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### LONDON ENGINEERING DEPARTMENT—II.

**Provision of Plant.**—The *raison d'être* of the Engineering Department, so far as the Telephone Service is concerned, is the provision and subsequent maintenance of the plant required to enable any one subscriber to communicate with any other on the system. In order that it may be possible to give would-be subscribers service rapidly, it is necessary to maintain a quantity of spare equipment in the exchanges, and an adequate network of conductors radiating from the various exchanges to all parts of the territory concerned. Plant provision is based on estimates of the probable number of telephones that will be required a number of years ahead, varying from 5 to 20. The development forecast is used, firstly, to determine what exchanges are

The provision of plant is dealt with in accordance with instructions which are issued to the Sectional Engineers. These are revised from time to time as experience renders necessary. The Sectional Engineer prepares plans for providing or augmenting plant in an area. These plans are forwarded to the Technical Section of the Superintending Engineer's office where they are carefully scrutinised to ensure that the plant to be provided shall be of the required transmission efficiency, and that the methods suggested are economical and in accordance with the approved standards. Schemes for the provision of local line plant are initiated by the Sectional Engineer, for junction plant by the Superintending Engineer, and for trunk plant by the Engineer-in-Chief. These schemes are brought together in the Technical Section and care is taken to see that the requirements of each are provided for when it is necessary to lay down conduits. It is also part of the work



6.—SECTIONAL ENGINEERS (LONDON) AND THEIR SENIOR OFFICERS.



7.—JOINTING SCHOOL—MAKING CONDUCTOR JOINTS.

required and what their capacity from time to time shall be, and secondly, what cables must be laid to the so-called distributing areas and when it will be economical to provide each portion. Additions to line plant in bulk are being made continually, and it will be readily understood how important it is, that the cables shall be provided in the order of urgency in localities in which the telephones will ultimately be required. An enormous amount of money might be wasted if careful calculations were not made in regard to outdoor plant requirements. The money sanctioned for this class of work for the current year is approximately £550,000.

of the Technical Section to make financial calculations to determine the number of wires or cables which it is economical to provide at one time, balancing the cost of letting capital lie idle against the cost of doing work in two operations separated by a period of years. Calculations are also made to determine the weight of conductors in order to ensure standard efficiency without undue expenditure on copper conductors.

In this Section the growth of the telephone system is carefully watched and investigations are made to determine the size, locality and time of provision of new exchanges, the area to be allotted to each exchange and the

method of dealing with an area in which an exchange does not exist at present. Requests from the Traffic Branch for additional equipment or facilities are examined and the best methods of providing these facilities at minimum cost are determined. The actual estimates and details of the work are prepared by the Sectional Engineer and subsequently examined by the Technical Section. One important duty of this Section is to co-ordinate the various estimates which are necessary in consequence of the functional division of work and the artificial nature of the Section boundaries in London.

**Providing Subscribers' Lines.**—Directly an agreement for telephone service has been negotiated by the Commercial Branch a form called an advice note is forwarded to the Engineering Department. This gives the subscriber's name and address and particulars of the service required. An advice note may cover anything from an extra piece of apparatus to a complete installation of many exchange lines and extensions. Many advice notes concern only the internal staff; others concern both the indoor and outdoor staffs. The nature of the work to be done governs the distribution of the advices. Those copies that reach the External Sectional Engineer are first passed to a routing officer, whose duty it is to allocate the spare wires to be utilised so far as they exist. He is enabled to do this by reference to the very complete records which are maintained in each Sectional Office. The case is then passed to an Inspector who arranges for the actual work of making the service connexion. This may involve much or little work, according to the distance of the subscriber's premises from the end of the nearest spare circuit. Frequently it is necessary for the Inspector to make a survey and he may find that a length of cable is required. If no pipe is available it may be necessary to arrange for one to be laid. This involves notice being given to the local authorities responsible for the maintenance of the roads. Again in the event of overhead plant being necessary wayleaves may have to be negotiated. In the latter event the services of a Wayleave Officer are requisitioned. The Inspector having decided exactly how the connexion



8.—JOINTING SCHOOL—WIPING JOINTS.

is to be made issues his instructions to the foreman who is to be entrusted with the work. The foreman's work is completed when he has extended the exchange connexion to a convenient position within the subscriber's premises for the apparatus fitter to connect with the internal wiring. The foreman proves the circuit to the test room at the exchange, and the Test Clerk then advises the Internal side to install the apparatus.

**The Fitting Office.**—When Advice Notes are received in the Sectional Fitting Offices from which subscribers' apparatus fitting work is managed, they are sorted according to the class of service required. Those with which the external staff are not concerned are ready to be dealt with as soon as a fitter is available. Such cases are the provision of extensions, additional apparatus, internal removals, &c. Those which cannot be proceeded with until the external work has been completed are put aside until advice is received from the Test Clerk that the line is through to the subscriber's premises. The time occupied and material used upon the work is entered upon certain forms, which are collected, associated and checked in the Sectional Engineer's Office. The Advice Notes with date of completion and necessary particulars of the work is then forwarded to the office of the Superintending Engineer where it is examined and returned to the Controller's Office.

**Telephone Maintenance.**—Telephone Maintenance is divided into two classes, viz., Renewals and Fault Maintenance. The former covers the upkeep and gradual replacement of plant as it deteriorates through wear and tear and natural decay. The replacement of switch sections and the renewal of poles, aerial wires, &c., are examples. The more attention is given to renewals the less will be required on day to day faults. It is of course extremely important that all construction work shall be carried out on sound lines and with great attention to detail. Only in this way can faults on the system be kept low and maintenance costs held within reasonable limits. The Engineer must always be projecting his mind into the future

and visualising the condition that will obtain at some distant date. Conditions which may be perfectly satisfactory when a small quantity of plant exists at any point may become very much the reverse as additions are made from time to time.

Faults are brought to light in several ways—*e.g.*, routine tests, which are carried out by the operating staff, and complaints reported by a subscriber. Directly the existence of a fault becomes known it is entered on a docket and is passed as quickly as possible to the Test Room, where it is localised to the exchange, the line, or the subscriber's apparatus. Separate groups of workmen specialise in the clearance of the three classes of faults, that is to say, the same men who remove faults from the external lines are not expected to enter subscribers' premises and clear defects in the telephone apparatus. The three ideals of the maintenance staff are to have few faults, to clear those rapidly, and to avoid repeat faults. It is generally considered by telephone administrations that the maintenance can be considered satisfactory if the number of faults per line is not greater than one per annum, and this standard has very nearly been reached in London. The Sectional Engineer forwards to the Superintending Engineer weekly returns showing the number of faults that have been dealt with during that period. At the end of every four weeks the results are tabulated on a schedule on which the figures reached at each exchange are shown in detail and in order of merit. These results are posted at the exchanges for the general information of the staff and are scanned with much interest. A healthy rivalry is thus established throughout the exchanges which has a beneficial result, for every effort put forth to reach a high position in the monthly list has its effect in the improvement of the maintenance.

**Headquarters Clerical Organisation.**—The seventeen branches, each under a Second Class Clerk, into which the Headquarters clerical staff at Denman Street is divided, are supervised by a Principal Clerk, assisted by two First Class Clerks.



9.—APPARATUS WIRING CLASS.

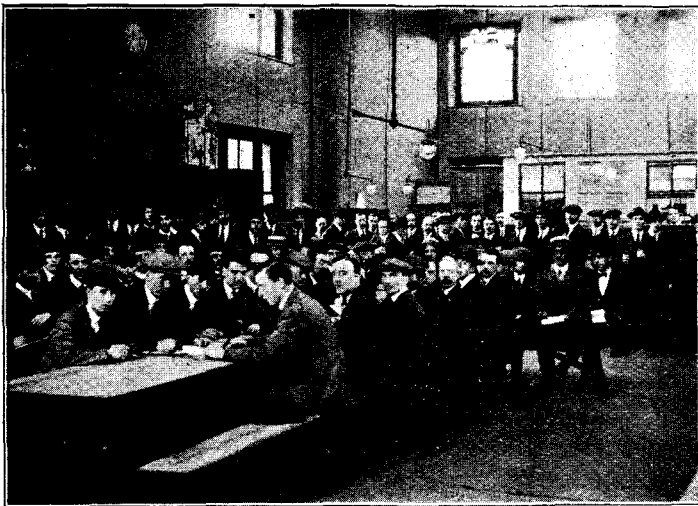
The more interesting features of some of the branches are indicated below:—

**WORKS ESTIMATES.**—An estimate, as submitted by a Sectional Engineer, contains a statement of labour and stores under the headings of "New," "Shifting" and "Displaced Plant." After this has been checked and approved in the Superintending Engineer's Technical Section, it is passed to the Estimates Section where it is priced and converted into the form required by the Engineer-in-Chief and Comptroller and Accountant General. If the expenditure is approved a Works Order is issued to which all charges in connexion with the work are allocated. Approximately 2,000 estimates for which special Works Orders are required, are prepared during an average year.

In an area so congested as London it is frequently necessary for one set of underground plant to be shifted to provide accommodation for another. When it happens that the Post Office plant is affected in this way some settlement as to who will bear the cost of the alteration is necessary before the work can be put in hand. There is often considerable doubt as to the Powers under which operations are being carried out and not infrequently an extended cross-examination by means of correspondence and interviews is involved before any satisfactory information is forthcoming. Claims under the heading of Repayment also arise through vehicles colliding with fire alarm posts, telegraph posts or Post Office trucks and tents, and a notification that an account will be rendered starts a series of protests and expostulations from the owner of the vehicle, his Insurance Agent and frequently his Solicitor. The evidence is usually only circumstantial, is often unreliable, and where witnesses can be found their statements are not always helpful. During the last twelve months 262 actual Repayment Works Orders have been issued. In many other instances inquiries have been made but without resulting in Repayment Orders.

**CASH ACCOUNTS.**—During the year ended March 31 last the total of Cash Payments reached the figure of £1,071,641, while £83,261 was certified for payment at the Chief Office on account of works carried out in the district. For the current year this amount will be considerably exceeded. The major part of this large sum is expended in weekly payments of wages, and the calculation of the amount due to each individual provides employment for a fairly large staff. Varying rates of pay and war bonus, while presenting their difficulties, afford little trouble to the Cash Account Clerk. The pitfalls lie amongst the smaller items pertaining to extra duty at different rates, substitution, subsistence, lodging, week-end and cycling allowances, travelling time, night rates, pay for accidents on duty, &c. All the information from which the payment due to each workman is calculated is supplied on daily reports and diary slips. These show the particular works upon which the workman is employed. The Cash Account Clerk after working out the correct amount for each man in time for the weekly payment of wages, proceeds to extract and summarise the amounts to be debited to each Works Order or Maintenance Division, and passes these summaries forward for inclusion in the District Monthly Cost Statement. The total of these summaries must of course agree with the total of the pay sheets. Weekly payments are made each Friday to the workmen in the London District, who number over 5,000, the amount due being calculated up to the previous Tuesday evening. Payments are made as a rule at Sectional Engineers' headquarters, but where large groups of men are working at distant points in the section a paying officer pays them on the spot, usually employing a motor car as a means of locomotion.

**EXPENDITURE AND STATISTICS.**—Apart from the larger works for which detailed estimates are authorised from Headquarters, estimates in bulk are prepared each autumn for the following financial year. These annual estimates cover the works authorised separately and also provide for the sums to be spent during the year upon day to day maintenance, joining up subscribers' circuits, small works, &c. By means of monthly statistics and illustrative graphs a strict watch is kept upon all channels of expenditure. The Management of the District is placed in a position to investigate at



10.—FITTERS ASSEMBLED READY TO RECEIVE THEIR DAY'S WORK.

once any departure from authorised figures. Schedules showing comparative unit costs for the various classes of work in each section are circulated monthly to the Sectional Engineers, who are thus placed in a position to compare their unit costs with similar costs in other sections, and with the efficiency results which the fault returns provide. In this way full value is obtained from the statistics prepared in the district.

**STORES.**—In order that there may be no delay in connexion with the supply of apparatus and line stores for the extension of the telephone system, 37 separate Section Stocks have been established throughout the district, usually at or near to exchanges, for the purpose of supplying on demand every morning to the workmen on the spot, all stores items for which there is a constant need. These include telephones, switches, flexible wires, cables, insulators, line wire, pole fittings, distribution underground cables, tools, &c. Stores are replenished monthly by the Controller, Stores Department, or direct from manufacturers' works. The average total value of stores and tools held in Section Stocks is £50,000.

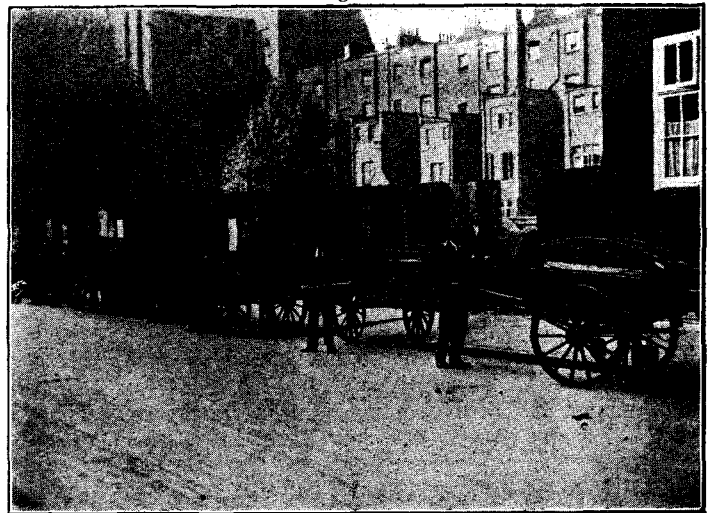
In New York the distribution of telephone material is carried out by motor transport from a single central depot. The National Telephone Company made experiments in London in the same direction which were not very successful. At the present time a modified use of motor transport for the delivery of telephone sets is being tried by the Post Office. With all the factors under consideration, however, including the congestion of street traffic, it is believed that delivery from a single central depot can never be justified in London.

In addition to the quantity of stores supplied to Section Stocks very heavy consignments for use upon main Works Orders are delivered directly to the works without passing through Section Stores.

The total value of stores used last year amounted to £531,360, while stores recovered totalled £215,160. Stores vouchers have to be prepared for all stores transactions, whether outwards or inwards, and these vouchers numbering about 200,000 annually, reach the Superintending Engineer's office through regular channels. Each voucher is priced and the amount extracted and summarised to the particular Works Order &c., on which the material has been used. A balance sheet showing the debit and credit values of stores handled is furnished to the Accountant-General monthly.

**CONTRACT WORKS.**—In addition to the work performed directly by the engineering staff, all heavy works that can be profitably carried out by outside firms under competitive tender are given out to contractors. These embrace the complete equipment of new exchanges and the extension of existing exchanges, the laying of pipes and ducts, the building of manholes, and in some cases the provision, laying, balancing and loading of cables. The expenditure upon such works amounts to about £200,000 per annum. When the accounts are received at the District Headquarters they are subjected to most careful scrutiny in view of the large amounts involved. When all contested points have been settled with the contractors the accounts are certified by the Superintending Engineer and forwarded to the Accountant-General for payment.

**TELEPHONES AND PRIVATE WIRES.**—In these branches all correspondence dealing with subscribers' exchange lines and private wires, new lines, cessments and renewals is handled. In most cases two, and in many cases three or more of the District Sections are concerned. The distribution of Advice Notes has therefore to be carefully handled in order that the work at different points may be kept in step. Inquiries addressed to various Post Office officials regarding the probable date of completion of new lines are also dealt with, after consultation with the Technical Section. The applicant is advised when a contract has been accepted that any inquiries regarding its completion should be addressed to the Sectional Engineer,



11.—JOINTERS' GANGS SETTING OUT ON THEIR DAY'S WORK.

whose name and address are given. Inquiries made through other channels, which lead to unnecessary correspondence, are discouraged.

**BUILDINGS AND SUPPLIES.**—The rapidly expanding volume of work calls for the steady increase of accommodation for the engineering staff, and increased yard and stores space at existing exchanges. Such accommodation is provided on a standard basis. Plans for new and extended exchanges are continually under examination at the present time.

**WAYLEAVES.**—Before the Post Office can erect poles or lay down underground cables on public or private property wayleaves have to be obtained from the property owners concerned. As regards public property the Postmaster-General holds certain Statutory rights on the subject. There is consequently a considerable amount of correspondence with public bodies and others who have control of the roads, streets, lands or houses over, along, underneath, or across which it is desired to place telephone wires. It is not always easy to ascertain the body or person that has the power to grant a wayleave in a particular case, and it is still more difficult to find one that fully comprehends the powers conferred upon the Postmaster-General by the various Telegraph Acts. Ignorance of the reality of these powers leads to much obstruction at times and needless expense. When the Department fails to come to terms with public or private owners on the subject of a wayleave application, an appeal to the Courts becomes necessary, and much detailed information has then to be prepared for the use of Counsel, including returns, showing the number of vehicles and pedestrians passing along the streets in the course of a day. Photographs of the streets are also put in so that the Court may judge as to the value of the houses and the extent to which a telegraph pole might depreciate their value, if at all.

**Staff Conferences.**—When the London District was reorganised upon a functional basis immediately after the transfer, and a clear and well-defined sub-division of labour was laid down, it was found necessary to ensure strict co-operation between the various sections of the work so that the district as a whole might work as a single unit. To this end staff conferences under the Superintending Engineer are held from time to time at Headquarters, attended by the Assistant Superintending Engineers and Executive Engineers, in which the methods of work and all current problems are fully discussed. In addition the Superintending Engineer confers with the Assistant Superintending Engineers in charge of the main divisions of work, and the Engineer in charge of the Technical Section at fortnightly meetings. All important works are then brought under review, and action is taken where necessary to remove causes of delay and to ensure uniform progress on the part of External and Internal Engineers.

**Whitley Committees.**—Consistent with the spirit of the times two Whitley Committees are in operation in the London District, one on the Clerical and the other on the Engineering side. The Superintending Engineer is Chairman of both Committees, acting as liaison officer between them. On one Committee he is assisted on the official side by clerical officers, and on the other by engineering officers. The progress made is encouraging. It is felt that the management of the district will be materially helped by obtaining at first hand the views of the staff, while the latter will no doubt benefit by having the official attitude upon points under discussion frankly explained to them at the monthly meetings.

**BOLSHEVISTS IN MOSCOW REDUCE SERVICE.**

Under the Bolshevist order socialising the telephone system of Moscow the number of instruments has been reduced to 15,000, for "technical reasons." In putting this order into effect the Bolshevist officials cut the number of their own telephones only 25 per cent., while factories and similar establishments must be content with half as many instruments as before. In theory every house is to have a telephone, which is to be located on the stairway, where it is to be accessible to everyone in the house and may be used free. If the neighbours have no telephone in their house they are entitled to make use of the one nearest to their abode. If there remains a surplus of instruments after all the houses are equipped, then doctors, nurses, and the higher Soviet officials may have telephones installed in their own homes.—*Telephony, Chicago.*

**THE BAUDOT.—XIII.**

By J. J. T.

The present article may be considered as recapitulative in character, in that it practically repeats Figs. VIII to XI inclusive, which appeared in the November issue of last year. There has been a considerable demand for clearer sketches of the figures above

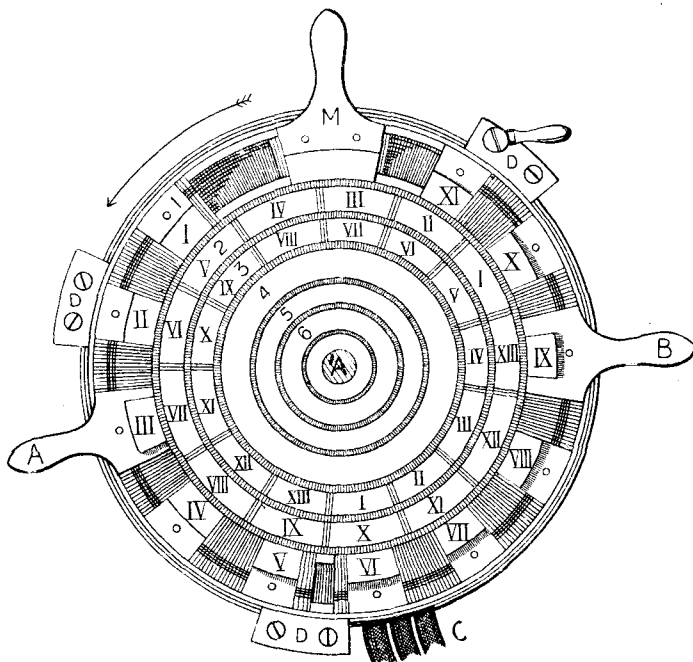


FIG. VIIIa.

mentioned and it is hoped that the present issue will fulfil that requirement of our appreciative, if critical, readers. The lettering is identical with that of the November 1919 issue (Vol. VI, No. 56) with perhaps one or two slight additions, which in overhauling the diagrams it has been found practical to introduce. For example, the arrow in Fig. VIIIa denotes the direction of the rotation of the brushes. The segments, too, of each segmented ring have been

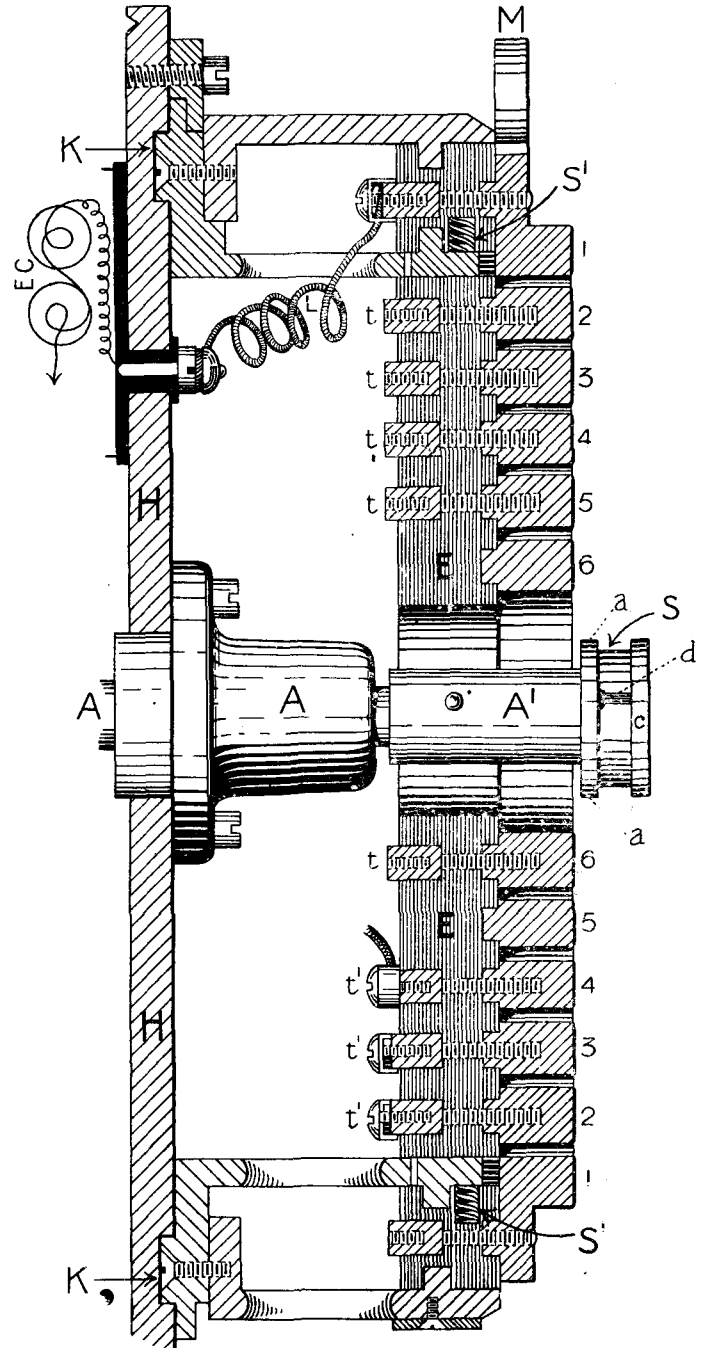
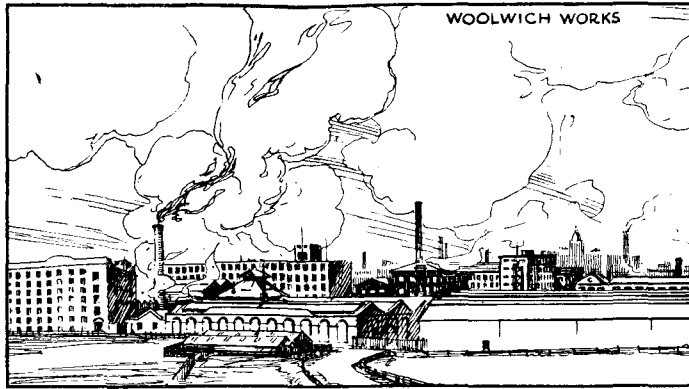
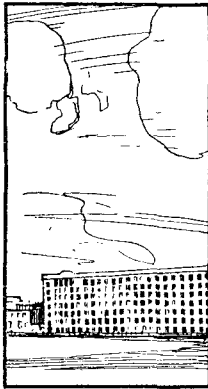


FIG. IXa.

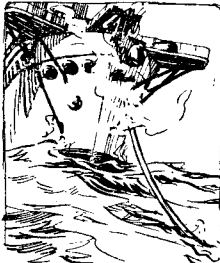
clearly marked in Roman figures, and the number of each ring has been more distinctly denoted by ordinary numerals. The sectional view of the emerging axle and casing, A<sup>1</sup> of the same figure, has been lettered to correspond with Fig. IXa. Fig. IXa has been drawn out fully, showing all three pairs of brush-holders in position. The insulating ebonite collars, now marked J can be more clearly identified, as also the ebonite washers W. It has also been possible



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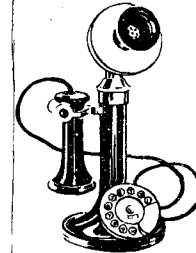
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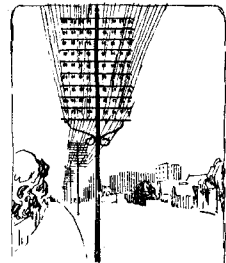
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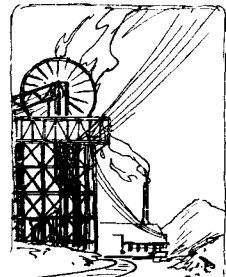
*Established  
1858*



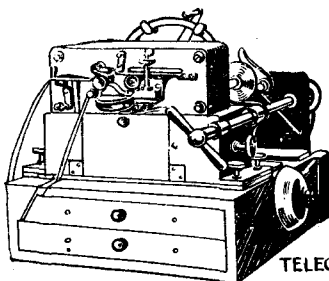
AUTOMATIC TELEPHONE



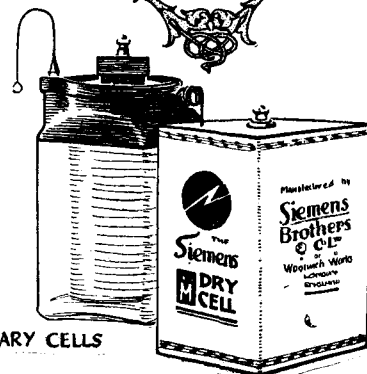
OVERHEAD EQUIPMENT



MINING TELEPHONE & SIGNALLING APPARATUS

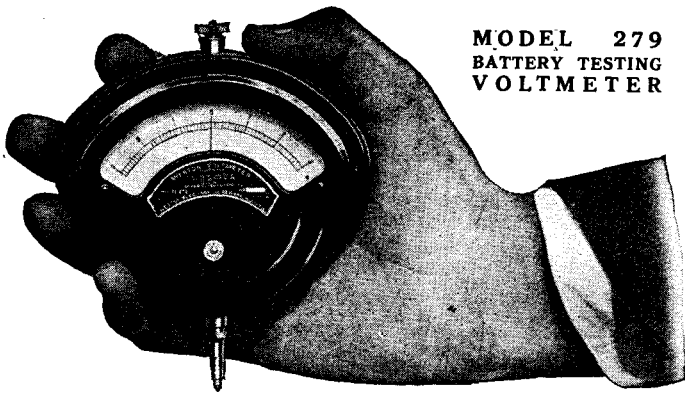


TELEGRAPH APPARATUS



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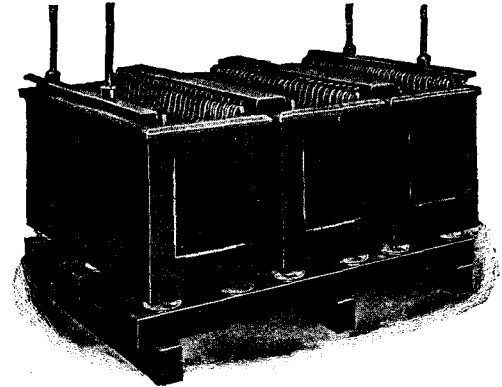
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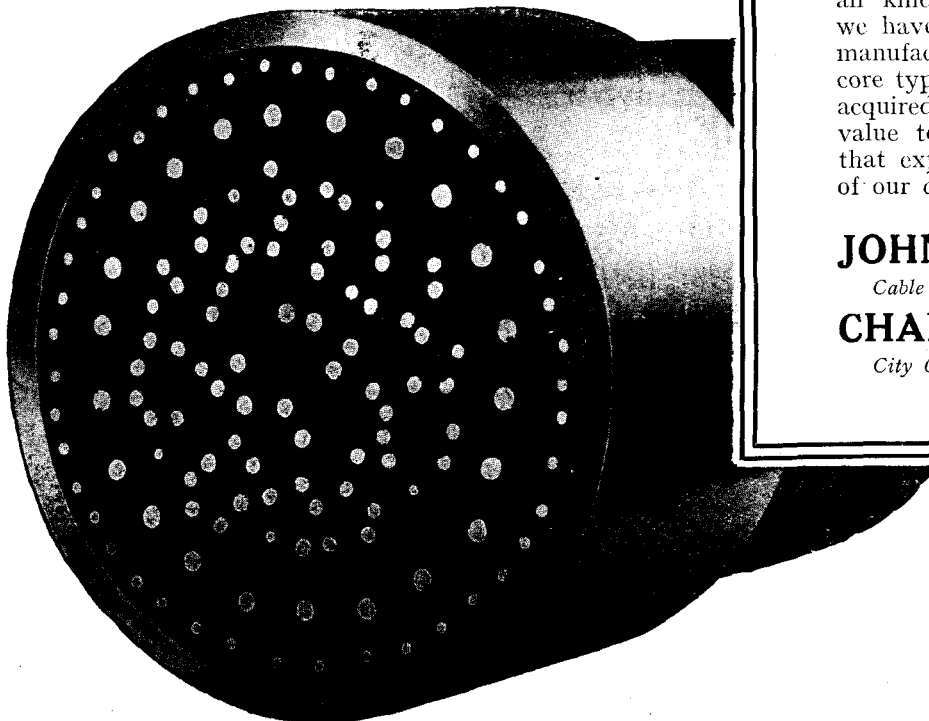


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to show two of the ebonite collars in the newly drawn Fig. XIa. The last mentioned figure XIa also more distinctly depicts the steel ring S (see also Fig. IXa) which by means of the slot *d* carries round the three-armed brush-carrier engaging with the spring-click RR. In addition thereto care has been taken to draw out in clearer detail the twelve-holed collar *a* (see also Fig. IXa) together with the pin *b* of S, which pin, it will be recalled, determines the position of S

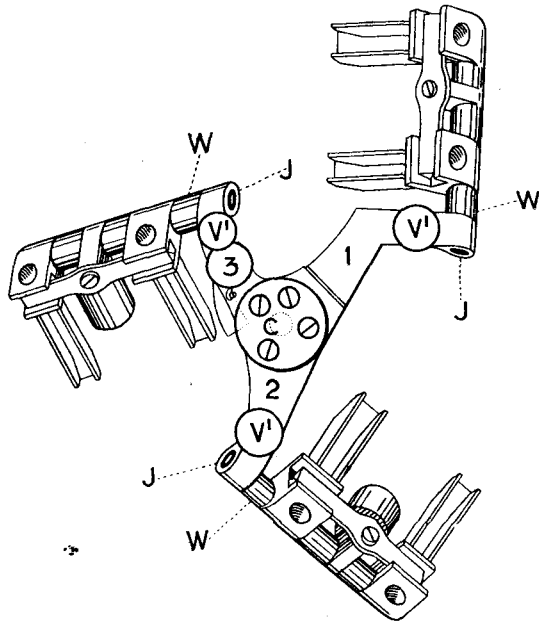


FIG. XIa.

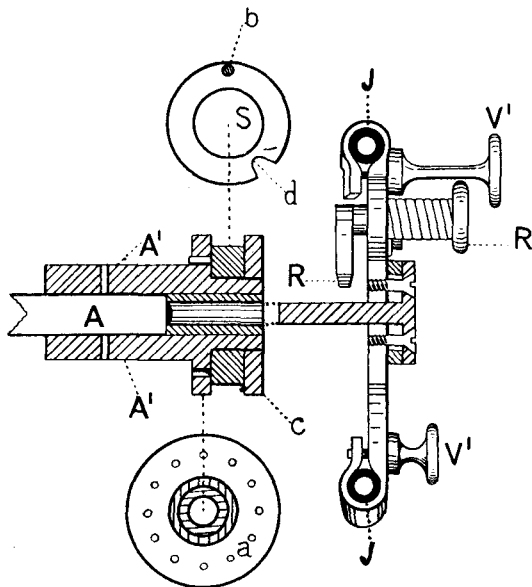


FIG. XIa.

as regards *a* and therefore the position of the brush-carrier and its three pairs of brushes relatively to the distributor plate itself.

The steel collar *c* (Figs. IXa and XIa) it will also be remembered screw S firmly into position against and in relation with the collar *a*.

Forthcoming articles will deal in turn with the Baudot receiver in detail, duplex Baudot, followed by some of the faults, their causes and remedies. This, it is estimated, will practically form a winter series of studies.

(To be continued.)

### DEPRECIATION.

AT the Master Printers' eighth annual cost conference at Cardiff in June, Mr. W. Howard Hazell gave an interesting paper on the "New Problem of Plant and Machinery in Relation to Costs," which was followed by a keen discussion. The chief question in which telephone and telegraph men are concerned is how provision should be made for the renewal of plant at the end of its useful life. Under present conditions new plant costs from two to three times the cost of the plant displaced; and master printers, like all other business men, consider that the increased cost of renewal should be covered by their tariffs. They argue that their customers should pay, not only for all materials used and services rendered but also, if machines are worn out in their service, such a price as would cover the cost of replacing such machinery. In connexion with the Costing Committee's recommendation that double depreciation should be written off pre-war plant, the second amount being carried to a Special Reserve for the replacement of machinery, Mr. Hazell advocated the keeping of two accounts in their ledgers—one for the value of pre-war plant and the other for the post-war plant on which normal depreciation would suffice. The normal percentage for depreciation in the printing business is 10 per cent. per annum on the decreasing value; and Mr. Hazell did not disguise the fact that, in the case of pre-war plant which was due or nearly due for renewal, the additional 10 per cent. suggested by the Costing Committee would not provide sufficient funds for the extra expense of renewal. He suggested that in such cases it would be wise to consider the desirability of writing off more than double depreciation.

Mr. F. Steel on the other hand was in favour of revaluing the whole plant at present-day prices and charging depreciation at the normal percentage on the ascertained present value. This course, which seems simpler to the lay mind as confining the special calculation to the valuation of the existing plant and avoiding the separation of pre-war from post-war plant, is apparently not without its dangers in the printing trade, chiefly because present-day values are inflated abnormally by the great demand for the limited supplies of new machinery available.

This inflation unfortunately affects all manufactured goods in consequence of the shortness of raw materials as well as of skilled labour for their manufacture; and a considerable measure of common-sense in addition to a thorough knowledge of the business concerned is necessary to ensure that an up-to-date valuation of the plant is based upon a normal post-war period and not upon the current artificial prices created by scarcity of the desired articles. If the valuation on these lines is carefully carried out there is then less chance of over capitalisation of plant with its consequent difficulties in the event of prices falling in years to come as the result of more plentiful supplies of new material, increased production and competition amongst manufacturers.

We are indebted to the *Caxton Magazine* of June for the detailed report of the Conference.

### THE TELEPHONE AND TELEGRAPH SOCIETY OF LONDON.

#### PROGRAMME 1920-21.

THE Meetings will be held at The Hall, River Plate House, Finsbury Circus, and the following papers will be read:—

Date.	Subject.
Oct. 18	"Fifty Years of State Telegraphs." By Mr. A. J. Stubbs.
Nov. 15	"Automatic Telephony in Large Areas." By Mr. M. C. Pink.
Dec. 13	"Studies in Whitleyism." By Mr. F. C. Cook.
Jan. 17	"Scientific Management." By Mr. John Lee.
Feb. 21	"American Telephones and Telegraphs."
Mar. 21	"Imperial Telegraphic Communication." By Mr. A. Avery.
April 18	"Future Wireless Developments."

The  
**Telegraph and Telephone Journal.**

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

Editing and Organising Committee - - -	{	JOHN LEE.
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		W. A. VALENTINE.
		J. W. WISSENDEN.
Managing Editor - -		W. H. GUNSTON.

### NOTICES.

*As the object of the JOURNAL is the interchange of information on all subjects affecting the Telegraph and Telephone Service, the Managing Editor will be glad to consider contributions, and all communications together with photographs, diagrams, or other illustrations, should be addressed to him at 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. VII.

OCTOBER, 1920.

No. 67.

### PROBLEMS IN THE FUTURE.

THERE is always a disposition in scientific matters to regard progress as being at an end. It is possibly less evident to-day than it was in the Victorian age, for we have had some fairly salutary lessons. In 1851 the Great Exhibition in Hyde Park represented human achievement and it is not disrespectful to our ancestors to say that to many of them it represented some finality of achievement. To-day we have our own temptations in the same direction. If we take wireless telegraphy we have a good example. It is a wonderful thing to communicate from ship to shore, from continent to continent, without any thing in the way of direct union by wire. But, as a scientist recently said, if so-called wireless had come before line telegraphy, in turn newspapers would have regarded line telegraphy as the tremendous achievement. Moreover, there are many who believe that the later developments will be some fusion of the two, some application of wireless methods and principles to line communication, something of the nature of "wired wireless," of which there is definite prospect to-day. Then there is the application of printing telegraphs to wireless with the advantage of secrecy, a development which is inevitable. To dream in this fashion is not merely a good exercise for the imagination: it is a healthy restraint on our pride. We need not go into the realms of radiotelegraphy and radiotelephony in search of problems. Like the poor, problems are always with us. Oddly, too, they are often elementary problems. How shall we provide for the efficient delivery of telegrams without gross extravagance? It looks easy, but we can imagine the sorrowful despair of an administrator of telegraphs, after strenuous efforts at accelerating the transit of telegrams by a minute or two, watching a dreamy boy standing by the inevitable excavation in the road. What modern science of management can inspire messenger boys—and girls—with the

necessity of promptitude in delivery? Then there is the similar question of internal transit. How shall we convey telegrams with reasonably equal rapidity from one portion of a building to the other for onward transmission? No-one will deny that we need some machinery for this purpose, some method of collection and distribution and sortation which will economise human labour. The problems are mentioned by reason of their apparent simplicity, but there are a dozen others which might be mentioned. We need vision to see these problems, and sometimes we want to get away from the trees that we may see the wood.

Then there is the realm of telephony. All is not ended in that fascinating realm. Automatics are picturesque and initially attractive and most of us believe that they will come. That does not mean that all the problems have been settled, in particular the difficult question of the gradual introduction of automatics in a vast town area. There are problems yet ahead of us in respect of charges, especially for small users in small towns, and, indeed, the whole question of service in small towns affords ample scope for ingenious solutions. It is a pleasing prospect to think of everyone carry a telephone in his pocket enabling him to speak to anyone in the world at any moment. That is hardly a problem, but it indicates that just as there is a vista for wireless telegraphy and for international telegraphy, so wireless telephony and international telephony have their vistas. The pocket telephone makes a nice little newspaper paragraph on dull days, but it is quite conceivable that it might have a shattering effect on the world's peace of mind.

Readers of psychology will like to be told of Dr. Macdougall's "Group Mind," a study of an aspect of corporate psychology which is receiving much attention at the moment. He ascribes the closer corporateness of mental life to-day largely to the telegraph, and builds up a fine argument in respect of national characteristics on this basis. It is complimentary to our crafts. It brings telegraphy and telephony into a new court of honour. We mention it at this stage because it would seem that future international problems in the way of improving national relationships may have to call in the aid of telegraphy and telephony. So the problems of the future do not merely consist of the development of multiplex printing telegraphs or of automatic telephones or of speeding up messenger boys or of extending the number of call offices; they consist more probably of administrative problems which will realise the value of telegraphy and telephony not merely as carriers of messages between individuals, but as part of the warp and woof of the greater civilisation which, we all hope, is before the world. It is something to bear one's part in such problems, but it is even more so to aim at the efficiency of the service as we give it to-day in order that we may lay a sound foundation for progress.

READERS will be sorry to hear that Mr. Gunston, our popular editor, is seriously ill with pleurisy and pneumonia. They will no doubt miss his familiar touch in the present number and will make allowances for the fact that this number is being edited by unfamiliar hands when the only welcome call is that of the sad sea waves.



### THE LIGHTER SIDE.

It is a sad heart that never rejoices and depressing must be the occupation that is not relieved by touches of humour. It is doubtful even whether such an occupation can be found, and the duties in a Superintending Engineer's office do not form exceptions to the rule.

Quite recently one applicant for employment filled up the usual form which bears enquiries as to his age, experience, antecedents, etc., and, thinking these replies were not enough, the man added, "My father has served in the Department 27 years and is at present employed at — Exchange. I sincerely hope to improve on my father's efforts." Now, you fathers who have sons in the Department, or who wish them to enter, you know what your offspring thinks of your contribution to the advancement of telephony and the good of the State.

Another stated, "Sir, I have found myself very useful in doing anything. Sir, what I have stated is quite correct." No doubt, but it does not follow that other people found him very useful. The jack of all trades is at a discount in these days of specialisation. On one form the following item appeared, "I was two years in the infantry and one in the Signal Service, so I know all about telephones." Alas! how slow some of us must be. We have spent many years in trying to find out all about telephones. In the course of this endeavour we have burnt much midnight oil and spent an undue proportion of our slender incomes on technical books, but the further we got the less we seemed to know, so vast is the field which opens to our gaze. Several years in the Signal Service do not seem to have helped us very much. Perhaps the fault is in us, and this man's statement about the extent of his knowledge humbles us.

A few weeks ago it was necessary for the Department to prefer a claim for damage to a linesman's truck. The boy driver of the vehicle which caused the damage explained to the police constable that "I touched the horse on the behind and it fell down so I jumped off the cart." From other evidence it appeared that the horse, objecting to the treatment administered, bolted and, after upsetting a costermonger's fruit stall, collided with the P.O. truck. The officer who furnished the above details adds "It is not unlikely that the coster's language had something to do with the horse falling down, as well as with the lad's hurried escape from the cart."

A pigeon fancier was recently charged with the cost of erecting game guards to protect his pigeons. The man replied, stating that he hoped the charge would be reduced as "I am only a poor working man with a large family but the pigeons is my hobby." Although rearing a family was not his hobby he appears to have been successful.

Government departments, like railway companies, seem to be regarded as fair game by persons in other respects honest. It is extraordinary, for instance, how a suit bought in pre-war days and now in the last stages of decrepitude jumps in value if it is brought into contact with a freshly painted pole. Claims have also been dealt with recently for damage to false teeth by a falling wire, and another for a pair of boots of which the soles had been torn off by a vicious joint box cover.

The anonymous letter writer invades even the sanctity of the engineers' office. Here is a sample of which we make a present to the reader, hoping that he will be able to unravel the mystery. "Sir they run up and down your telephone pole on the roof of XX High Street and the boy scouts take them messages I have watched. You will greatly oblige and the betting men live round the corner and talk on the wires."

The effort to impart technical knowledge to budding Kelvins and Edisons is not unrelieved by a lighter touch.

One lecturer was explaining the operation of a Wheatstone Bridge to a class of young workmen, and asked them what they knew about a "ratio." One replied, "The bloke what writes *John Bull*."

A colleague in the Traffic Branch relates the following incident, and as traffic officials never depart by a hair's breadth from strict veracity it is given without reservation. A subscriber who had been told repeatedly that the wanted number was "Engaged," replied, "Go to H—— I never wish to hear your voice again." The telephonist, remembering her instructions to oblige subscribers where possible, sweetly replied, "If you really do not wish to hear my voice again had I not better go to the other place."

Now that workmen are brought within the scope of the Income Tax returns the usual forms have been circulated. One was returned with the following remark, "Sir, I belongs to the Foresters and don't wish to join the Income Tax."

One subscriber insisted that the chief engineer should be sent to see his telephone and in support of his claim stated, "I am a scientist myself and do not wish to discuss my trouble with a non-technical man." An engineer made a visit and the subscriber stated that he received terrible shocks from his telephone. As the engineer could find no fault, he asked the subscriber to make a test call. He did so, and when asked if he experienced any shock said, "No, I don't feel it at the time but about ten minutes afterwards."

As was stated at the beginning, it is a sad heart that never rejoices, and incidents which would otherwise irritate a busy man may be made to minister to the joy of life if viewed in the right spirit.

J. G. H.

### TELEGRAPH DELAY AND SUMMER PRESSURE.

BEFORE this problem can have been properly discussed, the "season" will be over once more, and whatever lessons it may have for traffic administrators, it can be definitely asserted even now (August) that though the year 1920 may have presented "the first opportunity for six years of providing an efficient and speedier service," that opportunity has been lost; and the situation generally during the season that has already approached its zenith has been even worse than in the years immediately preceding 1914. Having failed, however, to take advantage of the flood there is no reason why the ebb-tide should not be utilised to formulate a true policy that shall, in 1921, do something, however small, to restore the British Telegraph Service to the enviable position of Preece's eulogy.

The development of machine telegraphy as Baudot circuits are multiplied between the larger provincial towns is one direction in which reform can be anticipated, but it is little use accelerating the transmission of telegrams *between* large centres if they are to be subsequently delayed there, and though transmission over trunk circuits (by which I mean fully loaded circuits to and from the largest offices) is one of the most important aspects of the case, it by no means exhausts the subject. I am inclined to the view that in bestowing close attention to circuit delay superintendents are apt to overlook the effect of sluggish circulation. Readers of Mr. Stewart White's lumber stories will find some analogy in the incidents of block and release that are (or were) the accompaniment of water carriage along the great river systems that thread the forest regions of the North American continent.

Both main and subsidiary circulation tables should be carefully staffed, and specialisation in this non-manipulative occupation should be encouraged by systematic training during the non-season period of those officers who show aptitude. I would suggest that at the main circulation the traffic should be dealt with by progressive selection. It should fall into a common receptacle provided with divisions conveniently arranged. The first circulator need not be the most expert. He or she will deal with telegrams whose circulation can be instantly determined. There must be no hesitation, no reference to records, no consultation of lists, or even memory. If the mental response is not immediate to the stimulus provided by the sight of the name, if the strain of action—observation, selection, disposal, is not started automatically, the

form should be passed forward to the nearest neighbour who will repeat the process. If the grading is carefully done, by the time the third circulator is reached the number of the telegrams for whose circulation it is necessary to consult lists will be reduced to a minimum. Efficiency will be attained by interchange of positions; and knowledge and experience come with practice. Transit to secondary centres, whether by hand or automatic carriers, occasions the maintenance of force which, for a more restricted area, repeats the processes of the main circulation. It is difficult to see how this can be avoided and the marking of individual forms is an assistance: but no doubt something could be done to expedite the work if the batches for the respective circuits could be kept separate once they have passed the main circulation centre. If this could be accomplished by a single simple fold it would probably be found that nearly every batch contained at least one "key" message which would reveal the intended circuit. But the main point is that there must be individual specialisation and fortunately it is not infrequently found that manipulative expertness and aptitude for circulation duties are not combined in the same person. A "square peg" system therefore, leads directly to imperfect functioning and consequent inefficiency.

There is another minor point that needs attention. It was at one time insisted that a good start at ten o'clock would be effectual in preventing the "cushion" of accumulated traffic that acts as an absorbant buffer against the efforts of staff and supervision at the present time. The deferment of the general opening hour until 9 a.m. has undoubtedly led to the intensification of business in the first hour of the morning and the compression of commercial activities has changed the incidence of the pressure. It is now more than ever necessary to ensure that channels shall be promptly opened, and to this end it may be desirable to create a reserve of staff by bringing forward some attendances from 10 to 9.45 a.m. This is more especially the case in dealing with specialised traffic, e.g., that pertaining to the trade in perishable foodstuffs, fish and fruit. The importance of accelerating telegraphic communication between important centres concerned in the distribution of supplies—Aberdeen, Grimsby, Hull, Milford-Haven and, in a more local sense, Fleetwood as regards fish, and the agricultural ganglia for fruit and vegetables—and the *entrepôts* cannot be exaggerated. It is disadvantageous to all parties. The vendor, obtaining his forecasts quickly from his agents in London, Birmingham, Glasgow, Liverpool, Manchester, is able to decide which affords the best opportunity for the disposal of his goods, which may then be promptly despatched, and this promptitude will be reflected by a speeding up in their delivery with increased sales, better condition of the merchandise on reaching the market, an improvement in the circulation of the supplies all round. If it paid the Department to occupy long lengths of line to afford simultaneous communication from a race meeting whose traffic is purely of secondary or even tertiary importance to the community (the press excepted) to half a dozen first class offices, the system should rise to the occasion in the discharge of its functions in all that concerns the well being of the population as a whole. If it is to be true to its ideal it will make service its first claim and ignore the question of relative seen profits.

Even when trunk communication has been brought to a high pitch of efficiency the problem has not been wholly solved. Local traffic must be catered for and both long distance and local traffic are dependent for complete success upon delivery arrangements. The final disposal of telegrams after receipt, collection, circulation to main or subsidiary delivery offices, preparation for envelope, or transfer to telephone room all impose checks before the addressee is reached and in some instances the effect may be not unfairly compared to varicose veins in the body physical. The remedy in each case is similar.

It is by no means certain that delivery from numerous branch and town sub-offices represents the best arrangement. The weakest link in the whole chain is the messenger and he (or she) is of necessity subject to the most imperfect supervision, for inspectors cannot be omnipresent. I suggest, therefore, that two messengers at two adjacent offices are likely to give a more imperfect service than

four concentration at a single office whose site has been carefully chosen. If bicycles can be properly housed and the locality is one through which heavy, or rapidly moving traffic is not constantly passing, it will be found that the additional distance traversed is more than compensated by the greater speed achieved. Comparison between cycle and foot locomotion is so greatly favourable to the former that the point does not need to be laboured. Local traffic is indeed a most important part of telegraph business. The transmissions and handlings may be as few between London and Belfast as between Brighton and Hove: yet it is difficult to satisfy a complainant who produces evidence that the time occupied in each instance is the same. And it would be more difficult in many other cases where a well organised and frequent tram car service enables the sender to "beat the wire." Here it is not inopportune to refer to the competition between the express letter and the telegram as local traffic. Frequently it is possible to communicate more quickly by the express service, and the development of the telephone express letter, which has not proceeded to any great extent will increase the severity of the competition.

A word must be said regarding increased circuit accommodation. To substitute duplex for simplex, quadruplex for duplex, generally involves engineering work at least at one office, though a spare set may be available at the other; and a cheaper means of providing spasmodic additional channels should engage attention. Has our Army signal experience taught us nothing? Or are we to assume that there are insuperable obstacles to superposition and the employment of vibrators or other kindred instruments as auxiliary circuits? Possibly there are external influences which prevent their use, but short of unfavourable experiment the suggestion should not be ignored. Such circuits could be more easily brought into use and could be accommodated in the instrument room, so avoiding further circulation to telephone room with its attendant further congestion of a sister service that is sorely pressed to meet its legitimate requirements.

The average system has imposed a heavy task upon supervisor, and administrators and what was a good servant in the solving of theoretical problems has been converted into a bad master. It has definitely depreciated the service, and is the parent of public complaint. In fact, it is open to doubt whether it has not thrown so much work on writing duties as to have failed as a true economy. It has deadened, if it has not entirely destroyed, that pride of craft which at one time produced the increased energy to meet the emergency. The "flyers'" days are finished and his achievements to-day occasion not astonishment at his skill and resource, but surprise that he should have been willing to spend himself in an effort that is regarded as the spinning of a caged squirrel. Many suggestions for dealing with seasonal pressure will lead to improvement; but the true path towards the establishment of full efficiency lies in the re-creation of *esprit de corps*. That is neither an easy nor rapid course. Already there are in the field proposals towards its resuscitation, but as yet not a ray of light illumines the sky of that dawn.

EDGAR C. GATES.

## TELEGRAPHIC MEMORABILIA.

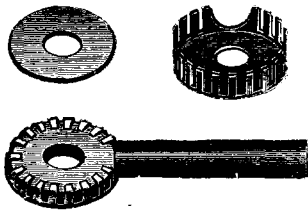
As this is the commencement of yet another new volume it would appear to be an opportune moment for thanking the many friends for their assistance during the past twelve months, sometimes in the form of real helpful criticism, sometimes by useful and opportune copy, sometimes in the shape of unstinted praise of the conduct of our JOURNAL and sometimes in somewhat unmerited laudation of this particular column. Never once has the writer met with the note of acerbity. It is just this latter feature which is perhaps the most helpful in a task which at times draws appreciably upon one's time and energy. To all readers then, at home and abroad, the sincerest thanks.

Three months have passed and the Urgent Rate for Foreign Telegrams has become part and parcel of the City man's economy, although the latter is by no means alone in realising the present convenience of the system. It is hoped by this time some of the virulent critics of early July may have repented them of such diata as "In our opinion it is simply a blunder; one of the familiar incompetencies of the Post Office," "an endeavour to turn its own (the Post Office) inefficiency into profit," "an indirect subsidy to

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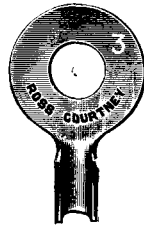


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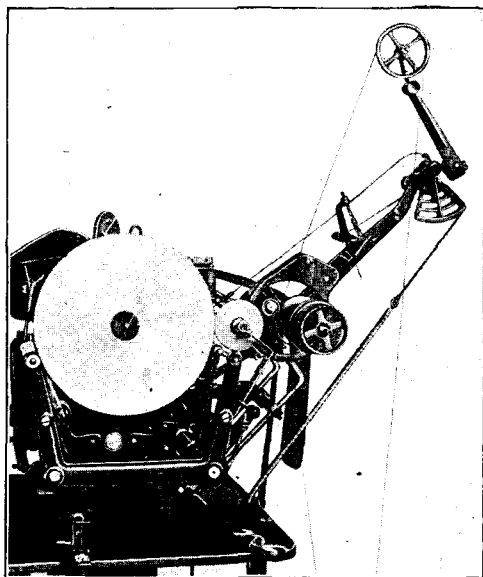
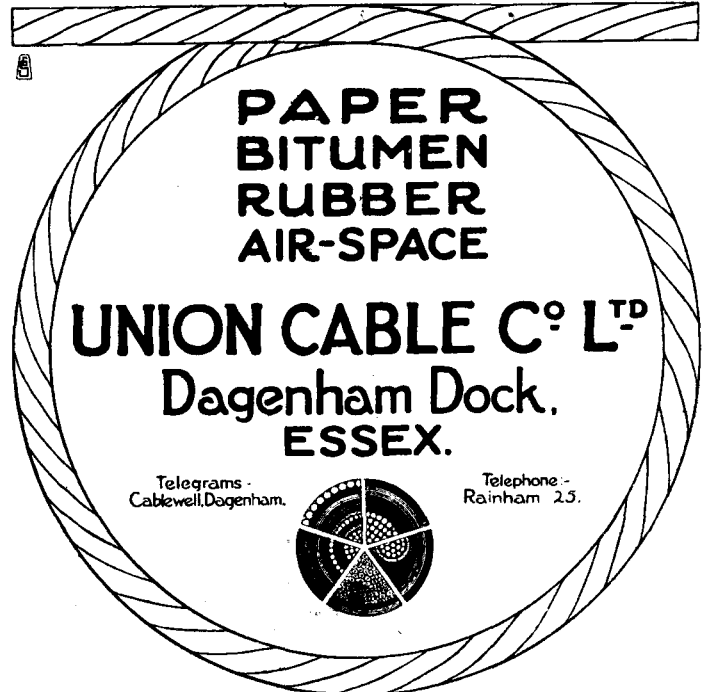
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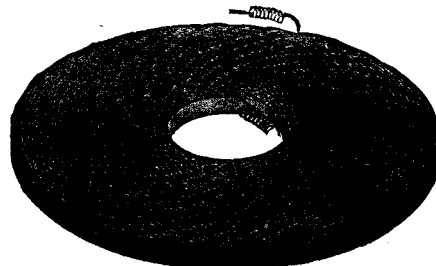
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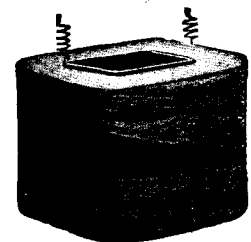
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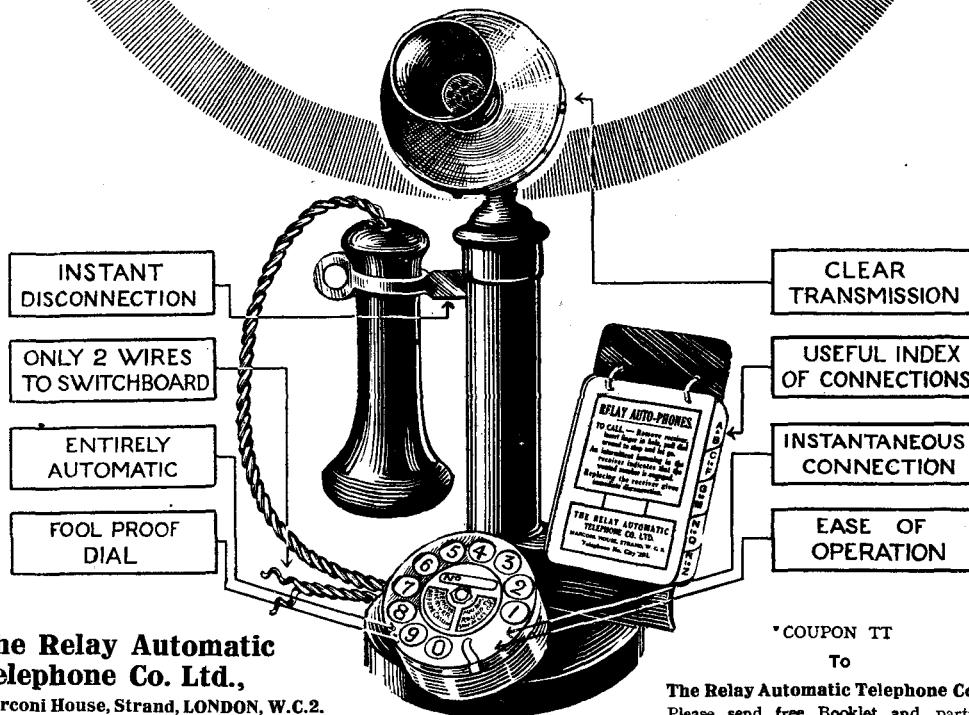
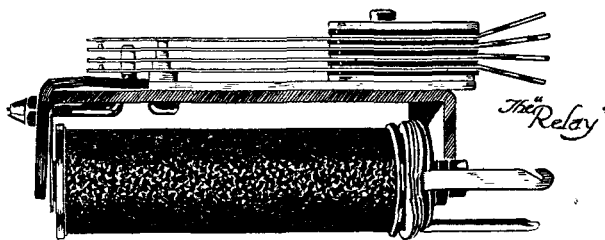
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aeroplane postal service," "a backhanded method of raising the general rate," or the final sarcastic thrust of, "a brilliant effort to overcome congestion of traffic." With one more quotation the subject may well be closed. It is the general comment of another section of the press upon, "hasty press criticisms" and reads: "such silliness is an example of how silly a certain section of the press can be." Thus deep calls unto deep!

The heartiest congratulations are tendered to Mr. H. Pirie, of the Lowestoft Repeater Office, late of the Cable Room, London, upon receiving the much-coveted honour of the Silver Medal for the best Telegraphy (Honours Grade) paper in the United Kingdom. By a happy coincidence the previous post delivered the Mons Star to our much respected colleague.

Yet another Anglo-Continental restoration. On Aug. 20 we were delighted to obtain telegraphic touch with our colleagues at the greatly suffering town of Lille, and tender them our heartiest congratulations upon the event. We were, however, sorry that at the same time this necessitated the disappearance from our list of direct communications with the historic port of Dunkerque. This latter line has proved of inestimable value from 1914 up to the above-mentioned date and we were really sorry to say *au revoir* to our very helpful friends at the latter office. Paris Bourse 2nd Simplex Baudot Quad has also been re-opened and a new Baudot Simplex established between London and Bordeaux.

The opening of the split Baudot duplex between Liverpool, London and Havre seems to be a deferred hope not to be realised within the service lifetime of many of us. Although the apparatus is ready and actually working on the Liverpool-London section, it is understood that no accommodation can be hoped for in the Central Telegraph department of the great French port, until—a new office is built in that city! A similar arrangement between Manchester, Leeds and Newcastle-on-Tyne was inaugurated on Aug. 16: thus the premier place in this type of Baudot is taken by our Inland department.

It is also interesting and encouraging to place on record the re-establishment of Hughes duplex between London and Bremen which event occurred on Sept. 7, as also an increase of traffic channels between London and Leipzig on the 20th ultimo by means of the same type of duplex. Emden Hughes duplex was re-started on the 13th. The latter apparatus refuses to be blotted out of the telegraph world, and given carefully trained operators of the "touch-typing" standard of efficiency and experienced mechanics who know how to overcome the whims of a Hughes when heavily worked on lines subject to retarded signals, there is still a place in the sun for the old professor's scientifically planned instrument.

It is equally pleasant to record the opening of a Baudot Double duplex circuit on Aug. 24 of this year of turmoil between London and Frankfurt A.M. This increase of traffic channels formed part of the scheme for the extension of Baudot working between this country and Germany, the execution of which was suspended six years ago. It is one of the hopeful signs amidst all the chaos of these post-war years that the spirit of renewed international confidence is gradually permeating society. Telegraphy has had its hard duties to perform during hostilities, and it may surely be written of our craft both here and elsewhere that it is with new zest that all sane men and women once more witness its application to the more wholesome task of the welfare of the nations.

The Baudot Triple duplex trials between London and Berlin up to the moment of despatching this copy to the printers had not given satisfactory results. Even prior to the war this high ideal of six-channel exploitation of every Anglo-German submarine cable conductor had been viewed by certain traffic officers in both countries as the knife-edge limit. Conditions to-day are certainly less favourable, as is to be expected.

The Cable Room, London, will surely have to change its code of T.S.F. ! Not long ago two highly placed Continental telegraph officials visiting the C.T.O., upon entering the Foreign Telegraph Section at headquarters and viewing the blue lettered legend of "T.S.F.," immediately exclaimed: "*Ah, voila la salle de Télégraphie Sans Fils!*" The visitors were courteously informed that our wireless department had by no means assumed such extensive dimensions, that we were certainly living in expectation of developments, but that for the present our international traffic was still being dealt with by submarine cable.

The report of the Great Northern Telegraph Company is to hand and the Directors in announcing a dividend of 22 per cent. for the financial year, after relating the history of their interrupted cables in certain of the mine zones sound the pessimistic note regarding the present year. This they anticipate is not likely to prove so successful an one as that to which the report refers. They have, however, been able to put substantial sums both to the Reserve and Renewal funds.

A contemporary, much interested in electrical illumination and electrical signalling on railways, brings the rather interesting historic fact to light that the pioneer of furnishing light for carriages was Thomas Dixon, guard of the "Experiment," a coach on the Stockton Railway in 1825, who provided penny candles at his own expense for the benefit of his passengers.

The present moment is seized to thank the Zurich office for specially courteous aid during the month of August, when westward communications were in a more than usually tangled after-war condition. The breakdown of the underground section in the north of England for a comparatively brief period in August last naturally caused considerable inconvenience, and only proved the obvious, that, on the earth, above the earth, or under the earth, Nature will occasionally laugh at Man's works do what the latter will. This

is, however, in no sense an adverse criticism of the universally acknowledged advantages of our air-spaced subterranean system.

With our Inland system of telegraphy there is undoubtedly much to be said for the principle of equalisation of delay, but it is a matter of very serious debate whether this principle should be inflexibly applied to Anglo-Continental traffic. London's communication with a country which we will call A is working well, that to a country beyond which we will term B, and passes through A is very defective. Let us say there is a matter of  $x$  hours to B but only  $x-y$  hours to A. "Equalise delay" says the order and on the surface the principle of equal treatment of all telegraphic traffic appears as self-recommended. But A himself is suffering from a block of traffic to B by all outlets so that if London holds back the traffic of A in order to place that of B in chronological sequence and to divert the latter to A, the traffic of A is uselessly delayed for the very simple reason that B's traffic has been preferentially signalled to A only to await transmission in the traffic boxes of the latter. It has repeatedly happened that a foreign station A situated in the circumstances recited above, has eventually been compelled to despatch by post the very traffic which has held back the transmission of its own particular telegrams. Not yet have continental telegraph centres accepted the principle of complete mutual help which may in any way tend to act detrimentally to their own particular traffic. This view-point is by no means so fully recognised on this side of the English Channel as the occasion would appear to demand.

One cannot, for example, get our Continental colleagues to readily agree that their own particular traffic should be held back in order to permit of the transmission of diverted traffic of another country beyond them. They appear to reason upon the grounds that, "here are excellent lines in excellent working condition specially erected for dealing with traffic vitally connected with the commerce of our own country. Beyond us and beyond our maintenance limit are other lines not so well maintained and generally working badly, due to electrical, political or economic causes with which we have no concern, and for which we are not responsible." We are willing to help but our own traffic comes first. The position is not an illogical one. The idea that European "ways and communications" should be planned and worked for the common good of all European nations has not yet laid hold of the European mind which very extensively moves along narrower grooves, and within at times very strict geographical and ethnographical limitations.

We dwellers in the British Isles are too apt to forget or at least to underestimate our own naturally detached view of these matters and at the same time are prone to become altogether too in-ular and therefore perhaps unduly impatient with those of our colleagues abroad, whose view of these matters is rather that of the obverse of the medal.

Owing to ill-health, Mr. J. Howgego, overseer of the Cable Room, who took service with the late Submarine Telegraph Company some few years prior to the transfer of that Company's cables to the State, has been compulsorily retired. It had been noted for some time past that his old vigour was lacking and the best wishes of many friends follow him into what is hoped will prove at least the less stressful period of retirement. Mr. C. S. Ireland—to whom our congratulations—fills the vacancy thus created.

It is with the keenest sense of loss that one records the passing away on the 6th ult. of Mr. Archie Robinson (also formerly of the Submarine Telegraph Company), late Overseer of the Cable Room. A more earnest and painstaking officer in every duty confided to him or any task he undertook one could scarcely hope to find. Those who knew him most intimately are united in their high appreciation of his geniality, his kindness and his whole-hearted unselfishness, traits that were never more evident than in the closing weeks of a comparatively brief illness. To his bereaved wife and children the staff respectfully offer their tenderest expression of sincerest sympathy. He was laid to rest in Lewisham Cemetery on Sept. 9, a number of representatives from the office being present to pay due homage.

From a paper by Mr. Philip R. Coursey, published in the *Wireless World* for June, on *Atmospheric Elimination in Wireless Reception*, it is evident that many active brains are working upon this perplexing problem. It is regrettable that certain members of the lay press appear to make no real attempt to study the very real difficulties of wireless telegraphy before attempting to enlighten the general public upon the future of telegraphy and telephony without wires. One meets numerous friends and acquaintances otherwise well-informed who are unfeignedly surprised that the Government has not long ago superseded submarine cables by the "more modern methods of Marconi." (*sic*).

That these and other difficulties will ultimately be overcome one may scarcely doubt seeing the really marvellous strides that have been made in the study of this method of communication. When, however, one of the highest authorities on this subject states that "Wireless is still in the melting-pot," prudence should surely demand a patient silent waiting.

The technical student will appreciate the following as somewhat typical of the difficulties and fineness of adjustment necessary to obtain the best results for emitted signals when Morse Signalling on High Frequency Circuits. It is known that with this system the speed of the high-frequency generator should be constant. The delicacy of this necessary constancy is realised when one reads:—"A speed variation of  $\pm \frac{1}{2}$  per cent. is already sufficient greatly to reduce the strength of the emitted signals and a limitation of the speed variation to  $\pm \frac{1}{10}$  per cent. is desirable." These few interesting words are excerpted from an article by Herr Dornig in the *Elektrotechnische Zeitschrift* of May last.



THE SECRETARY'S OFFICE (INVESTIGATION BRANCH) *versus* THE CENTRAL TELEGRAPH OFFICE.

I must confess to an abject ignorance of the rules of the game of golf, and to only a passing acquaintance even with its language. As regards the latter I have been informed by some junior members that it rhymes with "cough" which does not surprise one, seeing that the latter is unable to rhyme with "tough" according to rules laid down by some unknown Anglo-Saxon academy and must therefore quite naturally find its vocal affinity like other affinities in strange and unlooked for places. I have watched and listened carefully and have tried to associate other words with certain parts of the game; for example, when an ardent player after careful poising and timing his steel-shod weapon succeeds in driving the little white ball about two inches along the grounds and a few clods of earth about six feet in the air! A *mis-cue* of this description is sometimes followed by what a lawyer recently described as "a vocal sigh," at other times by words somewhat after the Shavian order. Despite the writer's ignorance, however, it is with some confidence that the following results are appended of the competition which took place on the Wanstead Park Links on Sept. 1. Upon the result from a golfian point of view one need not dwell. That is self-evident, but the happy association of the Secretariat with representatives from the C.T.O. in the search after healthy recreation must necessarily result in a more healthy psychological atmosphere in which the daily duties of both sections are performed. We should be pleased to record a similar competition between the C.T.O. and the Engineer-in-Chief's department.

## SINGLES.

*Secretary's Office.*

Mr. D. K. Hain beat Mr. J. H. Shinner 5 up and 4 to play.  
Mr. R. Hain halved with Mr. C. W. Whitehurst.  
Mr. A. W. Edwards beat Mr. J. P. Leckenby 4 up and 3 to play.  
Mr. E. Woods beat Mr. A. H. Bishop 3 up and 2 to play.  
Mr. A. F. Reeves beat Mr. F. J. Young 5 up and 4 to play.

## FOURSOMES.

Messrs. D. K. and R. Hain beat Messrs. Whitehurst and Leckenby 3 up and 2 to play  
Messrs. Reeves and Woods beat Messrs. Bishop and Young 3 up and 2 to play.

## ADDITIONAL SINGLE.

Mr. A. W. Edwards beat Mr. J. H. Shinner 5 up and 4 to play.  
J. J. T.

## LONDON ENGINEERING DISTRICT NOTES.

## ACT OF GALLANTRY.

It is with very great pleasure that we record the following facts:—

On August 24, while work in connexion with the Engineering Department was being carried out on the River Lea towing path, loud calls for help to rescue a drowning boy were heard. Mr. J. W. D. Billson (Acting Inspector, North External Section), who was present, at once plunged into the water and succeeded in saving the boy. The heroic deed was accomplished at great risk to his own life, as Mr. Billson in his efforts became entangled in the weeds, and had to contend with about six feet of mud at the point where the boy was sinking. We understand that the circumstances have been reported to the Royal Humane Society with a view to some suitable recognition of the bravery being made.

Thanks to the kindness and courtesy of the Submarine Superintendent, Mr. Bordeaux, the London Committee of the Institution of Post Office Electrical Engineers were able to arrange a very interesting outing on Wednesday, September 8, when a visit was paid to the cable ship *Monarch*. Between 20 and 30 members of the Institution, including Lt.-Col. Booth and Mr. Tandy (Superintending Engineer, South Eastern District), journeyed by train from London Bridge to Charlton and thence by tram to the Submarine Depot at Woolwich. Here Mr. Bordeaux showed the visitors some of the mysteries of the Depot and briefly told the story of some of the exploits of the Submarine Department during the war. A fine collection of submarine cables from the earliest laid to the most recent types is held in the Superintendent's office and one would have liked to have spent more time than was available in inspecting these, as it was evident from the little we heard that the history of these cables was intensely interesting.

By means of boats the party then went out to the cable ship itself which was lying off the Depot wharf. Conducted by the various officers who acted as guides, the ship was explored from end to end. As our readers are probably aware H.M.T.S. *Monarch* is an entirely new vessel, having been built in 1916 to replace the old *Monarch* which was sunk by a mine during the late war, and lies, so we are told, at the bottom of the English Channel about five miles from Folkestone. The present ship, therefore, is quite up to date, and has the very latest gear both for navigating purposes, and for dealing with the testing, repair, and replacing of submarine cables. We were greatly impressed by the fine machinery installed for the purpose of taking cable on board, and for paying it out at sea. The engines for these operations were built by Tangyes, Birmingham, and we were assured that no cable ship had a finer set. A cable for the repair of one of the German cables was being taken on board while we were there, so that we had an opportunity of seeing the machinery at work. Equally interesting were the chart room, range finder,

the wireless room and the arrangements for testing, the details of all of which were carefully explained by our guides, to whose patience and consideration we owe, to a large extent, the success of the visit. Tea provided by the officers in the ship's saloon brought a very enjoyable afternoon to a close. The necessity of returning ashore in small groups gave us no chance of expressing our gratitude to our hosts, and we should like to take this opportunity of saying how much the hospitality of Mr. Bordeaux and his staff were appreciated by all who had the good fortune to be present.

Major Kennedy, late Assistant Superintending Engineer of the London Engineering District and now of the Air Ministry, was seen in town recently looking rather worried. We wondered whether this was due to the fact that he has left the life of ease in this Department, or because he was negotiating the London traffic in a car of well-known make, which has a left hand drive.

Notwithstanding the impression conveyed by the newspapers that bricklayers are laying one brick a day, the construction of large new buildings for commercial purposes is steadily proceeding, and sectional engineers are kept busy in obtaining plans, preparing estimates, and wiring the buildings for telephones.

The number of the supervising staff in the external sections, whether on duty or pleasure bent, have always an eye open to note the commencement of the construction of a building, and at once seek out the architect in order to obtain copies of the plans. These plans are forwarded to the L.T.S. where they are marked with the probable number of telephones that will be required in each part of the building. The external and internal engineers then confer as to the best method of providing an adequate, flexible and economical system of wiring, and having submitted an estimate, and obtained Works Order authority, proceed to carry out the work. This procedure is mutually advantageous to the architects and the Department. Nothing can be more annoying to a master of his craft than to see it cut up as soon as it is completed. Architects now realise that telephones are essential to every business and as a rule are ready and anxious to make suitable provision for the cables that are necessary. Although the methods of wiring are standardised in principle, yet each building has peculiarities that must be considered, and it is not always easy to arrange the wiring so that the lowest average length of wire shall be obtained with the distribution cases in positions which are accessible to the lineman.

## LONDON TELEPHONE SERVICE NOTES.

WEDNESDAY October 6 is the date to be remembered as that of the first meeting of the current session of the London Telephonists' Society. Mr. Beck has chosen as the subject for his presidential address "Some thoughts on Efficiency." "Efficiency" is a very broad term and associated with the word "some" as defined in the khaki dictionary, made many of us who read the bills a trifle uneasy lest we were being invited to one of those long and serious meetings in which traffic officers have been known to partake in the dim and distant past. Mr. Beck assures us, however, that we may dismiss our fears as in his dictionary "some" is interpreted as "a few," and he is trusting to his audience to make up the difference between "a few" and "enough."

The programme of the forthcoming session of the Telephone and Telegraph Society is not circulated at the time these notes are written; but it is safe to say that the papers to be read will prove of considerable interest both to telephone and telegraph specialists. Members of the London Telephonists' Society are again cordially invited to attend the meetings. The Chairman of the session is Mr. A. J. Stubbs and his opening address in which he will review the progress of telegraphy during the past fifty years will undoubtedly attract a large audience. The first meeting will take place on October 18 at 5.30 p.m., at River Plate House, Finsbury Circus, E.C.

The staff of the London Telephone Service are undertaking another large charitable work under the direction of Miss Heap. They are going to raise £1,000 with which to endow a "Telephone" bed in the South London Hospital for Women. The means to the end is a Christmas Fair to be held at the Memorial Hall, Farringdon Street, E.C., on Friday and Saturday, December 3 and 4. The Fair will be opened on the first day by the Viscountess Cowdray and on the second day by Mrs. G. F. Preston. The items which appear each month in this column are evidence of the manner in which the staff combine pleasure and social intercourse with endeavours in support of charitable institutions. The result of the last bazaar arranged by the London Trunk Exchange, when close on £1,000 was raised in a few hours, stands out prominently as evidence of the enthusiasm and success which attends these functions. The object needs no recommendation and there is every indication that Miss Heap's appeal to all members of the staff to contribute gifts and talent to the Fair is being answered with the customary energy which will undoubtedly ensure success.

The Langham Choral Society is opening its second season with a performance at the Queen's Hall on Tuesday, November 9, when Berlioz' "Faust" will be presented.

All who were present at the Society's performance earlier in the year will realise that this is an opportunity not to be missed, and they, together with these unfortunates who were unable to be present on that occasion,



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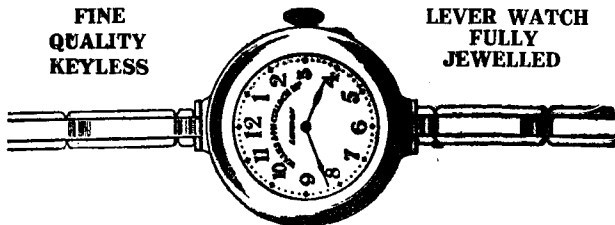
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Tickets at popular prices will shortly be on sale at all Exchanges or can be obtained from the Secretary, Miss W. M. Nurse, West Traffic Office, 11/12, Norwich Street, Fetter Lane, E.C.4.

#### Contract Branch.

There were 914,924 stations on the Post Office system on March 31 last, an increase of 35,215 on the number in use on September 30, 1919. The growth of the London system during this period was 16,809 stations or 47.73 per cent. of the increase for the whole of the United Kingdom.

Before the war the stations on the London system comprised 33.4 per cent. of the total on the Post Office system: on September 30 this percentage had increased to 34.5 and on March 31 it showed a further advance to 35.

The London system, in spite of its large proportions, realised an increase at the rate of 11.06 per cent. per annum during the above period, the increases for the three largest provincial systems were as follows:—

Glasgow	...	...	8.04	per cent. per annum.
Manchester	...	...	8.66	" " " "
Liverpool	...	...	6.24	" " " "

The Contract Branch negotiated agreements for 3,403 stations during the four weeks ended August 28. The number of stations recovered during the same period amounted to 1,131, leaving a net gain of 2,271 stations.

#### Hop Exchange.

By means of weekly subscriptions spread over four months the sum of £10 has been contributed by the staff for the War Seal Foundation.

#### Kensington Exchange.

The staff have contributed by weekly subscriptions during the past six months £60 for the funds of the War Seal Foundation.

#### Trunk Exchange.

The Fifth Annual Swimming Gala was held at St. Bride's Baths on September 9. A very enthusiastic and appreciative audience numbered about 100. Two ladies sent by the Amateur Swimming Association acted as judges.

The following events took place:—

Beginner's race, won by Miss Coller.

Diving competition, won by Miss Powell, whose graceful performance was greatly enjoyed. Miss Hodder was a close second.

Graceful swimming, which also was won by Miss Powell.

Long Plunge won by Miss Harold, who nearly created a record.

The Club championship was won by Miss L. K. Davies with Miss Neville a close second.

The fancy races included Needle and Thread, Balloon, Cotton Gloves, Sunshade and Goodnight. The walking race was hotly contested by the Misses B. L. Webb and Balcombe, who tied four times before the final victory went to Miss B. L. Webb.

## PERSONALIA.

### LONDON TELEPHONE SERVICE.

#### PROMOTIONS.

To Assistant Superintendent, Traffic, Class II.

Mr. H. G. BALLARD      Mr. H. C. TOWNSEND      Mr. G. M. WICKS

Resignations on account of marriage:—

Assistant Superintendent.

Miss SYMONS (Victoria Exchange)

#### Telephonists.

Miss L. S. COOK (Avenue)	Miss R. M. V. PERRETT (London Wall)
Miss E. M. MINTER (Avenue)	Miss L. GREGORY (London Wall)
Miss G. F. HEMSTEDT (Avenue)	Miss G. T. RUSH (Museum)
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Miss D. E. DENGATE (Kensington)	Miss D. M. HORNE (Trunk)
Miss E. E. CRANE (London Wall)	Miss LOTON (Victoria)
	Miss M. E. ELCOCK (Victoria)

## OBITUARY.

CORK. We regret to record the death of Mr. JAMES O'NEILL, Contract Officer, Class I, which occurred on August 28 last. Mr. O'Neill joined the service of the National Telephone Company in March 1905, and was very popular officer both amongst the staff and subscribers.

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