any quarter.

The total number of stations in use in the Post Office system on Dec. 31, 1925, was 1,357,908; the increase during the year amounting to 114,287 or 9.2%. The total for the London Telephone Area increased from 439,223 to 476,813 (8.6%) and that for the Provincial Districts from 804,398 to 881,095 (9.5%).

The total number of residence rate installations at the end of December, 1925, was 250,104, of which 93,312 were connected with London exchanges and 156,792 with provincial exchanges. Since the introduction in July, 1922, of the separate tariff for private house connexions the percentage growth in residence lines has always been considerably higher than the percentage growth in business lines. It is of interest to note, however, that in 1925, more residence rate subscribers were added to the system than business subscribers. The net additions during the year were 37,790 residence rate and 34,182 business rate installations.

New call offices were added at the rate of about 100 per month, and the number in use at Dec. 31 last was only 22 short of 20,000. The London total increased from 4,135 to 4,395 and the provincial total from 14,470 to 15,583.

During the year there was a remarkable growth in the number of kiosk call offices, the total increasing from 931 to 1,732. The majority of these kiosks have been provided in provincial towns, but latterly there has been a substantial addition to the number in the London Telephone Area, where the total has now reached 212.

A further 214 new exchanges in rural areas were opened for service during 1925 under the rural development scheme, and altogether 835 new rural exchanges have been provided since the inception of the scheme in June, 1922. There are in addition over 80 exchanges in course of construction. The total number of exchanges working at the end of December, 1925, was 3,971, of which 2,527 serve rural areas.

The rural party line stations now number 9,754, the net addition in 1925 being 518 or 5.6%. The demand for this class of service has declined in the last year or so, probably because of the provision of a large number of rural exchanges from which it is possible to provide exclusive line service without heavy additional charges for extra mileage.

Although during 1925 there was no increase in the average calling rate per line there was nevertheless a substantial growth of traffic, and it is estimated that the number of originated effective calls of all kinds during the year was 995 millions. This represents an increase over the total for 1924 of 83 millions or 9.1%.

The number of inland trunk calls for the year was 83½ millions (compared with 76½ millions in 1924) an increase of 7 millions or 9.1%.

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

PROVINCES—Bognor, Shrewsbury (automatic)

and among the more important exchanges extended were:—

LONDON—Hendon, Langham, New Cross.

PROVINCES—Birmingham (East), Birmingham (South), Blackpool, Bury, Gateshead, Northwood, Rossendale, Sutton Coldfield, Wakefield.

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

Doncaster—Goole,
North Shields—Whitley Bay,
Aberdeen—Inverurie,
Newark—Lincoln,

while 75 new overhead trunk circuits were completed, and 71 additional circuits were provided by means of spare wires in underground cables.

LARGE AUTOMATIC TELEPHONE EXCHANGE "CUT OVER" FOR ADMIRALTY.

In June last there was "cut over" at one of H.M. Naval Establishments, a Relay Automatic Branch Exchange (P.A.B.X.) at present equipped for 550 lines. This Exchange, which is the largest automatic installation in H.M. Naval Establishments, is inter-connected with a 50-line Relay Automatic Exchange (P.A.X.) which was brought into service at a subsidiary establishment some weeks ago. The large P.A.B.X. has been installed in a newly-erected telephone building, and has replaced a six-position manual board (Fig. 1). The manual board was originally a two-position board, which was installed in 1907, four positions being added at subsequent times. Eleven operators in three shifts and one supervisor were employed on this equipment.



FIG. 1.—THE OLD MANUAL SWITCHBOARD INSTALLED 1907, DISMANTLED JUNE, 1925.

The Relay P.A.B.X. (Fig. 2) is fitted with a two-position manual board, the subscribers' jacks being arranged in three panels. The operator, therefore, has ready access to any subscriber's jack. The manual board is used only for calls to the public exchange, and as such calls amount only to one per centum of the total traffic (the other 95% being dealt with entirely automatically by the "Relay"), it has been possible to give a much more efficient outside service, and at the same time dispense with nine of the operators necessary under the previous system.

The Commander-in-Chief, and all Establishments such as the Engineers, Central Offices, Workshops, Main Offices, Barracks, Cashiers, and Police, are linked up in an entirely automatic service which effects its connexions day or night in three seconds, while two very important distant stations are connected by the Relay Switchboard, which also serves all vessels in the harbour. Some of these lines are three miles from the Automatic Exchange.

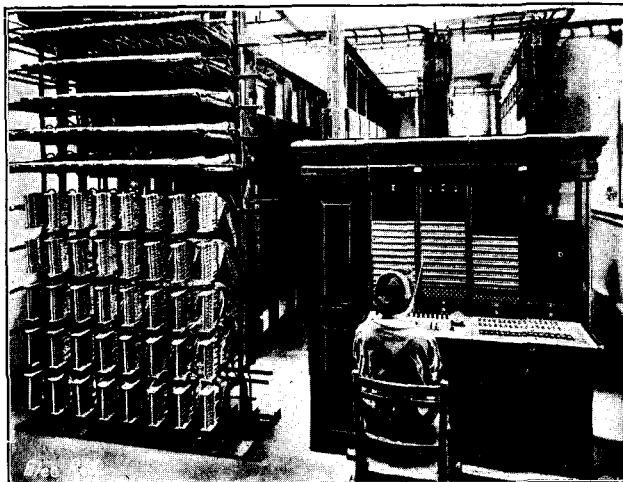


FIG. 2.—THE 550 RELAY AUTOMATIC TELEPHONE EXCHANGE.

The 50-Line Subsidiary Automatic Exchange employs no operator whatsoever.

Facilities are provided on the large Relay Exchange for any sixteen officials to hold a conference, and three officials have preference or priority of service, while on the subsidiary exchange referred to three high officials have the same privilege.

The Exchange is similar to the "Relay" Equipment supplied to the British Post Office: Standard Dialling Tone, Ringing Tone, Engaged or "Busy-back" Tones, are given. Provision is made on the large Exchange for ten two-party lines with Selective Ringing. Alarms to indicate Exchange faults are provided, and, according to the nature of the fault, either a delayed or instantaneous signal is given, depending on the importance of the fault.

The 550-line Relay Exchange is equipped with two sets of Chloride Batteries of 340 ampere hours capacity and a voltage of 32, both Exchanges, by-the-way, being of the latest 32 volt model. Two ringing machines are fitted on the 550-line Exchange, one of which runs off the 220-volt main, and the other off the exchange battery; the 50-line subsidiary exchange is also equipped with duplicate ringers.

BIRMINGHAM.

Mr. R. U. TUCKER, who has been chief Clerk in Birmingham for 20 years, was, at a crowded gathering of the Staff of all sections at Ridgway's Cafe on December 17th, presented with an oak bureau to mark the occasion of his promotion to be District Manager, Guildford.

Mr. Tucker has at all times been an exceedingly popular officer, and although he has been overwhelmed with congratulations on the promotion he so fully has merited, the Staff keenly regret that he is leaving them.

NEWCASTLE POST OFFICE BOWLING CLUB.

The annual concert in connexion with the above was held on Saturday, Dec. 12, in the Royal Turk's Head Hotel, Newcastle.

Mr. C. Creighton (Postmaster Surveyor) was in the chair, supported by Mr. J. D. W. Stewart (District Manager), Mr. E. Brydon (Postal Section) and Mr. R. L. Davison recently retired from the Traffic Section.

Midway through the evening Mr. Creighton presented the two bowl championship cup to Mr. J. Troman, of the Postal Section, and congratulated the recipient on being the first to win the trophy three times.

The League cup, which is open to competition to teams representing separate departments of the Newcastle Post Office, was won by the "Telephones." The chairman, in handing the cup to Mr. J. D. W. Stewart, paid high tribute to the team in winning the trophy for the fourth time. Mr. Stewart, in replying, gave a short history of the game of bowls from the stone age down to modern times. He also pointed out that his team were bottom of the League in 1923, and top in 1924 and again in 1925. This, he thought, should encourage the other clubs not so fortunate in their results this year.

Messrs. R. J. Gasken, H. Carr, Alf Peel, B. Colston, J. Wheldon and J. G. Walton and F. Jeavans delighted the company with a high class musical programme.

Mr. T. W. Wright (Cashiers), in moving a vote of thanks to the artistes, took the opportunity of welcoming Mr. Creighton, the new President of the Club.

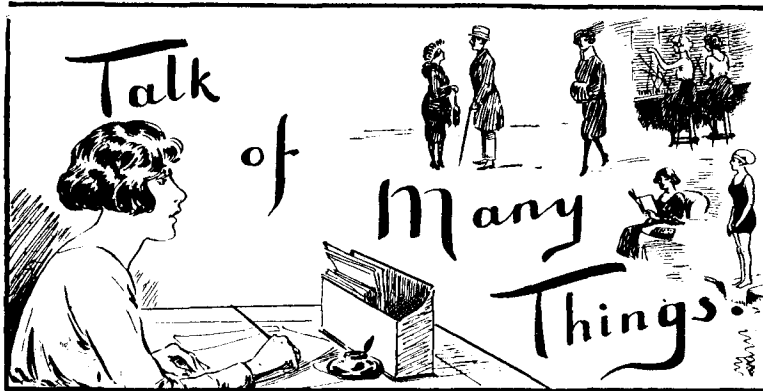
LIVERPOOL TELEPHONE DISTRICT: DEPARTURE OF MR. F. C. BURSTALL FOR EGYPT.

Mr. F. C. BURSTALL, Traffic Superintendent, Class II, Liverpool, left recently to take up a position for a time with the Egyptian Government Telephone Service.

At an informal function, held at the Royal Court Hotel, Mr. Burstall was presented by his colleagues of the Traffic Section with a tautalus suitably inscribed. The presentation was made by Mr. G. F. Staite, Traffic Superintendent. Among those present to bid Mr. Burstall farewell were Messrs. Parry, Johnson, and Williams of the Manchester Traffic staff, Messrs. Salmon and Milman of the Chester Traffic staff, Mr. Carroll of the Gloucester Traffic staff, Messrs. Cornfoot, Cooper, Beer, Cowburn, and Nevin of the Engineering Department, and Mr. O. G. Lee, Contract Manager, Liverpool.

Prior to his departure Mr. Burstall was the recipient of tokens of esteem from the Traffic Office Clerical staff, and the Supervisors and Telephonists in the exchanges.

WE TELEPHONISTS



Presentation of Wireless Installation to the E.G.A.H.

AN appeal from our Superintendent, Miss Cox, was made to the staff of the London Telephone Service a short time ago, asking for their help in erecting a wireless installation at the Elizabeth Garrett Anderson Hospital, Euston Road. Within a few weeks of the appeal the amount of £300 was raised. This sum was handed over to Miss Cox for the "Daily News Fund," with the result that a complete wireless set has been installed at the Hospital mentioned.

On Thursday, Jan. 21, a very pleasant and interesting time was spent at the Hospital by representatives of the various London Exchanges, at the formal handing over of the installation by Miss Nurse (Chief Supervisor, Trunk Exchange) to the Countess of Carlisle, who received the gift on behalf of the Hospital.

In characteristic speech Miss Nurse said—"There is no doubt that we cannot really be happy unless we make others happy, and we of the London Telephone Service sincerely hope that our endeavour will be the means, in some degree at least, of alleviating the dull monotony of the daily routine of hospital life, by bringing some joy to the patients within this hospital, and thus help towards their earlier convalescence." In closing, Miss Nurse quoted the beautiful words of Robert Louis Stevenson—"I shall pass through this world but once; any good thing therefore that I can do let me do it *now*. Let me not forget it or defer it for I shall not pass this way again."

Lady Carlisle, in accepting the gift on behalf of the hospital, expressed warm appreciation of the generosity and sympathy shown by the telephone operators towards the sick and suffering.

Mr. Hugh Jones, managing editor of the *Daily News*, then spoke, and said that through the appeal in that paper to the public 74 London hospitals were now fully equipped with nearly 13,000 pairs of headphones.



Mr. A. Gordon-Pollock, chairman of the hospital, thanked the "telephone girls," saying "They are the most generous people in the world." He spoke very highly of the telephone service he had received during the 14 years he had used a telephone, and remarked that only once did he have to make a complaint to the supervisor in charge, and that was because he was being given another number. He said he had always been treated so courteously that he did not want to be moved.

Miss Bolton, head surgeon of the hospital, then spoke a few words of thanks, and said the wireless set would be appreciated not only by the patients, but by the doctors, sisters, and nurses alike.

In replying to the many kind things said about the "telephone girls," Miss Nurse remarked that when any appeal of this kind was made to the girls, she had always found them most generous and responsive, and very pleased to be able to help in any way.

After the Countess of Carlisle had been presented with a posy and Miss Nurse with a beautiful bunch of violets we all visited the Garrett Anderson ward where a flashlight photograph was taken. Then we passed on to the "Chadburn," "Westlake" and other wards, where several members of the party who had been patients themselves at one time, renewed their acquaintance with the sisters and nurses.

It was interesting when speaking with the patients to hear their praise of the hospital, and also their appreciation of the head-sets. Some had never had the opportunity of "listening in" before.

The Matron very kindly provided afternoon tea for the visitors, and so ended a very pleasant time. One left the building feeling grateful to the originators of the scheme, and that the staff of the London Telephone Service had been able to participate in the same, giving much pleasure, with benefit to mind and body, to both patients and hospital staff.

TRUNK EXCHANGE.

Telephone Staff Hospital Collections.

(Associated with the Hospital Saturday Fund.)

Extract from report :-

"The Telephone Staff contribution again heads the collection list for the whole of London. The total amount collected by them was £2,197 2s. 7d., an increase of £32 on last year's total. Well done, the Telephone Service!"

The meeting held on Feb. the first was packed from floor to ceiling—with hope fulfilled and joyous zest and heaps of kindly feeling. And each heart beat in unison, and no one was divided, as over all the meeting Mr. Valentine presided. He praised the staff for faithful work, enthusiastic, splendid, and said how much the hospitals on loyal help depended. The Secretary, Mr. Reed, upon the Fund's behalf, expressed his warmest gratitude to the hardworking staff. We heard Miss Cox with pleasure, as with brief, well-chosen phrase, she complimented all who'd worked this splendid sum to raise. We welcomed Mr. Stirling, who was there with us once more, and longed to have him back again, in office, as of yore. (And if his name was not intensely difficult to scan, we'd have a friendly word to say of yet another man). And then, with no dissentient voice (nem. con. a shorter line!) we re-elected as our chairman, Mr. Valentine. Next Mr. Page was re-installed (as Treasurer, to wit); he does not shirk the hardest work, but smiles and welcomes it. And then, with acclamation loud, and heartiest good-will, we need not say just whom we chose to be our Hon. Secs. still! But as Miss Reekie aptly said—(and she, it seems, should know): "We'd feel so *very* disappointed if we had to go." It was indeed a pleasant way to show we held them dear; and may they act again for us in each succeeding year.

Sydenham Exchange.

Under the direction of Miss Bowley the staff gave a tea and entertainment to 170 poor children at Wesley Hall, Sydenham, on Saturday, Jan. 30. They were amused by the clowns—Messrs. Bailey and Strongman—during tea. In the evening Mrs. Silk, an old Sydenham telephonist, entertained the kiddies with songs and jokes, and was much appreciated.

A splendid exhibition of classical dancing was given by Miss D. Whorwell, and was followed by song duets and dances by the Misses Whorwell and Fenton. Miss D. Fenton also displayed great ability during the course of a recitation.

The Marionettes by Tony Reed were great favourites, delighted laughter greeting every item of the performance.

Songs were rendered by Mr. Forman, and the children joined in the choruses heartily.

Mr. Ford acted as "Father Christmas," and presented each child with a toy from his big sack.

The catering arrangements were undertaken by the Misses Grange and Neal, who performed their task to such advantage that each child was able to take home a bag containing fruit, sweets, and cake.

All members of the staff did their bit and enjoyed the evening as much as the kiddies.

G. M. T.

Toll Exchange.

On Thursday, Jan. 28, the staff and friends of the Toll Exchange were afforded an opportunity—for the second time recently—of enjoying a social function in the Exchange Dining Room.

Kind permission was granted for a New Year's concert, and the audience heartily appreciated the efforts of the organisers. Among those present were Mr. Rooney, Service Superintendent; Mr. Donovan, Assistant Service Superintendent; Miss Epps, Chief Supervisor; Miss Searle, and Miss Pond.

The excellent and representative programme consisted of contributions from the following artists:—

- Pianoforte Solos Mr. Dicks, Misses Allan and Brown
- Songs Messrs. Roberts and Harrison
- Recitations Misses Packer and Clarke
- Violin Solo Miss Godfrey
- Monologues and Child Impersonations ... Miss Cridlaw
- Humorous Sketches Messrs. Flack and Mead, Sir Viss Test and Earl Eturn.

Refreshments were served during the interval by an able band of helpers.

Encores were freely called for, and ability of no mean quality was displayed. The humorous sketch by Sir Viss Test and Earl Eturn, who were in reality Mr. Willis and Mr. Birch of the Engineering Staff, was received with roars of laughter. They proved such inspiring schoolmasters! It must be mentioned also, that the cleverly arranged programmes were—to use their own words “designed, printed and produced for the Concert Organisers by Birchanwillis Artistic Perpetrators, Tele. Tooting 202.”

The Advertisements—such as “See the Nippy show at Olympia, 70 Lyons in one circus,” “Another 3 mins. ? Write for our List of Great Winter Sale of Shop Soiled Packets containing 3 spare mins—as new, F. Arthur Time, Big Ben, Westminster,”—caused great amusement.

The advice—“In case of Fire, cut round the dotted line and hand to attendant,” and “Having paid for this programme you may use it afterwards for haircurlers or pipelights”—also the “Lord Chamberlain's Regulations” “To keep your head out of the light and your feet out of the gangways,” was read with great interest. It is understood that Messrs. Willis and Birch gave much of their time in thus helping towards the success of the Concert. Many thanks are due to them.

Members and friends of Toll will doubtless look forward to the next occasion when such a pleasing entertainment will be repeated.

A. G. T.

Clerkenwell School.

On Dec. 12 the staff of the Clerkenwell School held a bazaar in aid of the hospitals. £100 was realised for the Westminster Hospital, the remainder going to the funds of the Hospital Saturday Fund.” Her Majesty the Queen honoured the event by sending a gift.

The whole staff worked with untiring energy to make the event the great success it was, and everybody that attended had an enjoyable time.

Our photograph shows some of the stallholders.

It is sincerely hoped that the bazaar can be repeated in the near future.

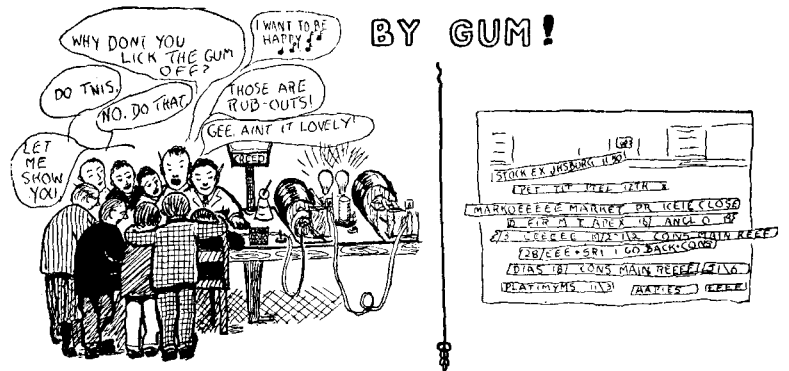
J. L. R.



Photographic Competition.

The names of the prize-winners will be given next month.

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



P. E's NEW CREED. THE RESULT!

As in this country so in our Colonies, the telegraphist always sees the funny as well as the serious side of his duties. The above is reproduced with grateful acknowledgments to the editor of *The South African Postal and Telegraph Herald* and is the humorist's pictorial view of Pretoria's new creed installation. Needless to say the ultimate results were distinct improvements on one of the first efforts shown on the right.—Ed. T. & T. J.

PRESENTATION TO MR. J. P. URWIN.

An interesting event took place at Newcastle-on-Tyne on Saturday, 9th instant, when, in the presence of a large gathering of the staff, Mr. J. D. W. Stewart, District Manager, presented Mr. J. P. Urwin, Contract Manager, with a silver desk clock on the occasion of his leaving Newcastle to take up duties in Liverpool to which district he was being transferred on promotion.

During the course of his remarks Mr. Stewart said that Mr. Urwin had spent all his official career there and had founded the Contract Department in Newcastle. He paid generous tribute to the energy, enthusiasm and judgment displayed throughout and more particularly so during the last three years which, by reason of development studies, had been a particularly arduous period.

Further remarks expressive of kindly thoughts and good wishes were voiced by Messrs. Abbott, Green and McEwan of the Accounts Section, Mr. Wickham of the Traffic Branch, and Mr. Anderson of the Contract Department.

Mr. Urwin, in thanking the donors for their gift and good wishes, said he was leaving the district with very mixed feelings. Newcastle was his native heath, and he would always take a warm interest in the progress of the district.

SWITZERLAND AND THE ITALIAN LAKES.

The Horsley Party leaves London for Meiringen in Bernese Oberland on June 7. 15 days £14 0s. 0d.; 22 days, including extension to Italian Lakes (Maggiore, Como, Lugano, and Garda), £21 0s. 0d.

Apply to Mr. J. W. Fewtrell, 48, Frewin Road, S.W.18.

PROGRESS IN 1925.

The following extracts from the annual district reports on the progress of the Telegraph and Telephone Systems in 1925 will be of interest to our readers.

LONDON TELEPHONE AREA.

The telephonic requirements of this area are at present met by 107 exchanges, including the Trunk (long distance) exchange which handles traffic to the more distant Provincial exchanges, the Irish Free State, and the Continent, and the Toll exchange which deals with traffic to the nearer Provincial exchanges. The exchanges vary in size from 100 to 10,000 lines.

The number of exchange lines connected to the London exchanges at the end of 1924 was 244,342. At the end of 1925 the number was 269,801, the net increase for the year being 25,459 or about 10.4%.

There is an increasing demand for private wires, *i.e.*, wires which are used between subscribers' offices and are not connected to the public exchange system. The increase during the year was 1,200, and the total number is now 15,000.

Many subscribers' lines have more than one telephone instrument connected, and the number of telephones is, therefore, always greater than the number of lines connected to an exchange. The total number of telephones—exchange and private—at the end of 1925 was 476,813, there having been a net increase of 37,590 over the figures for the previous year.

Considerable progress was made during the year in providing the exchange equipment necessary to meet the steady growth of the service. Four new exchanges were opened to serve new areas—Albert Dock, Franklin, Mill Hill and Sloane. These exchanges provided an increased capacity of 5,600 lines. Six new exchanges were provided to replace exchanges already existing at Enfield, Grangewood (formerly East Ham), Malden, Palmers Green, Pinner and Tilbury. In addition the equipment of 47 existing exchanges was extended and this provided, with the new exchanges mentioned, additional capacity to the extent of approximately 24,000 lines.

Work in hand includes ten new exchanges and the extension of 27 existing exchanges, the whole providing increased capacity to the extent of 36,440 lines. In addition, new exchanges and extensions projected for the present year will provide a further capacity of over 30,000 lines.

If the anticipated rate of telephone growth is maintained, it will be necessary during the next eight years to construct and open 71 automatic exchanges within the 10 miles from Oxford Circus and 33 manual exchanges outside that radius, but within the London Telephone Area. These new exchanges will provide for the replacement of worn-out plant as well as for growth.

Steady progress has been made in the preliminary work incidental to the conversion of the London Area to automatic working. Owing to the great extent of the London Telephone Area, the varied communities in that area, and the number of exchanges by which the subscribers are served, many of the problems are unique, but a system has been devised which it is considered will satisfactorily meet all the conditions. The automatic installations in hand represent a capacity of about 45,000 lines, and those projected about 147,000 lines, making in all about 192,000 lines in the section of the automatic programme which has been commenced.

During the year the names of the following exchanges were altered to comply with the requirements of the automatic system under which the numerical equivalent of an exchange name must not be duplicated.

	Numerical equivalent similar to that of	Changed to
East Ham	... East...	... Grangewood
Kingsbury	... Kingston	... Colindale
Woodford	... Woolwich	... Buckhurst

Due notice was given to all the subscribers concerned who were, at the same time, supplied with postcards on which to notify their correspondents of the alteration in their exchange designations.

Considerable progress has been made with the installation of the "Tandem" exchange. The purpose of this exchange is to facilitate calls to and from subscribers connected to telephone exchanges between which there is not sufficient traffic to justify the provision of direct groups of junctions. All exchanges, whether supplied with direct junctions or not, will be connected to the Tandem exchange, so that a telephonist at any exchange can pass a call through the Tandem exchange to any other exchange. In the case of calls from a manual exchange a telephonist at the Tandem exchange will receive the calls aurally over an order wire and will then set up the call on keys of typewriter pattern. Automatic apparatus will thus be put in operation which will display the required number visually in front of a telephonist at the exchange to which the required subscriber is connected. If the calling subscriber is connected to an automatic exchange the operation of his dial will automatically route the call via the Tandem exchange to the distant exchange without the intervention of a telephonist. If the called subscriber is connected to an automatic exchange he can be called direct by a Tandem

exchange telephonist or by another subscriber connected to an automatic exchange. About 8,000 lines will be connected with the Tandem exchange.

At the present time London subscribers originate on the average 1,667,000 calls per working day, or about 478,600,000 calls per year—an increase of about 7.5% as compared with the figures for the previous year. Of the average daily traffic about 256,000 calls are made during the busy hour of the morning, so that about 15% of the 24 hours' traffic is handled in a single hour. Day and night service is given at all exchanges, and on the average about 61,000 calls are originated daily during the night and early morning period, *i.e.* between 8 p.m. and 8 a.m.

About 80% of the total calls originated are made to subscribers on other exchanges. At least 4 persons—the originating subscriber, the originating exchange telephonist, the distant exchange telephonist and the called subscriber—are therefore concerned in the transmission of 80% of the traffic handled, a circumstance which necessitates strict attention by all concerned to the standard operating methods laid down in the Directory preface. To accommodate this inter-exchange traffic over 29,000 junction lines, or lines connecting one exchange with another, have been provided; the number now existing includes an increase of about 9% on last year's total.

The number of calls outgoing from London daily at the Trunk and Toll exchanges is about 26,500, there having been an increase of about 7.2% over the figures for the preceding 12 months.

MANCHESTER DISTRICT.

Complete new exchange equipments have been provided at Didsbury, Higher Broughton, Leigh, Saddleworth, and Delph, and a substantial addition has been made to the equipment at Oldham. Arrangements are well advanced for providing new exchanges at Atherton, Bramhall, Knutsford, Openshaw, Stalybridge, and Whaley Bridge.

During the last year 8,974 new telephones were fitted; deducting cessations, this gives a net increase of 5,677, and constitutes the highest record for 13 years. The number of telephones increased from 32,946 in September 1912 to 70,958 in September 1925, a growth of 115% in 13 years.

We are glad to be able to report very satisfactory progress with the work of overtaking arrears in the provision of underground cables required to meet expansion. In April this year the number of outstanding applications for telephones, which could not be accepted owing to shortage of underground cables, had been reduced to 224, and at the end of October the number had been further reduced to 15. With the progress of the works now in hand it is anticipated that this figure will become a negligible quantity, although with the present house-building activities in various areas it is feared that occasional delays may continue to be unavoidable. It is now generally found practicable to give service on new lines in about 65% of the cases within one week of the receipt of the order, and 85% within two weeks.

London Telegraphic Traffic.

A new type of apparatus, the auto-Baudot, has recently been installed, providing eight channels between Manchester and London, and is giving excellent results. Further improvements are in contemplation.

The Committee will be interested to know that the volume of traffic makes the London-Manchester group the heaviest telegraph channel between any two offices in the world.

Telephone Traffic.

The number of effective Trunk calls in the Manchester Telephone District during the past year was 5,339,487, an increase of more than three-quarters of a million over the year 1924. Telegrams received by telephone from the public numbered 403,321, an increase of 61,500 on the past year. The local effective calls during the year numbered 46,391,000, an increase of over 6,000,000 calls on last year's figures.

The quality of the service has been tested by continuous and systematic observations during the year. These have revealed consistent and satisfactory improvement, the latest return shewing that on an average the telephonist answered the calling subscriber in 5.7 seconds.

LIVERPOOL DISTRICT (INCLUDING ISLE OF MAN).

The number of telephones increased from 34,910 in 1912 to 57,509 in 1925, a growth of 64% in thirteen years. During the last year 6,762 telephones were fitted; deducting cessations, this gives a net increase of 4,095, the gross and net figures constituting the highest record for the thirteen years period, and representing a net increase of nearly 8% over 1924.

A complete new exchange has been provided at Penketh, and two new rural exchanges have been established in the Isle of Man, *viz.*, Kirk Michael and Andreas. In addition, extensions of the existing equipment at many other exchanges have been carried out.

The work of enlarging the premises at South John Street, Liverpool, has been completed, and the extension of the Central and Bank exchange equipments is well in hand. Some of the additional equipment has already been brought into use. New exchange premises have been obtained at Hoylake, Huyton and Upton, and the provision of complete new equipment is being

arranged for. A site has been acquired for a new Garston exchange, and building operations are expected to commence very shortly. A site has also been acquired in Limekiln Lane, Liverpool, for a new North exchange. The new building will eventually accommodate one of the automatic exchanges projected for the Liverpool area, but manual equipment will be installed at the outset in order to meet the requirements of the intervening period. Negotiations for the purchase of new premises or sites in other cases are in progress.

The early introduction of the automatic system of working generally in Liverpool and St. Helens is receiving careful consideration, and a great deal of intensive survey work is being done in connection with these schemes.

Telephone Traffic.

During the past year there has been a substantial increase in the number of calls, approximating to 4%, the total number being 58½ million local and trunk calls. The number of phonograms—telegrams handed in by subscribers by telephone—amounts to 194,000, an approximate increase of 4½% as compared with last year.

The quality of the service continues to improve, and has reached a high grade throughout the district. Written complaints are few in number and show a marked tendency to decrease.

An important advance has been made by the supply of "On demand" service to the Llandudno and Wrexham groups of exchanges (10 and 24 exchanges respectively) in North Wales greatly facilitating calls between those places and Liverpool.

The Operating School has recently been removed to more commodious premises, and 67 new entrants to the Telephonists' Class have received a complete and effective training in telephone operating work, maintaining the trained staff at its full strength throughout the year.

Telegraphs.

During the year three lines between Liverpool and London, Liverpool and Paris, and Liverpool and London Foreign Gallery, respectively, have been equipped experimentally with type keyboards and automatic transmitters, in place of the Baudot Manual signalling by means of five keys of the piano pattern in order to reduce the waste of effective line time, as keyboard typing is capable of a higher speed than manual operating. So far the experiment has been successful, and its extension gives every promise of facilitating the disposal of traffic.

Direct telegraphic communication between Liverpool and Antwerp has been definitely authorised, and the necessary arrangements are now being made for the installation of the apparatus.

The restoration of direct communication between Liverpool and Germany is also being considered. The traffic, however, as yet, is much below the pre-war volume, and there is considerable doubt as to whether it is sufficient to justify the proposal financially.

PRESENTATION TO MR. S. O. ALLEN.

OVER 230 members of the staff of the Southampton Telephone District were present at a social evening at Price's Cafe on Saturday evening, Jan. 23, to bid farewell to Mr. S. O. Allen, Telephone Traffic Superintendent, on his promotion to the position of District Manager of the Mid-Lancashire Telephone District.

Among those present were Major J. Compton, M.B.E., Postmaster of Bournemouth; Mr. F. K. Gibson, Postmaster of Southampton; and Mr. T. F. Hammond, Postmaster of Salisbury. Apologies for non-attendance were received from Mr. J. S. Brown, Sectional Engineer, Southampton; and Mr. A. Berlyn, Postmaster of Portsmouth.

The presentation took the form of a wireless set with loud speaker supplied by the Standard Telephones and Cables, Ltd., which was connected up with a part of the evening's broadcasting programme. A silver tea service was also presented to Mrs. Allen.

Mr. O. G. Lee, the recently appointed District Manager of the Southampton Telephone District, aptly expressed the congratulations of Mr. Allen's many colleagues and friends on his promotion. Although he was an old friend of Mr. Allen's he felt that it was fitting that the presentation should be made by Mr. Howe, the recently retired District Manager, who had been associated with Mr. Allen for the past 15 years.

Mr. Howe said he felt he was privileged in being the mouthpiece of the staff on this occasion. He warmly congratulated Mr. Allen on his promotion, which was a recognition of his high technical and administrative abilities. The future of the telephone service was definitely in the development of automatic telephone exchanges; in this respect Mr. Allen was associated with Portsmouth—the first large automatic telephone exchange of the kingdom—and later with Southampton. Mr. Allen's exceptional experience would be of the greatest value to the telephone service in his new district. In making the presentation on behalf of the staff, he wished him the best of luck, good

health, and the same loyal service which had been given him by the staff of the Southampton district.

Mr. Stelling, second in command of the Traffic Section, Southampton district, warmly associated himself with Mr. Howe's remarks, paying a tribute to Mr. Allen's qualities of character. Mr. A. E. Shorter, of the Engineering Department, Mr. W. D. Simes, Portsmouth, and Mr. C. S. Weston, Chief Clerk, Southampton, Mr. D. Wallace, Contract Manager, Major J. Compton, M.B.E., on behalf of the Postmasters in the district, also expressed their appreciation.

Mr. Allen, on rising to respond, was given a rousing reception. He said he had not intended to make a long speech, but he was most grateful for their kind remarks, and only hoped he deserved even a part of what they had said. He had endeavoured to administer his department in the true interests of the service, and had received the wholehearted support of the district staff. He was proud to say that as a result, the services of the exchanges in the district was second to none in the kingdom. He warmly thanked the Engineering Staff for their cordial co-operation at all times, and the happy relations which existed.

After Mrs. Allen had added her thanks, an enjoyable evening was spent in dancing to the music of the "Spinnet" Orchestra, finishing at midnight to the strains of "Auld Lang Syne."

PRESENTATION TO MR. J. T. WHITELAW.

A function, almost unique in the history of social events in connection with the North-Western Telephone District, took place on Jan. 21, when the District Manager, Mr. J. T. Whitelaw, along with Mrs. and Miss Whitelaw, were entertained to dinner by the staff prior to Mr. Whitelaw's transfer to Manchester.

The dinner was held at the "Old Bull" Hotel, Blackburn, and the accommodation of the large dining room was taxed to the utmost. In fact, it was impossible to extend an invitation to any of the staff outside Blackburn, beyond a few in other departments who had been intimately associated with Mr. Whitelaw. Practically the whole of the District Office staff attended, and almost 100 people sat down to dinner. The scene during the evening was a very pretty one. The dresses were charming, and every one of the female staff, from the most junior member upwards, appeared to be determined to honour Mr. Whitelaw, by coming in her best evening frock.

An exceptional compliment was also paid to Mr. Whitelaw by the presence of the Surveyor, Mr. Randal Bell, who very kindly presided.

During the evening, on behalf of the staff, Mr. Bell presented Mr. Whitelaw with a gold wristlet watch and Mrs. Whitelaw with a case of fish eaters, as a mark of the staff's esteem and affection.

In making the presentation, Mr. Bell said that oratory was not an attainment of his, but as events turned out it was the general opinion that our Surveyor had considerably underestimated his ability in this respect. In a very fine speech Mr. Bell eulogised the splendid work done by Mr. Whitelaw during the two years he had been in Blackburn, and paid a very high tribute to his abilities generally as a District Manager.

The toast of the Guest of the evening was heartedly drunk to the accompaniment of musical honours.

Mr. Whitelaw, who had a magnificent reception on rising to respond, was very much affected. He said he deeply regretted leaving the Blackburn District, and he had always tried to do his duty with justice. He thanked the staff for their loyalty to him and for their splendid gifts and hospitality.

The toast of the Chairman was heartily drunk, on the proposal of Mr. S. Upton, Sectional Engineer.

Mr. Bell responded in another very happy speech.

Later in the evening Mr. Bell made a further presentation to Mr. Whitelaw on behalf of his personal staff, consisting of a case of pipes.

Amongst those present were Mr. A. C. Beasley, Traffic Superintendent, Class I; Mr. McLarty, Staff Officer; Mr. Greaves, Contract Manager; Mr. R. Morgan, Traffic Superintendent, Class II; Mr. Fletcher, Head Clerk, Surveyor's Office; Mr. Upton, Sectional Engineer (Internal); Capt. Sirett, Sectional Engineer (External), and Mr. Carnie, Superintendent, Blackburn Post Office.

Songs were rendered during the evening by Madame Mona Riley, Miss Gillett, Mr. Brook Marsden, Mr. Tom Ayre, and Mr. T. Wilson, with Mrs. A. Riley at the piano.

The evening was voted one of the best, and the only jarring note was the staff's unanimous regret on losing Mr. Whitelaw.

The organisation of the dinner generally was carried out by a representative committee, with Mr. J. A. W. Gregory, Assistant Traffic Superintendent as chairman, and Mr. A. Hare as secretary. J. A. W. C.

LONDON TELEPHONE SERVICE NOTES.

London Telephonists' Society.

The London Telephonists' Society held its sixth meeting of the session at the Institute of Electrical Engineers, Savoy Place, Victoria Embankment, on Friday, Feb. 5, 1926, when members of the Society had the pleasure of listening to a paper by Mr. M. C. Pink, Assistant Controller, London Telephone Service, entitled "Experiences in Holland and Denmark" which was illustrated by a large number of lantern slides, many of which were made from actual photographs. In this paper Mr. Pink gave a very interesting account of the journey which he undertook with Mr. Edmonds and Mr. Taylor to Holland and Denmark to investigate the Telephone conditions in those countries last spring. After giving brief details of the organisation of Telephone Administration in these countries and an interesting description of the principal novel features of the new Rotterdam Trunk Exchange, the lecturer confined himself chiefly to the impressions of the scenery, architecture and peoples of these countries which he received during the short intervals of leisure which he and his colleagues were able to take during the official journeys.

The paper and the lantern slides were very much appreciated, and in the discussion which followed Mr. Edmonds took advantage of the occasion to refer to the "Wrong Number" trouble and generously offered a gold medal to the Society if they were successful in reducing the percentage of "Wrong Numbers" in London to the figure of 3%, and a further gold medal for every $\frac{1}{2}$ % reduction below this figure. The challenge was promptly accepted by the President on behalf of the Society.

The meeting closed with a very cordial vote of thanks to Mr. Pink for his extremely interesting paper which was carried enthusiastically.

The Hon. Secretary will be glad if members will please note that the annual whist drive will be held at Caxton House Restaurant, Tothill Street, Westminster, S.W., on Friday, March 26. Will those desirous of attending please apply early for their tickets.

* * * *

"Yesterday, To-Day, and To-Morrow."

The repetition of Miss McMillan's musical play "Yesterday, To-Day, and To-Morrow," at King George's Hall, Caroline Street, on Jan. 29 last, attracted another large audience, which witnessed with every manifestation of pleasure the charming combination of clever lines, well-chosen music, pretty faces, and abundant humour, which will make the production live long in the memories of members of the London Telephonists' Society. It is perhaps not generally known that the first to realise the possibilities of a musical rendering of the author's verses was Mr. Valentine, who, with Mr. Napier, was present at the second performance of the play; and it is betraying no State secret to say that this fact gave him an added pleasure in the evident delight of the audience. Members of the Society also noted with pleasure the presence of our old friend and late colleague Mr. Prosser.

"Even better than the first performance" is the general verdict of those present on both occasions; and the verdict applies to individual members of the cast no less than to the whole. Mr. Hemsley again proved himself a tower of strength in the field of humour, into which he threw himself with characteristic and infectious zest. Loyal obedience to the producer's request that there should be no encores, the audience refrained as long as it could from this form of "breaking in," despite the allurements of music and humour; but the duet "Ah, dearest, how lonely they've made my life," sung by Miss Blair-Street and Mr. Cracknell, proved irresistible. Splendidly rendered by both artists, this number awakened an overwhelming demand for a repetition. The quartette "When in trouble, dial O," sung with infinite gusto by Messrs. Beale, Beck, Cracknell, and Hemsley, again took its toll of merriment; as culminating did the humorous "electrical defects" of the automatic system, eliminated in the sudden and mysterious disappearance of a faulty telephone before the desperate advance of an engineer, fortified by his recent exhortation:—

"Please dial 'O,' and get me on the double,
I shall be pleased my knowledge to display.
Always remember me in time of trouble,
All will be well if I am on my way!"

We must not forget to mention, also, the solo dance by Miss Binder who took the place of Miss Jones, who, through illness, was unfortunately unable to take her former part. Another face missed by the audience was that of Miss Latimer, transferred to the provinces since the first performance of the play. Her song, "Engineers are ordinary men," was excellently sung by Miss Tilling.

As before, the appreciation of the audience was marked by calls for "Author," to whom flowers were presented. In acknowledging the call on the author's behalf, Mr. Pounds paid a well-deserved tribute to her work, to that of the cast, and to the Misses Garvey and Woodman who again provided the instrumental accompaniment.

"What a pity subscribers cannot see the play," was a remark made by more than one of those present. If such a thing were possible, the glimpse it would afford of the winsome maidens who serve London's telephones would go far to bring about the happy time of the author's dream:—

"If only subscribers just once in a while,
When hearing that "number, please?" daily,
Some tribute would pay to the voice with a smile,
Which has to say "number, please?" daily.
Then both in a different light would be shown,
And all would be proud such a service to own,
And gaily subscribers would rush to the 'phone
What a joy to hear "number, please?" daily!"

* * * *

Culled from the Exchanges.

Bishopsgate.—The following account of a tea given by the staff on Jan. 23 is taken from the *Stratford Express*.

"A hundred of the older boys and girls of Grange Road Special School were given a delightful new year party on Saturday by the ladies of the Bishopsgate Telephone Exchange. The children had a good time, for the ladies had spared no effort to entertain their guests.

The hall and tables were gaily decorated with yellow flowers and many-coloured balloons. Each guest had a bright cap and a wonderful snowball that would not melt, although the sweets inside did later. Afterwards a very amusing little play was given by these telephone ladies, to the children's great enjoyment. Dancing and a jazz band followed, until Father Christmas walked in unexpectedly to give each child a toy. Each child went home with an orange and a happy memory of telephone ladies."

Finchley.—Finchley Exchange gave the annual tea to the children of the Wright-Kingsford Home on Jan. 30.

The hut in the grounds of the Home was very prettily decorated for the occasion, and a Christmas tree was the bumper attraction.

After tea a fairy appeared, and knowing that Father Christmas was in the neighbourhood kindly waved her wand and produced him.

He turned out to be Mr. Marland, our Section Superintendent, but grown so old and jolly, with a beard and ruddy cheeks—quite the Father Christmas of our young dreams.

Kindly fairy godmothers had provided presents of books, dolls, games, etc., and Father Christmas and the Fairy stripped the tree amid tense excitement, each child listening eagerly for her name.

Games and competitions brought the evening to a happy ending.

Finchley Exchange held a very successful dance social at the Wright-Kingsford Hall on Thursday, Feb. 11, and hope to follow with another sometime during March.

Streatham Exchange.—The second annual children's tea given by the staff (under the auspices of Miss E. W. Wood), was held at St. John's Hall, South Streatham, on Saturday, Jan. 16. The hall was gaily decorated, and the long tables were laden with dainties to which a hundred poor kiddies did ample justice. After they had eaten their fill a delightful entertainment was given by Mr. Johnson, whose clever conjuring tricks, together with the aid of "Jimmy" the doll, caused much merriment, if one could judge by the exclamations and laughter.

Father Christmas (Mr. Hopping, an engineer), then appeared and amid much excitement presented each boy and girl with a toy from a brightly illuminated tree (thanks to the engineers).

The children left after a very happy time armed with toys, apples, oranges and sweets; and their appreciation repaid all those who so kindly helped to make the afternoon a success. Special thanks are due to the Rev. N. Larke, who loaned the hall for the occasion.

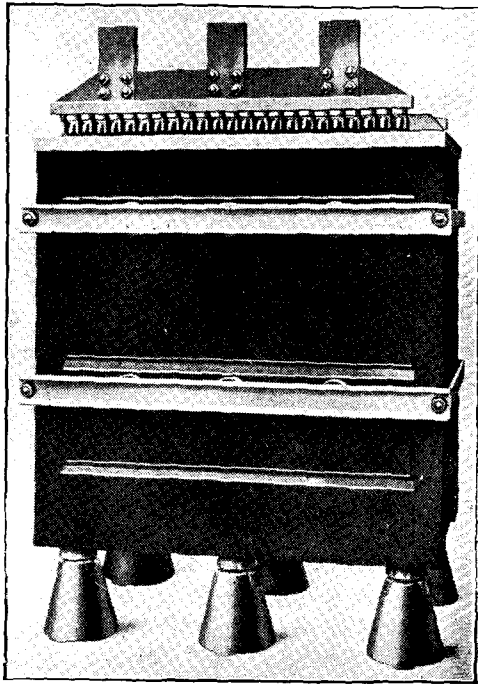
Wimbledon.—On Jan. 9 the staff entertained a number of poor children to a Christmas party.

The tables were prettily decorated with flowers and bon-bons, and splendid fare was provided.

After tea one of the hosts gave a delightful exhibition of dancing. Next appeared a conjuror who mystified and amused guests and hosts alike.

Following the entertainment came the distribution of presents from the Christmas tree. Father Christmas was impersonated by the Night Staff Supervisor, and he had the assistance of a dancing fairy.

As the children departed they were given bags containing crackers, sweets, apples and oranges.



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Holborn.—An enjoyable evening was spent at St. Bride's Institute on Jan. 15, when the staff of the exchange gave a performance of "Aladdin" in order to obtain funds for the annual "children's tea."

The cast consisted mainly of amateurs, and much credit is due to everyone concerned. We owe unstinted praise to Miss Blacker, the indefatigable organiser of the pantomime, who, with untiring energy and never-failing enthusiasm, succeeded in producing such a happy result.

It is only possible in these columns to mention the individual performers in a cursory fashion, though each and all deserve high commendation. The costumes were made by the artistes themselves, with the ready assistance of the "Mistress of the Robes." The "Ladies of the Court" especially, in their picturesque attire, enhanced the brilliance of the scene.

The March of the Tin Soldiers was an outstanding feature of the performance, while the music, so kindly provided by the voluntary assistance of the "Skebware" band proved an invaluable asset.

We, who were fortunate enough to be in the audience, carried away many recollections, amusing and admiring, of the stately Emperor, his weird and wonderful attendants, the awe-inspiring Hohum-Whangfo (the magician) and the two dainty Genii of the Ring and Lamp, who brought about such marvellous transformations.

Sli Slo Flo, Aladdin's mother, and her ardent lover, Mustapha, were a constant source of amusement, and where could have been found a more charming Aladdin, or a Princess who acted her part so well?

All those concerned desire to express, through the medium of these columns, their grateful thanks to everyone who helped to make the evening a success.

* * * *

Social and Intellectual Development Circle.

A Social and Intellectual Development Circle was initiated at Finchley Telephone Exchange on February 17. It is intended to hold similar meetings in the outlying suburban exchanges with a view to supplementing the London Telephonists' Society and to provide for those who are living and working a long distance from the centre of London. The first evening, which was of a delightfully unofficial and social character, was devoted to the subject of "Music." After an inspiring though informal talk by Mr. Ivor Richards, composer, organist and conductor of Church End, Finchley, several papers were read. These were each and all of such a high order, says our correspondent, that it is hoped it may be possible to print at least one of them in a later issue of *The Journal* as indicating the value of them all. They revealed three things which are in the possession of a large number of telephonists in the L.T.S., namely:—(1) hidden literary talent (2) a capacity for and an understanding of the good things which make up life, e.g. music (3) a willingness to contribute out of their knowledge and experience to the enjoyment of others. Those are the bases of the Circle, and it is hoped that all whom it is intended to serve in the various exchanges of the Willesden Section will see this notice of it and start preparing to make their own contribution, however small, of thought and expression to the subjects which are to follow during the remainder of this session, namely, Psychology; Art; Ideals in Business and Public Affairs.

PRESENTATION TO MR. GWYTHYR.

At the District Manager's Office, Newcastle-on-Tyne, an interesting function took place in the Telephonists' Rest Room when Mr. J. Gwyther, Traffic Superintendent, was welcomed by a representative gathering of the Exchange, Engineering and District Manager's Office staffs, and made the recipient of a handsome aneroid barometer and wallet on the occasion of his retirement from the service.

In making the presentation, Mr. J. D. W. Stewart, the District Manager, referred to Mr. Gwyther's sterling qualities, and the enthusiastic oratory which followed from other members of the staff shewed how highly he was esteemed by those with whom he came in contact. Wishes for health and happiness during the coming years were freely expressed.

A pipe and tobacco pouch were also presented by the Traffic Staff of the Middlesbrough District as a tribute to the harmonious relationship which had existed between the two traffic sections.

Mr. Gwyther, in accepting the gifts, spoke feelingly of the reception given to him, and offered his warm thanks for the good wishes expressed.

PERSONALIA.

LONDON TELEPHONE SERVICE.

Promotions:—

- Mr. B. R. MEAD, Assistant Superintendent of Traffic, Class II, promoted to Assistant Superintendent of Traffic, Class I.
- Mr. W. GLENNY, District Contract Manager (Higher Clerical Officer with allowance) to be Staff Officer.
- Mr. J. G. S. RUTTER, Higher Clerical Officer to be District Contract Manager (Higher Clerical Officer with allowance).
- Miss F. M. WHITE, Supervisor, Croydon Exchange, to be Asst. Supervisor, Class I.

Promotions to Assistant Supervisor, Class II:—

- Miss F. O. GREGORY, at Brixton Exchange.
- Miss C. E. CHRISTIE, at Maryland Exchange.
- Miss M. E. BIRCHENOUGH, at Western Exchange.
- Miss L. M. HELLER, at Battersea Exchange.
- Miss M. HEDDERLY, at Bishopsgate Exchange.
- Miss E. M. MILLER, at North Exchange.
- Miss E. M. CLEVELY, at Speedwell Exchange.
- Miss M. E. EDWARDS, at Victoria Exchange.
- Miss I. S. CROOK, at Mayfair Exchange.
- Miss E. D. COLLINS, at City Exchange.
- Miss G. M. BEAUCHAMP, at Trunk Exchange.

Resignations on account of marriage:—

- Miss M. A. D. CONNELL, Telephonist, of Woolwich Exchange.
- Miss C. D. K. PALMER, Telephonist, of Central Exchange.
- Miss E. CHAPMAN, Telephonist, of Putney Exchange.
- Miss E. E. COLEMAN, Telephonist, of Putney Exchange.
- Miss D. DANGERFIELD, Telephonist, of Trunk Exchange.
- Miss H. L. DEAR, Telephonist, of Victoria Exchange.
- Miss K. CONNOLLY, Telephonist, of Victoria Exchange.
- Miss E. LUCAS, Telephonist, of Victoria Exchange.
- Miss E. A. FIELD, Telephonist, of Trunk Exchange.
- Miss N. A. MOODY, Telephonist, of London Wall Exchange.
- Miss B. M. GUY, Telephonist, of London Wall Exchange.
- Miss I. E. M. ARCHARD, Telephonist, of Paddington Exchange.
- Miss E. HARMAN, Telephonist, of Park Exchange.
- Miss D. E. A. AUSTIN, Telephonist, of Park Exchange.
- Miss F. M. WHITE, Telephonist, of East Exchange.
- Miss B. M. TREBLE, Telephonist, of East Exchange.
- Miss A. M. STINTON, Telephonist, of Woolwich Exchange.
- Miss D. R. E. NAYLER, Telephonist, of Woolwich Exchange.

STAFF REUNION AT LIVERPOOL.

A very successful staff reunion was held at the Embassy Rooms in Liverpool at the end of January. Over 400 members of the staff and their friends indulged in dancing, whist and music.

During the evening the opportunity was taken to present Mr. O. G. Lee, who has recently been appointed District Manager of Southampton, with several handsome gifts from the staff.

Mr. Simpson, the Postmaster-Surveyor, and several other officials were present.

When all the expenses were paid there remained a balance of £5 12s. 0d., which has been forwarded to the Post Office Sanatorium, which, it is understood, is sadly in need of funds.