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TELEGRAPH AND TELEPHONE MEN AND WOMEN.

XXXII—

MR. H. F. E. DEANE.

THIS month we present to our readers the portrait of Mr. Harry Francis Evelyn Deane, who has succeeded Mr. Stuart Jones as Deputy Chief Inspector of Telegraph and Telephone Traffic.

Mr. Deane, who is of Irish parentage, has a hereditary connexion with electrical undertakings, for his father was Secretary of the first Anglo-American Cable Company and was on board the *Great Eastern* with Sir William Thomson (afterwards Lord Kelvin) and Cyrus Field during that vessel's historic voyage. Mr. Deane's cousin, Mr. O'Connor Deane, at one time Post Office Surveyor of the North Western District, was a schoolfellow of Mr. Gaine, General Manager of the National Telephone Company, and it was due to this circumstance that Mr. Deane entered the Company's service in April, 1894.



After seven years with the Company's Exchange construction and maintenance staff, Mr. Deane was transferred to the Metropolitan traffic staff, which became part of the London Telephone Service when the Company was absorbed by the Post Office in 1912. In 1913 Mr. Deane was appointed to the Headquarters Traffic Section, he was promoted to the position of Inspector in 1920, and has now received further advancement.

Mr. Deane brings to his new duties an exhaustive knowledge of telephone traffic in all its aspects, an unusual capacity for painstaking research, a well-balanced judgment and an attractive personality, qualities which ensure his success in his new post.

Mr. Deane is happy in his hobbies. As a numismatist, he specialises in the British copper-bronze coinage; as a collector of objects of virtue his tastes are eclectic, but he has a partiality for Chinese porcelain, Japanese lacquerwork and ivory-carving, and Assyrian, Babylonian and Egyptian relics.

NOTES ON TELEGRAPH PRACTICE.

BY G. T. ARCHIBALD.

(Continued from page 237.)

XIX.—Concerning the Delivery of Telegrams.

THE dominant impression gained from a study of the telegraph rules and regulations in operation from 1870 to 1887 is that the administration was less sure of its ground in building up the delivery system than in any other part of the organisation. The perfection of the delivery system was a slow process, and the cautious attitude adopted was undoubtedly due to a strong desire to provide the greatest public facility at the least possible cost. There may be nothing remarkable in this circumstance when it is remembered that public advantage and convenience were the keynotes of the administration, but it serves to confirm the view that responsible officers at that time had the courage to resist the temptation to create regulations until they were fully assured that the public interest was properly safeguarded. The earliest instructions concerning the delivery of telegrams are consequently nebulous and incomplete, but, as will be seen, steady progress was made towards the perfection of a system second to none in the telegraph world.

The delivery room plays an important part in the telegraph cosmos; it is the clearing house of the system. The public, with the knowledge before them of the time at which a telegram reaches the office of destination, are quick to call attention to cases of undue delay in delivery; and it is essential, therefore, that the greatest care shall be exercised in the delivery room. The officer responsible for despatching the messengers, *i.e.* the sending out officer, is required to arrange for the disposal of traffic in the order of receipt and without undue delay, he must see that all charges collected on delivery are handed over by the messengers; decide the question of the best means of delivery, issue money or tokens for the payment of messengers' tram fares, &c., keep a close watch on the messengers in order to prevent loitering, and exercise the strictest impartiality in the selection of messengers for the various journeys. These have been the principal functions of the sending out officer since 1870. Until the "docket" system of payment was abolished he was also responsible for the issue to messengers of the value tokens by which their earnings were assessed.

For a short time following the transfer of the telegraph service to the State it was the usual practice to envelope telegrams in the delivery room and the sending out work was performed either by a junior supervising officer or by a telegraphist. At this time the messengers were accommodated in some part of the building where, to quote the earliest instructions issued, "their presence would not be inconvenient and where some older person can exercise supervision over them and take care that they are orderly and neat and clean in appearance." Generally speaking, the boys waited in the letter carriers' room in the letter sorting department. This arrangement continued for only a short time at the larger offices where the steady growth of the messenger force necessitated the provision of separate quarters. With this development addressing work was, in the main, transferred to the Instrument Room—the Central Telegraph Office, London, is a notable exception in this respect for the reason that it is found more convenient to deal with delivery work in a separate room. At the same time the sending out work was transferred to Postmen or Assistant Inspectors of Messengers—a minimum of forty boys must be employed before an Assistant Inspector is authorised—who were

also employed on street patrol duties in order to prevent loitering and unseemly behaviour in the streets. These officers pay the messengers' wages, and write minor reports connected with the employment of messengers and the supply of uniform. In 1909 it was decided that officers selected for this work should be able to supervise the simple drill performed by messengers. This drill was abolished in 1921, partly as a measure of economy.

In recent years the number of men engaged in street patrol duties has been reduced in consequence of alterations in the delivery arrangements.

Telegraph delivery is based on the theory of immediate delivery, and at one time a messenger was not required to take out more than one telegram per journey except during periods of pressure. The development of the docket system of payment led to a departure from this principle and boys frequently took three or four telegrams on one journey. Under this system of payment by results, which was abolished in 1921, a messenger received a fixed sum per telegram sufficient to enable him without special exertion to earn wages approximately equal to the third year's scale pay. The system had many advantages both from an official and from a public point of view, and many telegraph officials deplored the necessity for abandoning it. Every full time messenger is now paid on a fixed scale rising by annual increments which varies according to the class of office.

Delivery work has always been regarded as proper to boys. On the whole the system has proved satisfactory; but naturally, there will always be cases where boys develop an interest in street accidents or other incidents en route to the great detriment of the telegrams in their delivery pouches.

During the European war of 1914-1918 when boys, attracted by the high wages offered by munition factories, &c., were not disposed to become telegraph messengers, notwithstanding considerable increases in the scales of pay offered for the work, large numbers of girls were temporarily employed as messengers. These girls were supplied with suitable and becoming uniform and they acquitted themselves with great credit. It was necessary in some cases to suspend delivery before the usual closing hour in order to avoid exposing girls to the dangers of dark and lonely roads, docks, &c., and for this reason the regular and systematic employment of girls on delivery work is undesirable. They are not, therefore, so employed except in a few rural areas where boy labour is unobtainable.

The standard mileage to be covered by a messenger was fixed at ten foot miles and twenty-four cycle miles per day of eight hours. As the result of an enquiry in 1910 it was found that these limits were generally exceeded, that the boys were not unduly fatigued after their day's work, that the duties of messengers were not as a rule continuous, that the incidence of this work permitted frequent intervals for rest and that as a rule the distance covered by each boy did not represent more than three hours' actual travelling a day. It was therefore decided to increase the daily distances to be covered, and twelve miles for a foot messenger and twenty-seven miles for a cycle messenger have been the standard since 1911, the younger boys being required to travel rather less and the older boys rather more than those distances.

Messengers are not employed exclusively on cycle duties where combined foot and cycle duties can conveniently be arranged. The standard mileage for a composite duty of this nature varies according to the relative proportions of foot and cycle work performed, but in ordinary circumstances a daily average of fifteen miles on cycle and five miles on foot is not regarded as excessive. In practice about five hours of the day (eight hours) of a messenger is occupied in delivery work.

If the average day mileage regularly exceeds or falls short of the standard mileage an analysis of the traffic is made daily during a representative week in order that steps may be taken to revise the force.

Casual messengers are employed at (1) large offices in the absence of regular messengers (2) small offices where the employment of full time messengers is not justified and (3) small offices where although a full time messenger is justified, it is more advantageous to employ members of the Sub-Postmaster's household or his private employees.

Sub-Postmasters are encouraged to employ as casual messengers boys who are learning a trade or business when they can be so employed without prejudice to their training for subsequent useful work outside the Post Office.

The rates for casual delivery have been revised from time to time and the rates at present in force are :—

DISTANCE.	FOOT DELIVERY.	CYCLE DELIVERY.
Up to ½ mile from Office of Delivery ...	1½d.	1d.
Over ½ mile and not exceeding 1 mile ...	3d.	2d.
„ 1 „ „ „ 1½ miles ...	6d.	3d.
„ 1½ „ „ „ 2 „ „ ...	9d.	4d.
„ 2 „ „ „ 2½ „ „ ...	1s.	6d.
„ 2½ „ „ „ 3 „ „ ...	1s. 3d.	
„ 3 „ „ „ 4 „ „ ...	1s. 7d.	8d.
„ 4 „ „ „ 5 „ „ ...	2s.	10d.
	and 6d. for each additional mile.	and 2d. for each additional mile.

The Sub-Postmaster at an office where no regular messenger is employed receives an allowance of 2s. 6d. a week for providing a bicycle in addition to the cycle rates. The Post Office is prepared to provide an official bicycle in such cases at cost price.

In certain cases it is convenient to commute the casual payments to a fixed allowance, but neither casual payments nor fixed allowances are regarded as emoluments.

It was formerly the practice to deliver every telegram received at any office up to the hour of closing for public business and to deliver from the Head Office open after 8 p.m., the normal hour of closing, all telegrams for suburban addresses. The only exceptions to this rule were cases where the sender desired delivery on the morning of the next day either by post or by messenger and where addressees had requested the Post Office to retain until the next day all telegrams received after a certain hour. In 1918, owing to the heavy cost incurred in the delivery at night of obviously non-urgent telegrams, it was decided that all reasonable requirements would be met by the free delivery of telegrams :—

- (a) to all addresses in the London Postal Area up to 8 p.m.
- (b) to addresses within a radius of four miles of the Central Telegraph Office or the West Strand Telegraph Office from 8 p.m. to 10 p.m. and later if the text of a telegram seems to indicate special urgency.
- (c) to all addresses in provincial towns within the normal delivery area up to 8 p.m.
- (d) to addresses in the town postal area (delivered from the Head Office if open) from 8 p.m. to 10 p.m. and later, if the Head Office is open, provided that the text of a telegram seems to indicate special urgency.

All other telegrams are held over until the following morning except those which may be delivered by telephone; a telephone subscriber is not, however, disturbed after 10 p.m. unless the text of a telegram indicates special urgency. Fuller details of delivery by telephone will appear in a subsequent chapter.

It is left to the officer in charge to decide the question of urgency, and it is only right to say that the officers concerned are rarely at fault in their judgment.

At the outset, it was customary to box telegrams if the messenger after knocking and ringing twice could not gain attention at the place of delivery. In 1877, owing to the large number of complaints from persons who apparently did not regularly examine their letter boxes and who happened to be away from home when a

telegram arrived, it was arranged that a messenger should make inquiry at an adjoining house if unable to gain the attention of the addressee. On satisfying himself that a telegram is intended for the address furnished the messenger should box the telegram and place under the door a printed form advising the addressee that a telegram has been placed in the box. If on the contrary the messenger ascertains that the occupier is not expected to return the same day he must take the telegram back to the Post Office. The sender is then advised that delivery cannot be effected.

Where a letter box is not available the messenger, if he fails to gain the occupier's attention, must place a form of advice under the door, note on the envelope the time of arrival at the furnished address and take the telegram back to the Post Office.

Messengers are forbidden to place telegrams in the letter box of counting houses or other business premises unless the addressees have given special instructions to that effect. In the event of the premises being closed when the messenger arrives the telegram is returned to the Post Office, the time of arrival at the address being noted on the cover.

A telegram returned to the Post Office because the addressee's attention could not be gained is sent out again within a reasonable time if it has not been called for, unless portorage is due. Portorage telegrams are sent out a second time at the discretion of the Postmaster. On public holidays, Bank Holidays, &c., when the premises are closed and there is no letter box at the furnished address, the telegram is sent out again as soon as the premises are open.

A telegram retained overnight through failure to gain the attention of the addressee is sent out with the first morning letter delivery provided that it will be delivered earlier by that means than if sent out by telegraph messenger. A telegram upon which a portorage charge is due and which, in the opinion of the Postmaster, is not of sufficient urgency to be sent out a second time by messenger is sent out with the first morning delivery of letters, the postman being instructed to collect the amount due for the attempted delivery by messenger.

It was formerly the practice to deliver specially every reply paid telegram except during periods of pressure when a telegram for delivery at an address which had to be passed on the direct outward route of the reply paid message might be carried by the messenger, provided that no delay to the reply paid telegram was caused thereby. This arrangement, together with that authorising a messenger to wait ten minutes for a reply, was modified on the introduction of the walk delivery scheme.

Delivery may be made in the street or road if the addressee is known to the messenger, but portorage charges due on telegrams so delivered must be paid in full.

In 1886 it was decided that the office of origin should be asked by telegraph for instructions regarding the delivery of telegrams upon which a portorage charge of at least five shillings was due and which had reached the office of destination without the usual notification; if no reply was received such telegrams were sent out by the first letter delivery. The minimum was reduced to four shillings in 1892 and abolished on the modification in 1897 of the portorage charges; it is now the practice to deliver all telegrams upon which a portorage is proper to be charged. If the addressee declines to pay the amount due the matter is reported to Headquarters and the office of origin is instructed to recover the amount from the sender of the telegram.

Each messenger is provided with suitable summer and winter uniform together with a leather despatch pouch. The pouch is examined by a responsible officer at the conclusion of each period of a messenger's duty in order to avoid the risk of telegrams being left in it.

As has already been indicated telegraph delivery is based on the theory of immediate delivery, but experience during the war

shewed that it was frequently beneficial to send telegrams out in small batches, and in 1920 a radical change was made in the delivery arrangements.

The delivery area at offices where four or more messengers are employed was then divided according to the density and direction of the traffic into definite walks; the walks being so arranged that the time occupied in delivering telegrams to addresses equidistant from the delivery office, was equalised.

The number of walks varies according to local conditions; when established they are marked on a reference map for the information of the sending out officer. Where there are from one hundred to seven hundred telegrams a day for delivery within a radius of a mile the number of walks varies from two to five and the duration of the journeys from twenty-five to thirty minutes. From eight to ten walks are necessary during the peak hours at some of the larger offices, but these are combined during the slacker hours in order that messengers may carry a satisfactory number of telegrams per journey. The scheme is not rigidly applied, and, whenever it is advantageous to do so, telegrams for contiguous walks are combined for despatch in a single journey.

If the traffic is exceptionally heavy in the immediate vicinity of a Head Office or at Fish Docks, &c., the walks are divided into inner and outer zones; the inner zone having a radius of about a quarter of a mile.

On arrival in the delivery room the telegrams are sorted according to walks and the appropriate serial numbers are recorded on the sending out forms. As a rule the number of addresses per journey does not exceed five—four in the case of inner zones—except in the case of markets, exchanges, &c., where the addresses are close together.

The telegrams are sent out punctually according to the pre-arranged time table—usually at ten-minute intervals at Head and Branch Offices and at fifteen-minute intervals in the case of other offices. At the smaller head offices, i.e. offices dealing with less than 250 telegrams a day, the intervals may be extended to fifteen minutes after 3 p.m. Inner zone telegrams are despatched at five-minute intervals.

The walk delivery scheme which has resulted in a considerable saving in staff costs has been an unqualified success. Generally speaking, the speed of delivery has been improved and the orderly arrangement of the walks and journeys has been greatly to the advantage of the messengers in that the number of journeys has been reduced and the walking time shortened.

Urgent telegrams are sent out as they arrive and not detained for inclusion in the regular walks, but ordinary telegrams for more distant addresses in the same walk may be sent out with them.

In business areas prepaid reply telegrams are sent out singly whenever possible, but in other localities it is arranged that a reply paid telegram is sent out if possible either singly or as the last telegram on the journey.

It has always been the practice to maintain a record of the time at which a telegram is sent out for delivery and the official identification number of the messenger employed; at one time, too, it was customary to note the time of a messenger's return to the office. At first the information was included in the delivery room abstract; (see Chapter XVIII) later space for the necessary particulars was provided on the office copy of the "C" form. At the larger offices a form known as the Received Telegram Slip was used for this purpose. These arrangements continued until the introduction of the walk delivery scheme, when new forms were introduced upon which are recorded the serial numbers of the telegrams taken out by the messengers, the time of despatch and the estimated time of return to the office.

Although the safety bicycle was popular in the late eighties, it was not until 1895 that the Post Office decided to test its efficiency in connexion with the delivery of telegrams, and the now familiar

red cycle was not an official issue until 1899. From 1895 to 1899 messengers were allowed to use their own cycles for which they were paid allowances of 4s. per week. Since 1904, cycle delivery having by that time justified itself, there has been a steady growth in the number of cycles used for telegraph delivery purposes and at the present time upwards of 4,000 machines are in regular daily use. Delivery, particularly in country districts, has been greatly expedited and the cycle has been an important factor in the reduction of delivery costs as a whole.

The question of introducing motor cycles for telegraph delivery work has been considered, and it is quite clear that apart from the objections to the use of such machines by boys, their employment would not usually be economical.

Official bicycles for the use of messengers are provided whenever it can be shewn that many telegrams are for delivery at places over a mile from the delivery office, where the roads are suitable for cycling. As a rule bicycles are not used for journeys which would occupy a foot messenger for more than ten minutes, but the actual area for foot delivery is arranged with due regard to local conditions.

A close watch is kept on the cost of upkeep of cycles and all cases in which the annual cost exceeds £4 5s. is reported to the Controller of Stores Department. Major repairs are usually performed by local tradesmen, the parts being supplied by the Post Office. The riders of official bicycles receive an allowance of 1s. per week for cleaning their machines and affecting minor adjustments outside their official hours of duty. In certain cases the machines are cleaned and adjusted by night messengers, &c.

The delivery of telegrams from 9 p.m. to 6 a.m. is made by postmen—commissionaires in London—and not by messengers as it is not considered desirable to employ boys during those hours.

(To be continued.)

REVIEW.

"The Lead Storage Battery." By H. G. Brown, A.M.I.E.E. (Published by the Locomotive Publishing Co., 3 Amen Corner, E.C.A. 2nd Edition. 186 pp. Price 5s.)

In this small book a very good account is given of the construction and action of modern lead secondary cells. It commences with an account of the chemical actions on which the storage properties of the cell depend. Then follow chapters on the electrical characteristics of secondary batteries, and the various methods used for forming the plates and erecting the completed battery.

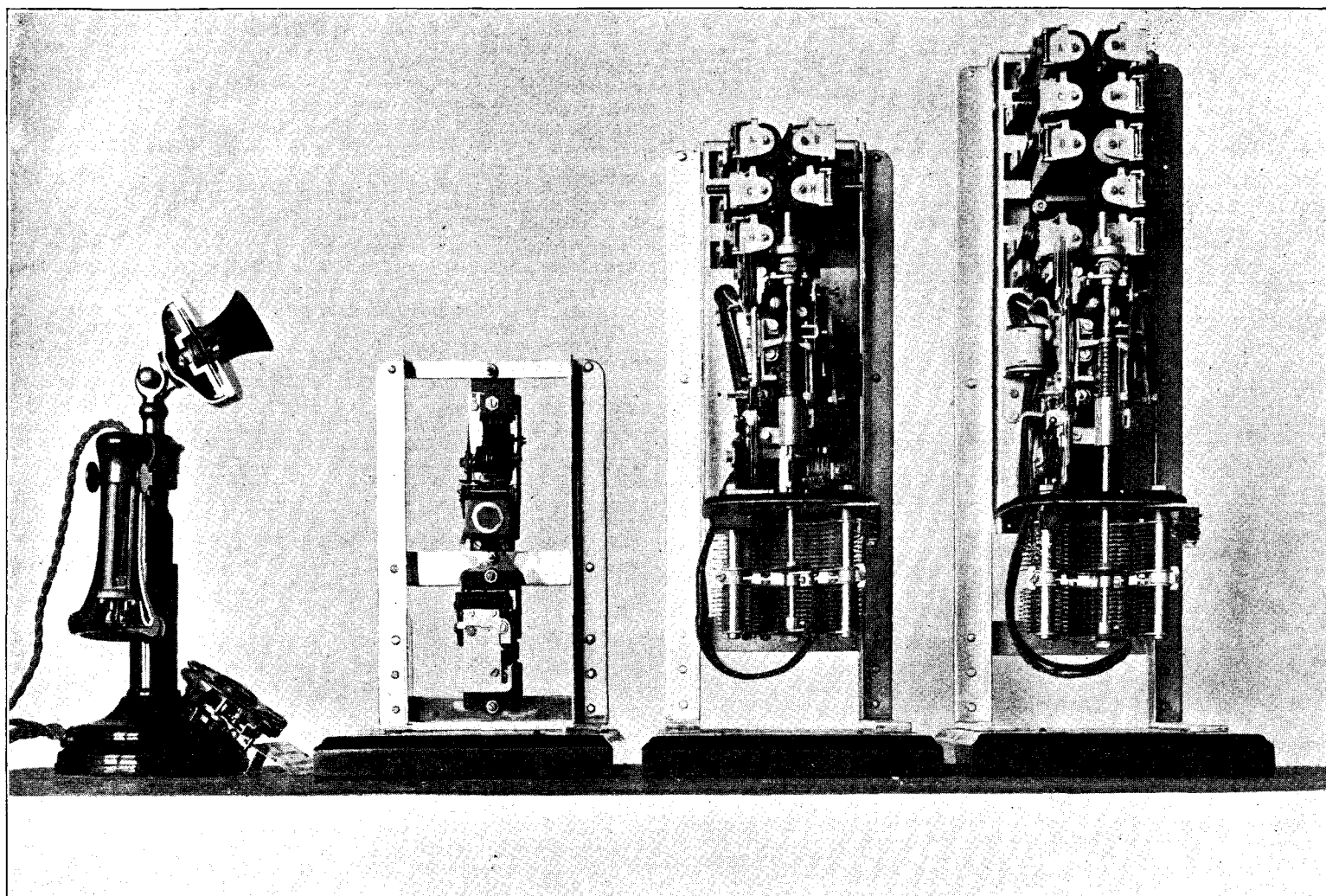
A chapter on auxiliary apparatus, such as boosters, &c., is then given, followed by one containing instructions for the general handling of a secondary cell plant.

The next chapter deals with the care of cells, and the repair of any defects.

The subjects of battery testing and battery economics are then dealt with, and the final chapter deals with miscellaneous designs of cells for special purposes.

The book concludes with an appendix containing an account of the ionic theory, and also detailed instructions for carrying out chemical tests for the most common impurities likely to be found in water and acid.

The book is well got up, and can be recommended to anyone who is concerned with the practical working of secondary cells.



THE AUTOMATIC TELEPHONE MANUFACTURING CO.'S EXHIBIT IN THE SCIENCE MUSEUM.

A TOPICAL EXHIBIT.

In collaboration with the Telephone Development Association, Automatic Telephone Manufacturing Co., Ltd., Liverpool, pioneers and principal manufacturers of the A.T.M. (Strowger), now in process of installation for the British Post Office throughout Greater London and the provinces, have presented to the Science Museum, South Kensington, actual specimens of typical components of the system.

The exhibit, which will be displayed in the Telegraph, Telephone and Wireless Section of the Museum, comprises four items, separately mounted and arranged for convenient inspection by the public.

As representing the subscriber's apparatus, there is a standard automatic desk telephone, with its calling dial. Sections of the various parts of the instrument are cut away, enabling the interior details and portions of the mechanism to be examined.

The exchange equipment is represented by the remaining three items of the exhibit, which comprise a rotary line switch, group selector and final selector respectively.

These are basic components of any large (Strowger) automatic telephone exchange and will doubtless prove of service and information to students and others interested in the present

progressive development of automatic telephony in Great Britain and abroad, where the system has already made considerable headway.

UNDERGROUND CALL OFFICES.

THE problem of travelling across London has been greatly simplified by the introduction of interchange stations on the Underground Railway systems. One can journey from North to South and from East to West without having to regain the street level. Thousands of passengers avail themselves of these facilities daily, and as the number of telephone users amongst the travelling public is ever increasing, arrangements have been made with the railway companies to instal Underground Call Offices, with suitable direction signs in the subways at interchange stations where the passenger traffic from one route to another is heavy.

Two Call Offices of this description are being erected under each of the following stations:—

Leicester Square, the change-over point for the population of South-West, North-West and North London to the shopping districts of Kensington, Oxford Street, &c., the Theatre area and the termini of Charing Cross, Kings Cross and Euston.

Oxford Circus, the change-over point for the population of West, City, or South-East London and for all traffic from the Marylebone and Paddington termini.

G. W. L.

TELEGRAPHIC MEMORABILIA.

AUSTRALIA.—Government engineers in Western Australia have completed the laying of a telegraph line in country where, it is believed, no white man has ever been before. It is an inland line, in substitution for one which followed the coast, between Bamborc Creek and Warroobja.

BELGIUM.—The Cabinet has been considering a Telephone and Telegraph Administration Bill, says Reuter's Brussels agent, which will give the Government power to form a national telephone and telegraph company. The Bill is said to be drawn up on the same basis as the recent measure for a national railway company, many articles in the two Bills being identical. The capital of the new company will amount to 1,800,000,000 francs, and it will issue three million preference shares of 500 francs each; ordinary shares will resemble those of the railway company and State property; 30% of the sum realised by the issue of preference shares will be handed over to the Telephone and Telegraph Company in order to assure the execution of the plan for the extension of the telephone service contemplated by the Minister for Railways.

BELGIAN CONGO.—From *Commerce Reports* it is learnt that several wireless stations have been completed in the Belgian Congo; that at Kafubu was in full operation at the end of April, and the Sololo station was to be commissioned soon afterwards. The new stations at Coquilhatville, Lisala, and at Albertville will commence operations early in 1927; the Coquilhatville station will use short waves, and the contractor has guaranteed through communication with Belgium. The Colonial Office has ordered two small short-wave stations to test their efficiency in the tropics.

BOLIVIA.—Telegraphic advice was recently received in London from La Paz to the effect that a contract has been signed between the Government of Bolivia and Marconi's Wireless Telegraph Co., Ltd., whereby the latter will, as from Oct. 1, 1926, control and operate the postal telegraph and wireless services of Bolivia for a period of 25 years on the basis of a percentage of the gross receipts of the services as remuneration for management, plus a proportion of the profits when there may be a surplus. It will be recalled that in 1921 the Marconi Co. took over the control of the telegraph and wireless services of Peru, which services were then showing an annual deficit, but within a very short time the Budget was balanced and for several years a substantial surplus has been realised.

CANADA.—The production of radio sets, parts, and batteries in Canada during 1925 reached a total value of \$5,548,659. Six firms were engaged solely in the manufacture of sets and parts, while nine other firms combined this activity with the manufacture of general electrical apparatus. The figures show a large expansion. A total of 48,498 complete sets were manufactured, value f.o.b. works \$2,196,024. The production of valves amounted to \$1,299,684 in value and 940,498 in number, or double the previous year's output. Receiving licences were issued to 134,486 persons during the year. Licensed broadcasting stations numbered 55 (exclusive of amateurs), distributed as follows:—Ontario, 24; British Columbia, 10; Saskatchewan, 7; Alberta, 6; Quebec, 4; Manitoba, 2; New Brunswick and Prince Edward Island, one each. The above figures are quoted from Reuter's Trade Service.

It is also reported that radio-telephone apparatus produced by 27 factories in Canada last year was worth £1,109,000. Licences were issued to 134,486 people.

CHINA.—The *Chinese Economic Bulletin* says that a merchant, Liu Chih-hsin, has applied to the Canton Municipal Bureau for the privilege of erecting a station in Canton for broadcasting within 100 miles of Canton. The applicant suggests the organisation of Kwang Li Co., Ltd., with a capital of \$100,000, and asks for a monopoly for 10 years during which the company shall enjoy the exclusive privilege of installing receiving sets at first-class restaurants, hotels and public resorts at a cost of \$100 a year, middle-class restaurants, hotels, clubs, and public organisations at \$60 a year, and business houses, residences, newspaper offices, hospitals and schools at \$30 a year. He proposes to pay 30% of the net receipts to the Provincial Government in return for the monopoly. The Municipal Bureau has referred the matter to the Bureau of Public Works and the Bureau of Public Safety for consideration.

The prevailing state of affairs in China is indicated by the Great Northern Telegraph Co.'s notice of July 15 of indefinite delay to messages to Tientsin and beyond. Telegraph communication with Peking had then been totally interrupted, while that with Tientsin had been restored on a weak line. Communication was, however, restored just after the *T. and T. Journal* went to press last month, and as this goes to the printer the service is about normal with a maximum transit time of two hours.

DENMARK.—According to *Commerce Reports* the Rigsdag has authorised the establishment of Government broadcasting stations to operate under the direction of the Minister of Traffic, assisted by a radio council of nine members. Listeners are to pay fees, which will be applied to broadcasting after the expenses of the telegraph authorities have been met.

According to a recently-issued official report, the telegraph system in Denmark comprised 8,328 miles of overhead lines, 228 miles of underground lines, and 610 miles of submarine lines at the end of March, 1925. During the fiscal year 1924-25, 1,282,000 internal messages, 2,345,000 international, and 1,106,000 "transit" messages were handled, as compared with averages of 1,491,000, 2,486,000, and 920,000, respectively, in the three preceding years.

EGYPT.—A recent decree regulates the sale and use of all radio apparatus in Egypt. It includes many features of the British law, particularly the matter of patent infringement by builders of home-made sets.

GERMANY.—At the end of April last 1,205,310 wireless receiving licences were in operation in Germany, as compared with 1,184,236 at the same period of 1925, an increase of 21,074 during the twelve months. Berlin has the largest number of listeners (522,461), Hamburg following with 155,214, and Leipzig with 124,064.

As a result of the prevailing demand for cables, it is stated that the North German Cable Works Company, of Berlin, has decided to enlarge its cable factory so as to double the present productive capacity. Business both in telephone and power cables is said to be comparatively favourable, but sales of smaller wires and cables are hampered by the depression in the building trades.

GREAT BRITAIN.—The total membership of the British Broadcasting Co., Ltd., is now 1,715, and its staff (excluding orchestras, &c.) is 725, including 250 engineers.

On July 27, in the House of Commons, Viscount Sandon asked the Postmaster General what the geographical limitations were to the ability of the Rugby wireless station to reach ships at sea; whether he could give a list of the almost blind and the difficult spots for reception; and whether progress was being made in circumventing that difficulty.

Sir W. Mitchell-Thompson said that the most difficult localities for reception appeared to be in the eastern part of the Pacific Ocean between Honolulu and Valparaiso. The power of the transmissions from Rugby had recently been increased in order to facilitate reception in such difficult localities. All radio-telegrams sent from Rugby were transmitted twice, once during the day and once during the night; and experience showed that the messages were regularly and reliably received during one transmission or the other by ships in all parts of the world.

It is understood that the Post Office authorities have ordered an investigation into the legality of the "wireless exchange" which Mr. Wallace Maton, a wireless dealer of Hythe, near Southampton, has established for the benefit of local residents. As reported in the *Daily Mail*, Mr. Maton is relaying programmes, received on his 5-valve set, along wires to the houses of 20 subscribers. Loudspeakers are fitted to the terminals of the wires, and the subscribers, on the payment of 1s. 6d. a week, are able to enjoy the B.B.C. programmes without possessing a receiving set. All the subscribers are said to be in possession of broadcast receiving licences.

The Reading Town Council has obtained Government sanction for a bye-law which makes it a punishable offence for anyone to operate a wireless loudspeaker "in any street or public place or any place adjoining a street or public place, in such manner as to cause annoyance to residents or passengers." In Reading chief complaint comes from the crowds which collect round the shops, the proprietors of which utilise loudspeakers as an attraction and advertisement.

GREECE.—A decree law published in July of this year ratifies the convention recently signed between the Greek Government and the Eastern Telegraph Co. whereby the latter obtains an extension of its concession for transmitting all messages by cable and wireless from Greece to other countries during a period of 50 years. Besides a reduction of 50% on all Government messages, the company undertakes to lay new cables between Corfu and Sayada, between Syra and Tenos, and between Myconos and Ikaria, and to keep in good repair the cables owned by the Greek Government for £5,000 per year compensation. The company undertakes also to install within 12 months in Athens an up-to-date wireless station for communication with foreign countries, with a minimum radius of 2,500 kilometres.

The London *Financial Times* further states that the specification for the above station has already been drawn up and is being put out to public tender.

HUNGARY.—A Department of Overseas Trade report on the commercial situation of the country states that the year 1925 saw a great advance in wireless in Hungary, and early in 1925 the new broadcasting station at Csepel Island was put into operation on a wave-length of 546 metres with a power of 2 k.w.; programmes were not transmitted regularly until towards the end of the year. There is also working in Budapest a station under the auspices of the Hungarian Telegraph Bureau (*Magyar Távirat Iroda*), which has no set time for transmission; it works on a wavelength of approximately 900 metres and exists primarily to supply its branches (at which places receivers have been established) in Szeged, Szombathely, Győr, Pécs, and Debreczen, with news and other information.

A similar report on the commercial and industrial situation of the country points out that little development took place in telegraphy and telephony in 1925, although certain sums had been set aside for laying an underground cable of 100 double lines between Budapest and Vienna. Three automatic telephone exchanges will, it is hoped, be in working order by the end of 1927.

The length of telegraph wire operating in Hungary is as follows: Trunk lines, 86,213 kilometres; local lines, 279,067 kilometres; the length of wire operated by the State is given as 55,922 kilometres, whilst that operated by the State Railways is 27,066 kilometres. The number of employees working under the postal, telegraph and telephone administration is stated to be 18,300.

INDIA.—The *Financial Times* and other reliable sources announce that the prospectus of the Indian Broadcasting Co. has been issued. The authorised

capital is 15 lakhs of rupees (about £112,000 at present) in 10 rupee shares, of which 60,000 are being issued now to the public and 2,500 reserved for wireless apparatus importers who, under the agreement between the company and the Secretary of State, have become members of the company. The company intends, in the first instance, to establish transmission stations in Bengal and Bombay. Under the agreement with the Secretary of State the company will receive for the first five years 80% of the value of the licences issued and 10% of the value of all receiving apparatus and accessories imported. There is no limitation of the profit for the first five years. After that period the Government may restrict the maximum dividend payable to 15%.

INDIA (DUTCH).—It is reported in *Commerce Reports* that the Government is considering the granting of a 10-year broadcasting concession to a private concern. Monopoly will be maintained and the right to withdraw the concession will be reserved. All receiving sets will be licensed, the annual fee being 25 guilders, plus a service charge. No monopoly for the sale of receiving sets will be established.

IRISH FREE STATE.—In the Free State Senate, Mr. J. J. Walsh, Minister for Posts and Telegraphs, said it was deemed necessary to have a high-power central station (in addition to four smaller stations) to serve crystal sets within a radius of seventy to eighty miles. The erection of the small stations would take place without delay. The Dublin station was working well. The Cork station would be put up within the next few months, and they hoped to follow that with stations in Galway and the North-West within the next eight or ten months, but it would take anything up to eighteen months or two years to complete the h.p. station.

The small stations would cost eight to nine thousand pounds each to erect, and the high-power station something like forty thousand pounds. The running cost was £21,000 in the current year for Dublin, and would be smaller for the Cork and Bundoran North-West station. In the case of Galway, they had in mind a separate service, because of its location in the Gaeltacht. In any case, the smaller stations would cost about forty thousand pounds a year, including repayment of principal and interest. In addition to that sum there would be, possibly, a similar sum for the h.p. station when working. Apart from the capital, which would not fall far short of eighty or ninety thousand pounds, the State would have to make an annual contribution, either through licence fees or through revenue from import duties, or from some other source, amounting to sixty or seventy thousand pounds. Out of 25,000 owners of sets estimated now in the country, only 5,000 had taken out licences since the beginning of the financial year.

Apparently, following upon this announcement, a meeting of radio manufacturers and wholesalers was held in Dublin recently, and it was decided to form an Irish Association of Radio Manufacturers and Wholesalers for the purpose of promoting and protecting the interests of the radio trade in the Free State. The newly-formed Association proposes to hold an exhibition in the autumn.

ITALY.—Reuters' Trade Service, Milan, reports that plans for the development of the telephone and telegraph systems provide for many new underground telephone lines to be laid, by means of which long-distance conversation will be possible, not only between all parts of the country, including Sicily, but also with Switzerland, the North of France, England, Belgium, Holland, Germany, Czech-Slovakia, Austria, and Poland; part of the system will also be available for the telegraph service. The first group of lines has been entrusted to the Società Italiana Reti Telefoniche Internazionale, which is already engaged on the subterranean Turin-Milan-Genoa cable; the first section will be from Rome to Naples, which is to be terminated within 30 months; others are to be laid successively, and all are to be completed within five years.

At the same time the Government is interested in a plan for large extensions to Italy's submarine cable system. It is stated that a new cable is to be laid shortly from Anzio, passing between Corsica and Sardinia, to Barcelona, and thence to Malaga, where it will meet the cables already existing in the Atlantic which branch off *via* the Canary Islands and Cape Verde, to South America, and, *via* the Azores, to North America. The total length of the Anzio-Barcelona-Malaga cable, for which the Spanish Government has already given the necessary authorisation, will be about 1,100 miles. Later a very long cable will be laid to connect Anzio directly with the Azores, which will greatly facilitate communication between Italy and North America.

In a Department of Overseas Trade report on Italy in 1925, reference is made to the transfer of the telephone service to private companies and the inauguration of an all-Italian submarine telegraph cable to South America. The operation of the telegraph, wireless, and telephone services in 1924-25 resulted in a net profit of lire 20,584,552.

NOVA SCOTIA.—The *Electrical Review* announces that plans are being made for the installation of a broadcasting station in Halifax, local associations and enterprises having agreed to subscribe toward the cost.

PORTUGAL.—Reuters' Lisbon agent states that a definite contract has been signed between the Portuguese Government and the Companhia Dei Cavi Telegraphici Sotto Mari Italcable for the establishment and working of the submarine telegraph cables between Fayal (Azores) and S. Vicente (Cape Verde), between Fayal and Italy, and between Lisbon and Malaga.

From Lisbon we learn that the recent electrification of the railway between Lisbon and Cascais has caused some slight interference to the Eastern Telegraph Company's cable station at Carcavellos. It was discovered that there were some defects due to bad bonding, and on representations being made to the Government the electric service was suspended for several days

during August to permit the engineers to discover the cause of the irritation. The cable service is now working with full satisfaction. Practically no delay was caused to any of the traffic.

SOUTH AMERICA.—From Port-au-Prince we learn that among some recently-completed Latin-American installations are a broadcasting station at Port-au-Prince, Haiti, and a receiving station at the city of Paraguari, in the Republic of Paraguay, where musical programmes broadcast from stations in Buenos Aires and North America have been heard very clearly. At Vera Cruz (State of Vera Cruz), the principal port of entry into Mexico, a broadcasting station with a wave-length of 337 metres and an output of 50 watts (call letters CYC) has been recently installed.

SPAIN.—The Spanish Government, with the idea of restricting the importation of luxuries, has decided to impose a luxury tax of 5% for a period of twelve months from July 1 on a long schedule of goods, included in which are radio sets and apparatus. It is also reported that a powerful broadcasting station, founded by the Unión Radio Española, will shortly begin to function at Seville, but we are not in a position to state which of these events preceded the other!

SWEDEN.—The Department of Overseas Trade informs us that, according to the annual report just published by the Swedish Telegraph Administration, the number of telephone apparatus in use throughout the country in 1925 amounted to approximately 434,594, or about 72 instruments to every 1,000 inhabitants (Stockholm 282 per 1,000 inhabitants). The total number of conversations recorded amounted to 640,318,200 in 1925, compared with 609,843,400 in 1924, showing an increase of 5%. The number of subscribers to the State system also increased from 338,187 to 352,722. The number of individuals employed in the Telegraph Administration totalled 15,041 (including 9,800 women), being an increase of 218 compared with 1924. At the end of the year there were 4,593 telephone stations in Sweden, compared with 4,477 at the end of 1924, and the total length of the State conductors amounted to 817,162 kilometres; telegraph lines totalled 44,850 kilometres (excluding railways). At the end of 1925 there were 3,604 telegraph stations in Sweden, compared with 3,566 in 1924. The number of wireless telegraph installations on board ships in 1925 amounted to 296; the number of telegrams handled in 1925 amounted to 17,193,931, compared with 16,580,444 in 1924. The gross receipts of the Telegraph Administration were, from telephones, kr. 69,397,629; from telegraphs, kr. 7,938,486; from rents, kr. 2,315,350; from wireless, kr. 2,033,703. Total, kr. 81,685,168.

TANGANYIKA.—In the House of Commons Mr. Ormsby-Gore informed Brig.-Gen. Warner that the Government of Tanganyika territory intended to erect a radio station at Dar-es-Salaam during the current financial year.

UNITED STATES AMERICA.—The United States is still trying to avoid the "chaos in the air" which is threatened owing to the loss of broadcasting control by the Department of Commerce, brought about by a ruling by the Attorney-General that the authority Mr. Hoover has assumed as head of the Department of Commerce was without legal basis. He is none the less seeking to intimidate "pirates" by announcing that he will prosecute them for "wilful and malicious" interference with radio rules, says an English daily journal. So far some six New York stations have appropriated wave-lengths other than those allotted them by the Department of Commerce, their managers protesting that they are not "pirates," but merely taking advantage of the existing legal chaos to discover wave-lengths which interfere less with other programmes than those they have hitherto been granted. In Chicago the Broadcast Listeners' Association has issued a call to all listeners to boycott all stations pirating lengths. Meanwhile, business organisations associated with the wireless industry are calling meetings to perfect a "gentleman's agreement" for the benefit of the industry as a whole until such time as Federal legislation can be enacted to restore Governmental control of broadcasting stations.

"The rise of radio has resulted in the swamping of the United States Patent Office with applications." Although the number of examiners handling radio applications has been almost trebled, 1,850 petitions are pending, as compared with 1,594 on January 1, and the radio division is five months behind the applications. Applications increased to such an extent after broadcasting attained popularity that radio was constituted a separate division in August, 1924, but even with twelve assistants in the division, it has lost ground steadily under the great influx of applications.

Inventors will be interested to learn that the "neutrodyne" patents of Prof. Louis A. Hazeltine have been upheld. The decision, it is believed, will affect many manufacturers of radio receiving sets, as a ruling in the Federal Court in Brooklyn earlier had held that the "Hazeltine idea" was being employed in a "substantial portion" of the present output of radio sets. The owners of the patents have issued "neutrodyne" licences to various radio manufacturers on a five per cent. royalty basis.

REGULATION BILL.—The Dill Bill to set up an independent commission to regulate the radio-broadcasting industry was passed by the Senate on the same date viz. July 2.

From the same source, Reuters' Agency, Washington, we also learn that the American Telephone and Telegraph Company has sold WEAJ, one of the best-known radio-broadcasting stations in America, to the Radio Corporation of America, which already operates WJZ; the transfer of WEAJ will take place before the end of the year. There are 536 radio stations now broadcasting, and applications are pending for 600 more. No wonder there is "chaos in the air!"

From Seraing, Belgium, I have received the following announcement with a plea to publish the same. The connexion of wireless telegraphy is

sufficiently closely allied with aviation to permit of this item of news appearing in these columns, and we are moved to give the paragraph a prominent place by the fact that M. Camille Fabry is well-known to the Federation Nationale des Militaires Mutilés et Invalides and appeals to the wireless staff of the C.T.O. to make the announcement:—

CAMILLE FABRY INVENTE LE PARACHUTE MODELE.

Cette grande et bonne nouvelle a été communiquée dans tous les pays, il y a quelques jours, par les agences de presse. Elle réjouira particulièrement les Belges! Camille Fabry, actif directeur de "La Wallonie en Fleurs," travaillait, seul et obstinément, depuis de nombreuses années, à son invention qui est aujourd'hui brevetée et appréciée hautement dans les milieux aéronautiques. Elle va faire prospérer considérablement l'aviation. La sécurité des pilotes et des passagers est désormais assurée.

Ce parachute modèle est basé sur des principes scientifiques à l'application desquels nul n'avait jamais songé, pour ce domaine. Les premières expériences ont donné d'excellents résultats et ont apporté la preuve que cet angoissant problème pour les hommes est enfin résolu.

It is satisfactory to note that Mr. Tapley, the ex-Assist. Controller of the Cable Room, C.T.O., whose accidental injuries were referred to in last month's issue, is progressing favourably if slowly but is still suffering from shock.

To Miss Charlton, supervisor of the C.T.O., go out the sincerest wishes for her future happiness. One was about to write "in her new sphere" but as she is now to become so intimately bound up with the medical profession and as she has long been to the front with "first aid" in connexion with her official duties, this would hardly be correct. Perhaps it would, therefore, be more apt to say that as she has figured so frequently as a benevolent and ministering angel amongst us, we feel sure she will now go one better and become the Angel of the House to that fortunate practitioner with whom she has agreed to enter into a life partnership.

The Cable Room Sports were an exceptionally successful function this year, the weather proving by no means unkind. Mrs. Wadley, supported by Mr. F. Wadley, the Asst. Controller Foreign Cables and Wireless, presented the prizes to the victors and to those younger heroes and heroines who, if they did not achieve success, undoubtedly deserved it. This function over there was an excellent concert of all too brief duration followed by a dance in which almost the complete seven ages of man were represented. Mr. Halls made an apt little speech in welcoming the chief visitor, Mr. Stuart Jones, the new Deputy Controller, and also in greeting the representatives of the Cable companies and the Marconi staff. Among the pensioners who cheered us by their presence were Messrs. Tharratt, Purkiss, E. Barrett, Lange and Moody, while Mr. John Munro, on leave from his arduous duties in Egypt, spent several hours in renewing old friendships.

Mr. Munro has been one of the most faithful of Cable Room men who have left us to take up other, and we are glad to say, improved positions in life and once more he has been generous enough to leave a presentation "pot" behind him as a souvenir of his unalloyed affection for his old comrades. Chatting with "Jack" on matters relative to the Egyptian telegraphs, he told the writer that the Egyptian telegraphist has to learn not only the Morse symbols for English but in addition something like 70 or 80 additional signs representing the Arabic tongue!

For the following abbreviated report on a paper on the subject of high-frequency telephony along high-voltage transmission lines we are indebted to *The Electrical Review*. The paper was one read before the *Société Industrielle* of Mulhouse Elsass by M. René Thibaudin. The lecturer gave the results of tests carried out on the electric power transmission system of the *Société des Forces Motrices* du Haut Rhin. As is already fairly well-known, the underlying principle is that of producing high-frequency oscillations modulated by a microphone as in radio-telephony, the oscillations being directly transmitted to the reception station by the intermediary of the high-voltage power lines. The method possesses several advantages; in particular it requires less transmitting power and a less complex and cumbersome installation. One of its difficult problems lies, however, in the connexion between the high-frequency apparatus and the high-voltage power line. An antenna parallel to the line conductors has been adopted in a few instances with success, but in others it has not been possible to eliminate disturbing noises. A second method consists of connecting the power line to earth by means of condensers and an induction coil, the latter being coupled with the transmitter and the receiver, but it has certain drawbacks, among which are high cost of construction, condenser troubles, and loss of energy due to the numerous connexions, protection transformers, &c.; the Haut Rhin experiments with this system did not prove satisfactory. What is known as the frame method appears to have given better results: It consists of utilising an antenna system in which the end that is usually insulated is earthed; this forms a transformer, the primary of which is the frame and the secondary the earthed line circuit, and it has the advantage that accidental connexions with the high-voltage line earth do not cause any interference with communication. All the foregoing plans are capable of application between two points connected by a continuous power line; in the case of complex lines, however, or when lines have to be sectionised, the frame method has proved the best, and it is an installation of this kind, of a power of 100 watts, that has been carried out by the *Société des Forces Motrices* du Haut Rhin. Communication between two stations may be maintained by one or two wave-lengths.

The special utility of wireless for longitudinal observations is now well known and it will therefore interest many readers to learn that there will be a world longitude determination by radio signals commencing on the first of next month and ending on December 1 of this year. The tests are being arranged by the U.S. Naval Observatory for the purpose of determining

the difference in longitude with great accuracy and to re-determine at intervals sufficiently separated in time the permanency of their relative positions, and certain possibilities as to movement of the earth's crust. The project has the approval of the International Astronomical Union and of the International Geodetic and Geophysical Union. The principal stations of the "fundamental polygon" will be the United States Naval Operating Base, San Diego, California; Algiers Observatory, in Africa; and the Shanghai Observatory, in China, at nearly the same latitude and approximately eight hours apart in longitude. Many other observatories are expected to join in this operation, including Washington, Greenwich, Paris, and Australasian observatories; the United States Coast and Geodetic Survey will occupy stations at Honolulu and Manila. The radio signals will be of the rhythmic type, so spaced that there will be 61 signals per minute for 5 minutes, or 306 in all at each sending period. They will be sent three times daily for 5-minute periods and short-waves are to be used as well as long-wave signals, as some observers report better reception of short waves, especially at very distant stations, when there is not much daylight between the stations.

Have our friends the engineers seen the following lines excerpted from a poem (!) which appeared in one of the professional weeklies by an electrical engineer as "Some Consolation" for the hardships which the electrical engineer of all types is supposed to endure? Only two verses shall be inflicted upon our readers.

"The conditions may be trying,
But yet there's no denying,
It's the only job which really gets things done;
And although you like to bluff,
Yet you all know well enough
That you wouldn't give it up for anyone.
So when things are going wrong,
And your language getting strong,
And the very thought of work begins to pall,
Face to-morrow without fear,
For to be an Engineer
Is more than compensation for it all."

We are not sceptics and are trying hard to believe the third line!

The Barometer, Weather, and Radio Transmission.—Substantiation of the theory that radio waves split into a "ground wave and a sky wave" when passing from transmitter to receiver, has been indicated by the preliminary compilation of data secured by the General Electric Company of America in broadcast-wave propagation tests conducted from January 1 to May 8, 1926. According to the split-wave theory, one wave passes along the earth and the other, passing into the air probably about 100 miles or so above the earth, continues until reflected down upon the receiver by a semi-conducting layer in the atmosphere. The ground wave weakens rapidly and becomes negligible about 200 miles from the broadcasting station, and reception at greater distance is due entirely to the sky wave. In conducting propagation tests with the co-operation of listeners in every part of the country, the engineers were seeking, among other things, the possible relation of radio reception to the condition of the weather, which is known to depend largely on the barometric pressure over various parts of the country, and they endeavoured to find a relation between reception records and the barometric pressure through which the waves had passed. From the present analysis of data it seems probable that barometer and weather have only a minor effect on radio conditions. The data do show that signals received at short distances are stronger when they come along a region of even pressure than when they come from a low pressure to a high-pressure area, or *vice versa*. At distances of more than 400 miles, however, the conditions on the surface of the earth seem to have little or no effect. On the basis of the split-wave theory of transmission, it becomes obvious that if the sky wave goes through an arc reaching 100 miles or more above the earth, weather conditions, which are known to go up less than ten miles can have but little effect upon it.

The General Electric Company state that the reports tabulated by them covered practically "all stations on the air" on wave-lengths covering the entire band reserved by the U.S. Department of Commerce for broadcasting and on powers of from 50 to 5,000 watts. The investigation of fading indicated that there had been a change in conditions from January to February: In January most of the bad fading reports came from a definite region between 200 and 400 miles from the transmitter; in February, however, equally bad fading occurred at all distances beyond 200 miles, and was not confined to any particular zone. Ten per cent. of the reports record bad fading, 35% slight fading, and 55% no fading; in studying the average signal strength at various distances from a broadcasting station, the engineers found (from the reports) that signals decrease rapidly in volume for the first 300 miles. This is true of all transmitters, no matter what the power. The high-power stations, while they decrease just as rapidly, give stronger signals at all distances. From 300 to 800 miles away the signals seem to remain fairly constant in strength, and seem to depend largely on the radio conditions. In January signals were stronger 600 miles from a transmitter than at 300 miles. In February this was no longer true; in fact, there is considerable evidence that radio reception was everywhere poorer in February than in January, due to some change in the upper atmosphere rather than to a change in weather conditions on the earth. Yet it leaves the matter of atmospheric difficulties still unconquered though adding a few more facts to our knowledge.

The essence of the real scientific spirit is a readiness to face facts, however they may conflict with our cherished ideas; an infinite patience in searching out causes; a resolute determination to resist prejudices; and a sincere scorn of catchwords and easy untested solutions.—"The Age of Science,"
—Ramsay Muir. J. J. T.

DEATH OF MR. EUSTACE HARE.

READERS of this Journal throughout the country will hear with much regret of the premature death of Mr. Eustace Hare, which took place at his home at Hersham, Surrey, on Saturday morning, August 7. Mr. Hare's retirement from the service so recently as the end of January of this year was commented on in the March issue of the *Telegraph and Telephone Journal*. The funeral took place on Wednesday, August 11, at the quiet little church at Hersham, at which Mr. Hare frequently assisted as voluntary organist. Among many beautiful floral tributes was one from his colleagues at the



General Post Office. There were present from the Secretary's Office Mr. Vincent Alsop (Solicitor's Department), Mr. W. E. Weston (Overseas Telegraph Branch), and Messrs. E. A. Harris, T. A. Prout and G. S. Stow (Telephone Branch). The grave was situated at the side of the entrance path to the little village church and the interment took place in beautiful sunshine at the precise moment when the centre of London, 17 miles distant, was visited by a heavy storm of torrential rain, hailstones, thunder and lightning. Much sympathy is felt with Mr. Hare's widow and his brothers.

PRESENTATION TO MR. W. E. GAUNTLETT.

ON the occasion of his appointment as District Manager at Liverpool, Mr. W. E. Gauntlett, District Manager Scotland Western District, was presented by the staff with a handsome Sheraton writing bureau.

Mr. Rowland Hill, Traffic Superintendent, in making the presentation, in felicitous remarks alluded to the good relations which had existed between the District Manager and the staff and to Mr. Gauntlett's desire at all times to further their welfare when at all possible to do so, and said that the general wish was that he should not leave the district without some tangible expression of the regard in which he was held by the staff.

Mr. Marshall, Chief Clerk, and Mr. Brodie, Contract Manager, also voiced on behalf of their staffs their congratulations to Mr. Gauntlett on his promotion from the Scotland Western District to the Liverpool District and wished him every success in his new district.

Mr. Gauntlett, in reply, thanked the staff for the good feeling exhibited towards him. He was sorry for many reasons to leave the Scotland Western District where he had spent one of the happiest periods of his official life, and he would value their gift as a pleasant reminder of his happy associations with them during the past seven years.

PROGRESS OF THE TELEPHONE SYSTEM.

THE total number of stations working at June 30, 1926, was 1,419,180, a net increase of 9,264 over the total at the end of the previous month. During the first quarter of the current financial year 55,621 new telephone stations were added to the system, counterbalanced by 26,594 cessations, resulting in a net addition of 29,027 stations.

The table below shews the number of stations working at June 30 last in London, England and Wales excluding London, Scotland and Northern Ireland.

	No. of Stations at June 30, 1926.
London	498,610
England and Wales (excluding London)	768,449
Scotland	133,521
Northern Ireland	18,600

The growth for the month of June is summarised as follows:—

	London.	Provinces.
Telephone Stations—		
Total at June 30	498,610	920,570
Net increase for month	2,898	6,366
Residence Rate Installations—		
Total	101,586	169,381
Net increase	1,096	1,957
Exchanges		
Total	109	3,940
Net increase	—	15
Call Office Stations—		
Total	4,523	16,126
Net increase	28	95
Kiosks—		
Total	290	1,873
Net increase	23	64
New exchanges opened under Rural Development Scheme—		
Total	—	911
Net increase	—	16
Rural Party Lines—		
Total	—	9,932
Net increase	—	15
Rural Railway Stations connected with Exchange System—		
Total	—	779
Net increase	—	14

As a result of the general strike, the volume of inland trunk traffic dealt with during May (the latest statistics available) was exceptionally heavy. Altogether 8,641,893 calls were made, an increase of 1,438,181 or 20% over the total for the corresponding month last year.

The number of outgoing Anglo-Continental calls made during May was 21,237 or 3,348 more than in May, 1925. Incoming calls numbered 25,164 representing 54% of the bothway traffic.

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

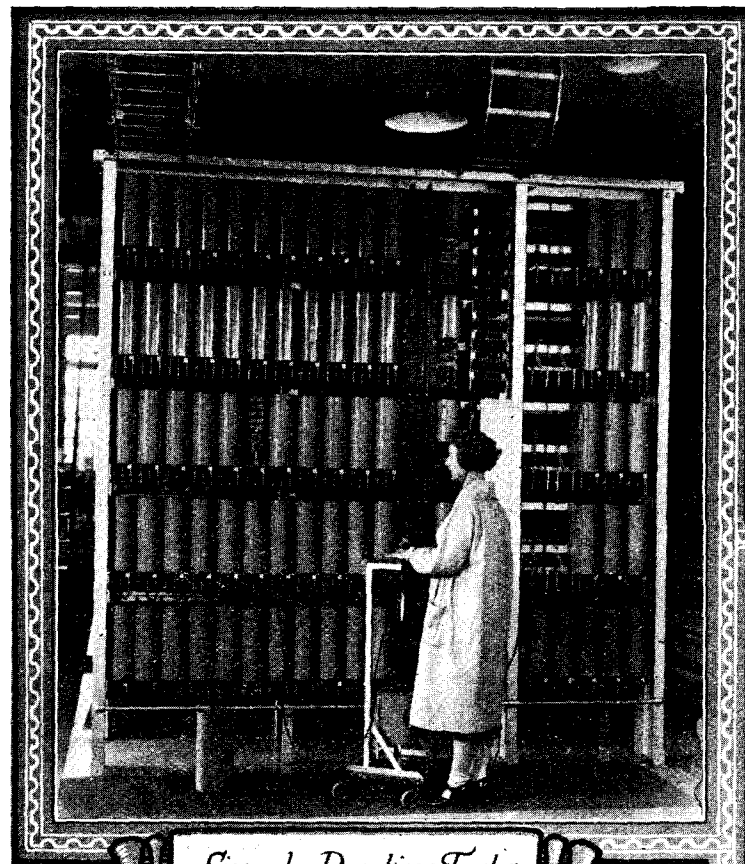
PROVINCES—Swindon.

and among the more important exchanges extended were:—

LONDON—Enfield, Ilford, Maida Vale, Woolwich.

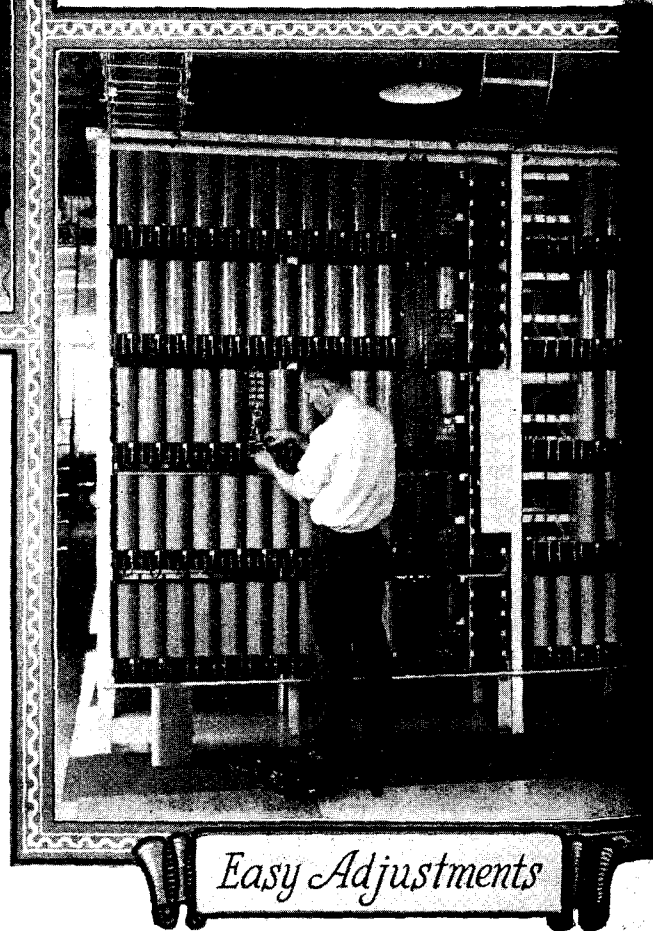
PROVINCES—Douglas (Glasgow), Gravesend, Londonderry, Rochdale.

50 new overhead trunk circuits were completed, and 46 additional circuits were provided by means of spare wires in underground cables.



Simple Routine Tests

In scores of Strowger Automatic Exchanges in all parts of the World girls perform the simple routine tests that keep the equipment in good order and insure reliable service to the telephone user.



Easy Adjustments

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<i>Managing Editor - - -</i>		W. H. GUNSTON.

NOTICES.

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

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EUROPEAN TELEPHONE PROGRESS.

A CONSIDERABLE number of the statistical returns of the chief European telephone administrations for 1925 are now available and go to show that a distinct improvement in the rate of development is taking place. Without the figures for Denmark, Italy, Spain, Poland, Czecho-Slovakia and many other states the total increase in the number of telephones over 1924 is 495,000 and will in all probability amount to 550,000 when the returns are complete. The excess of 1924 over the previous year was 501,000, the largest then recorded. In Germany 202,839 telephones were added, an increase of over 8%, in Great Britain 115,632 (9%), in France, including Algeria 77,249 (over 11%), in Belgium 21,278 (over 15%), in Russia about 20,000 (over 13%), in Sweden 16,276 (nearly 4%), in Holland 11,452 (5%) and in Switzerland 10,491 (over 5%).

A recent report on the Russian telephone system admits that their total of 171,000 telephones is an "extraordinarily insignificant figure," and hints at considerable reconstruction and expansion in the immediate future. When also the telephone companies which are reorganising the backward systems of Spain, Italy and Greece begin to show results, there is reason to suppose that an even more marked progress in European development will be observable.

It may be remarked that the percentage increase in America in recent years is in the neighbourhood of 5%, while the percentage increase in Europe is about 8%. The increase in the United States last year was 4.8% and in Canada 6%. In France, Great Britain and Germany it was, as we have seen, 11, 9 and 8% respectively. This would suggest that Europe is very slowly, but surely, overtaking America if it were not necessary to bear in mind that, after a certain incalculable point, as the telephone density becomes higher the percentage increase becomes lower. It depends upon the speed with which the European figure of 8 descends to the American figure of 5, and on the rate at which the latter figure descends still lower, whether Europe is ever to come up with America at all. We should hazard a guess that the European increase will remain at about 8% for several years to come, whilst the American figure will gradually drop to 4; but we leave this fascinating study to those who are experts in the mathematics of conjecture.

HIC ET UBIQUE.

WE learn that the Belgian Government has decided to place the telegraph and telephone system on an industrial basis. A company is to be formed entitled the "Société Nationale des Télégraphes et Téléphones Belges," with a capital of 1,800 million francs, 1,500 million francs of which will be issued to the public as preference shares while 300 million francs will remain the property of the State as capital shares.

Although the telephone has for some time existed in Caithness, it had not penetrated Sutherland till last month when exchanges were opened at Dornoch and Golspie. We believe that telephone exchanges now exist in every county in England, Scotland and Wales.

The State Telephone Department of Czecho-Slovakia, says *The Electrical Review*, has decided to convert the manually-operated system in the large Moravian industrial town of Mährisch-Ostrau to automatic working. For the conversion the "Relay" system has been selected and, according to the scheme already prepared, there will be a central exchange of 2,500 lines initially, which will later be extended to 7,000 lines and will be capable of further extension to 10,000 lines. In addition to the main exchange at Mährisch-Ostrau, six local exchanges will be erected, one for 200 lines in Witkowitz and others in Marienberg, Radvanitz, Hohenstadt, Kruschen, and Schonbrunn.

The number of telephone subscribers in Newchwang, China, increased from 1,300 to 1,409 during the period from Nov. 1, 1925, to April 1, 1926. A long-distance line connecting the districts of Mukden, Penchihu, and Lisoyand was recently put into operation.

The English end of a submarine telephone cable from La Panne, Belgium, was recently landed at Dumpton Gap, Broadstairs. It is said to be the largest of its kind in the world, and will enable 21 conversations to be carried on simultaneously.

We have heard of a somewhat cryptic racing formula : "Horses for courses." We think we could supplement it by a truer one: "Cables for fables": for the Anglo-Continental service continues to provide the Press with the most extraordinary material for strange stories. A well-known London daily recently had the following paragraph:—

"The cable which will carry the new direct circuits to Germany was laid in May from a point near Broadstairs to a spot near Gris Nez, but it cannot be put in operation until the land lines in Holland and France are put in order."

The writer of this sentence has contrived to confuse inextricably the Anglo-French, the Anglo-Belgian and the Anglo-German services.

The cable carrying the direct Anglo-German circuits was laid from a spot not near Gris Nez but near Domburg (Zeeland) to a point not near Broadstairs but near Aldeburgh (Suffolk). No French land lines are connected with it in any way whatever.

The cables landed at a point near Broadstairs (Dumpton) run not to Gris Nez but to La Panne (Belgium).

The cables laid to a spot near Gris Nez run from points not near Broadstairs but near Dover.

The annual report of the New York Telephone Company shows that this company now own about 2,500,000 telephones in New York State, Northern New Jersey, and a small part of Connecticut. Nearly 1,450,000 of these are in New York City and some 62,000 in other parts of New York State. During 1925 526,764 new telephones were installed and 328,665 discontinued, a net gain of 198,099.

We congratulate Mr. H. F. E. DEANE on his promotion to the Deputy Chief Inspectorship of Telegraph and Telephone Headquarters Traffic Section, in place of Mr. Stuart Jones, and Mr. G. T. ARCHIBALD who becomes Inspector and Mr. H. W. DUNNE who becomes Assistant Inspector (Class I).

We have received the Rules and Bye-Laws of the Royal Corps of Signals Dinner Club, which is about to be formed:—All Regular Officers serving or who have served in the Royal Corps of Signals, or Signal Service Royal Engineers, are eligible to become Members of the Club. Regular Officers seconded for service with the Royal Corps of Signals, Officers of the Royal Corps of Signals, Territorial Army and Supplementary Reserve, and Officers who held temporary commissions in the Signal Service Royal Engineers during the Great War, are eligible to become Honorary Members of the Club. The Hon. Secretary's address is: Royal Signals Dinner Club, War Office, Whitehall, S.W.

An advertisement in *Punch* depicts an irascible gentleman of the Comic-opera Major type shouting into the telephone: "—! Didn't I tell you to *always* send Schweppes soda-water?"

A Berwick correspondent sends us the cutting with the comment: "The telephone service *must* be bad when it causes such a pleasant gentleman to split his infinitives!"

A young woman was recently fined 40s., with 10s. costs for smashing the mouthpiece and receiver of a public telephone after having failed to obtain a number. A certain undercurrent of

sympathy with her was manifested in the lighter columns of a considerable section of the Press.

Appropriate to the occasion is the

(GHAZAL OF THE PETULANT-PUGNACIOUS.

O ye who are so mean of soul as to exhibit self control,
Truly, in these flamboyant times ye play a pitiable rôle!
Life's small vexations should not be endured with equanimity
But rather should afford a good excuse for some diversion droll,
So much there is when one's annoyed which may be damaged or destroyed
That who would suffer Time's rebuffs and take no compensating toll?
When trains are late the patient wait in furious or fretful state—
They rarely smash a signal-post or fell a telegraphic pole;
And long in teashops men have sate for waitresses who do not wait,
And never broken coffee-cup or cracked a single sugar-bowl;
And multitudes in cricket grounds have waited for the welcome sounds
Of bells announcing play, in vain, and never dug a pit or hole
Upon the wicket nicely swept and scientifically kept,
To mark their pain because the rain their wasted day's amusement stole;
And some there are who boo and shout when they might burn the grand-stand out
Or stone the wretched referee who disallows a home-side goal.
But why? For can it be gainsaid that those who are high-spirited
And show a manly temper gain more sympathy upon the whole
Than those who patiently withstand the cuffs of Fate's uneven hand?
If so, a truce to self-control. Perchance a few more years shall roll
Ere those who cannot brook delay and want in everything their way
And "shout the odds" shall be as gods and wear a modest aureole.

W. H. GUNSTON.

ELECTRICAL COMMUNICATION IN RUSSIA.

TELEGRAPHS.—Great improvement in telegraphs was attained in 1924/5 as may be seen by the speed of transmission of telegrams: the average time taken in 1923 was 2 hrs. 27 mins., in 1924 1 hr. 45 mins., in 1925 1 hr. 27 mins., and at the present time 1 hr. 7 mins. (Delivery from the receiving station to the addressee takes on the average 45 mins. more.)

Most of our telegraph lines are of iron which prevents us from using high frequency currents so as to use one and the same line for telegraphic and telephonic communication at the same time. We are doing it where we have bronze cables. During the next year a bronze wire is to be erected to Tiflis and Baku.

TELEPHONES.—There is a colossal demand for telephones. Telephonic communication is the most profitable branch of our work, but it is still in a very ruinous state. Telephones have not been renewed in the towns for ten years, and all the exchanges are of the old system. Our new construction will be on the most modern automatic system. On April 1, 1926, we had 171,000 telephones in the whole country, which is an extraordinarily insignificant figure. Up to this year we had telephones in 2,059 "volosts." This year 615 are to be added to that number, 865 in 1927, and 470 in 1928. All the "volosts" should have telephones in the course of three years.

Of late, telegraphic communication between Europe and the Far East has mostly been passing through the U.S.S.R. A telegram from Pekin to New York costs five times as much by the Pacific cable as it does through the U.S.S.R.

For Wireless Telegraphy, we have 49 receiving-transmitting stations, and 283 for receiving only.

(Extract from report of the Commissary of Posts and Telegraphs of the Soviet Union.)

THE RUGBY RADIO STATION OF THE BRITISH POST OFFICE.*

BY E. H. SHAUGHNESSY, O.B.E., M.INST.E.E.

(Continued from page 250.)

The aerial insulators are of the porcelain-rod tension type weighing $6\frac{1}{2}$ cwt. and are shown in Fig. 25. The specified testing pressure which the insulators had to withstand was 120,000 volts at a frequency of 50,000 cycles per second.

Each porcelain tube of the aerial insulator was tested to a load of 10 tons. The complete insulator will thus withstand a pull of over 20 tons. Electrical tests made previous to erection showed that 200,000 volts at 50,000 cycles per second could be applied across the ends without damage. The insulators were made by Messrs. Bullers, Ltd.

Spider spreaders of tubular steel, 12 ft. in diameter, and spaced 140 ft. apart, are used to support the eight 7/14 S.W.G. silicon-bronze wires that

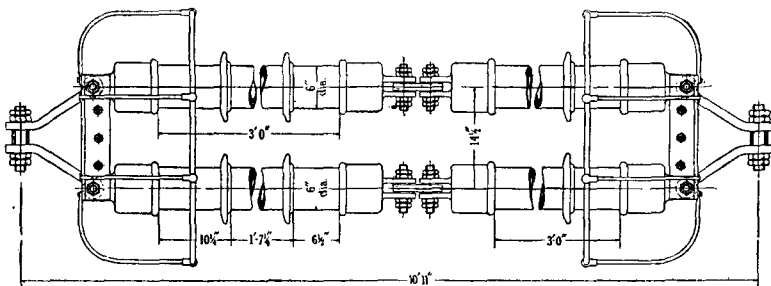


FIG. 25.—Aerial insulator. Scale $\frac{3}{4}$ in. = 1 foot.

form the cage aerial. In order to reduce the dip of aerial, it was essential to design spreaders having small mass, without undue sacrifice of strength. The type decided upon, as best meeting these requirements, is shown in Fig. 26. The split hubs of each spreader are tightly clamped to a central steel supporting cable. All radial arms and circumferential ties are composed of weldless carbon steel, containing about 0.5% of carbon, with a yield point of 30 tons per sq. in. and an ultimate breaking stress of 40 tons per sq. in.

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

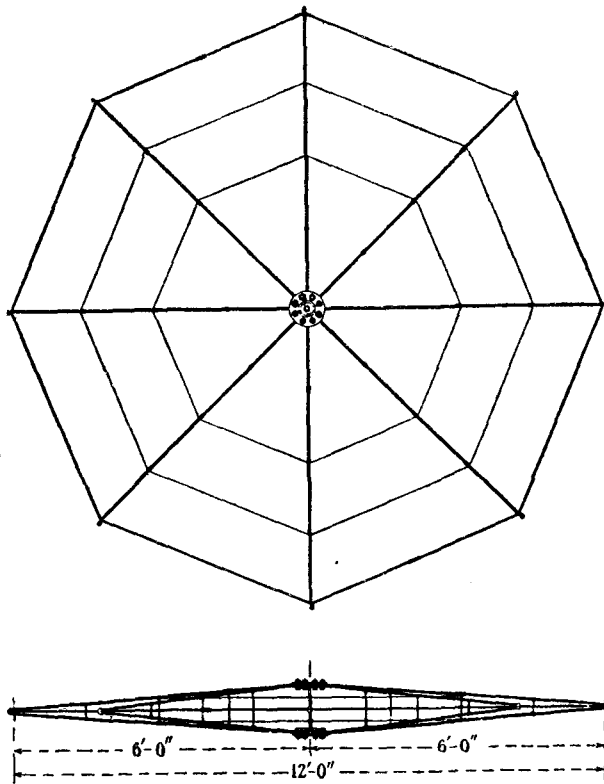


FIG. 26.—Aerial spreader.

In spite of their light structure the spreaders have withstood the severest gales without apparent damage. At each mast the aerial insulator is attached to the steel wire cable at the junction of two spans of the cage aerial and the aerial is held in space well away from the metal masts.

The two 8-wire feeders are formed on spreaders 6 in. diameter spaced 20 ft. apart. They meet at a point about 400 ft. from the building and are joined to form a single 16-wire lead-up on 6-in. spreaders. The tension of the lead-up wires is taken by 6 porcelain tubes, similar to those used in the main aerial insulators, suspended on a steel structure near to the building. The 6 tubes are arranged to form 3 arms 120° apart, each arm comprising two tubes in series. From these strain insulators, the lead-up wires pass through a copper tube about 19 ft. long that bridges the space between these insulators and the transmission building. At the building the tube carrying the lead-up wires passes through the middle of a double conical porcelain insulator fixed at the centre of a glass plate, 7 ft. square, and the lead-up wires then pass from the tube to the aerial tuning inductance.

In order to avoid either the overloading of the mast or the breaking down of the aerial, the steel rope supporting the aerial insulators passes down the centre of the mast and is attached to a drum fitted with a slipping friction brake so adjusted that the rope is slackened when the load exceeds 10 tons.

The earth system on the telegraph site consists of copper wire, 100 lb. per mile, buried a few inches below ground. The earth follows the plan of the aerial and extends 800 ft. on either side of the vertical projection of the aerial on the ground, as shown in Fig. 27. Near the buildings the wires leave the ground and converge upon the transmitting room in a fan arrangement.

An insulated counterpoise has been erected under the smaller aerial at an average distance of about 16 ft. from the ground. The counterpoise follows generally the earth system in arrangement, except that the spacing between individual wires is not uniform but varies from 40 ft. immediately below the cage aerial to 80 ft. at the edges.

Observations have been made on the effectiveness of the insulation at the base of the mast by comparative measurements of the aerial resistance and the effective height with the masts insulated and connected to earth.

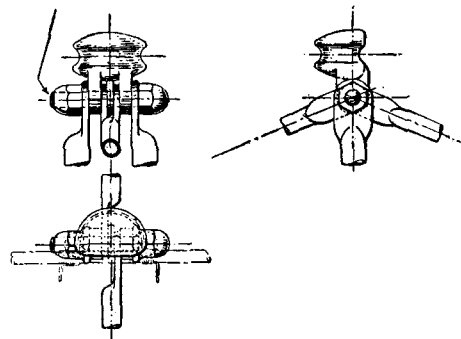
These observations show that the ratio of the effective height of the aerial with the masts insulated to the effective height with the masts earthed is 1.22. The effective height with masts insulated as deduced from measurements made at Wroughton near Swindon is approximately 185 m (607 ft.). The mean geometric height of the top of the aerial at Rugby is 820 ft.—45 ft. (average dip of aerial) = 775 ft.

The effective height with mast insulated is therefore $607/775 = 0.785$ of the mean geometric height, or $607/820 = 0.74$ of the mast height.

Fig. 28 gives the resistance of the aerial with masts insulated and masts earthed respectively. At 19,000 m wave-length the aerial resistances with masts insulated is 0.7 ohm, and the aerial resistance with the masts earthed is 0.55 ohm.

Fig. 29 shows that the use of inefficient insulators for masts practically doubles the aerial resistance. Such inefficient insulation is obtained when the

NOTE:—
End of bolt to
be cut off flush
with nut



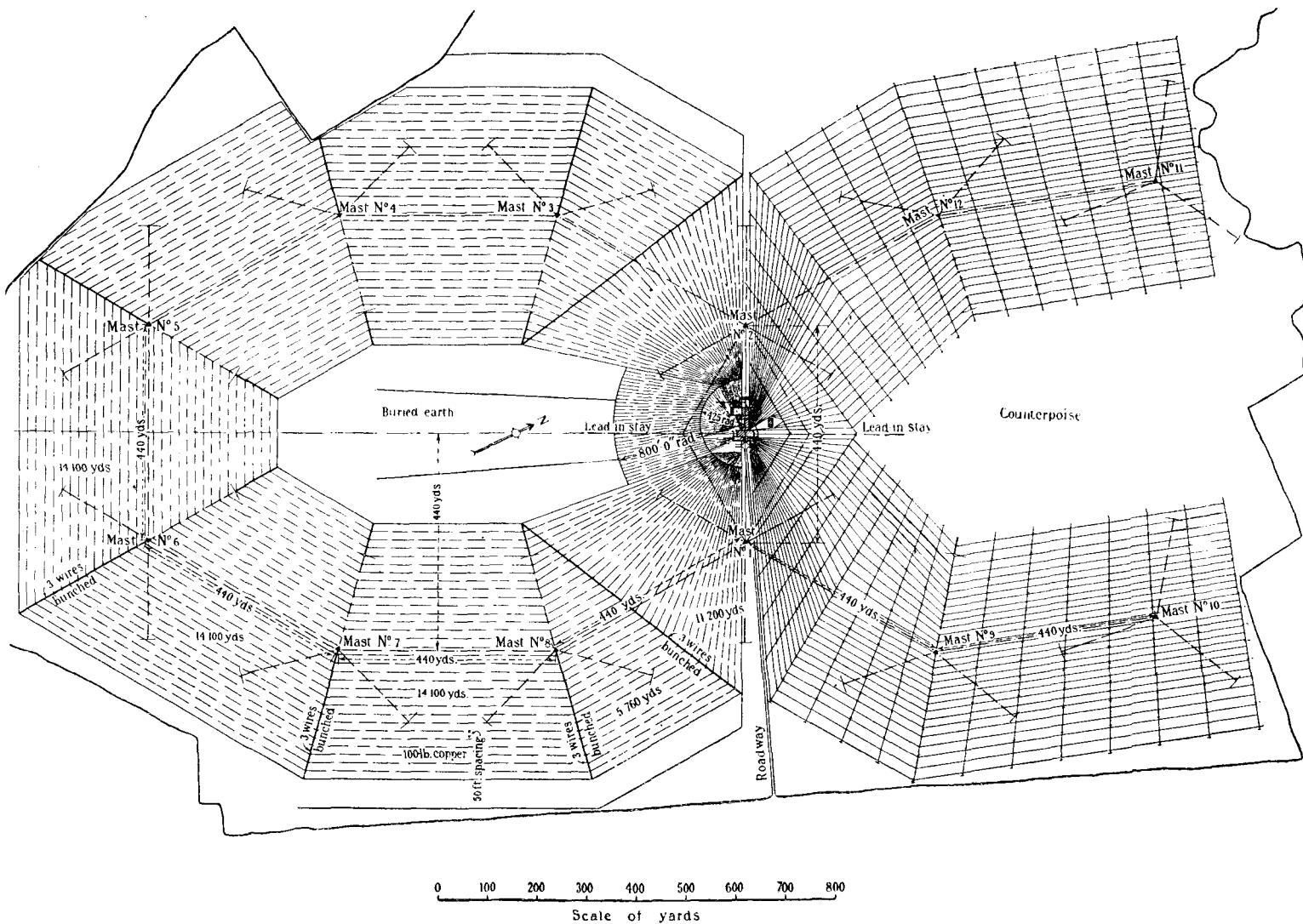


FIG 27—Earth system.

porcelain insulators only are short-circuited and the granite blocks alone are used as insulators.

The larger telegraph aerial constants with the mast insulated are, wave-length 7.930 m, capacity 0.0334 μ F, and equivalent inductance 530 μ H.

To enable overhauls and examination of masts to be made, it is desirable to be able to transmit with a particular mast earthed, as work on an insulated mast is impossible during transmission. The curves in Fig. 30 indicate the effect on the larger telegraph aerial resistance of earthing either No. 1 mast (which is nearest to the station) or No. 6 mast (which is at the end of the aerial).

The d.c. insulation resistance of a mast to earth, including all stay insulators, varies between 1.5 and 3 megohms according to weather conditions.

The insulation resistance of the whole aerial to earth with masts insulated is 8 megohms.

The resistance of each granite block is approximately 20,000 ohms, but the value steadily rises as the granite slowly dries out. The effect of the dielectric current in the granite is to drive out moisture gradually from the interior. This action, combined with absorption by the atmosphere in the spring and summer, will raise the insulation to a maximum value and the granite blocks will then be completely coated with bitumastic solution to retain them in a dry state. Bitumastic solution has been tried experimentally for this purpose and proved to be satisfactory. The method outlined for slow drying under working conditions was decided on as the results of tests made on granite specimens and in order to obviate the risk of moisture remaining in the granite if the blocks were coated with bitumastic solution before erection.

The voltage-drop across the mast insulators was found to be 12,000 volts, and the drop across the stay insulators 12,300, volts with an aerial voltage of approximately 165,000, corresponding to an aerial current of 550 amperes.

Curves of the resistance of the smaller telegraph (telephone) aerial and counterpoise are given in Fig. 31. In order to obtain information, measurements were taken both before and after the far ends of all the wires of each

arm of the counterpoise were connected together. The smaller telegraph (telephone) aerial constants are, wave-length 4,850 m, capacity 0.0164 μ F, and equivalent inductance 994 μ H.

COOLING POND.

A stream running through the site is utilised to supply the cooling water, and a ferro-concrete cooling pond capable of storing 500,000 gallons of water was constructed by direct labour.

GENERAL RESULTS OBTAINED TO DATE.

The following schedule gives two typical series of measured values of the more important quantities when working on one portion of the aerial only, viz., that having a capacity of 0.033 μ F.

Number of power units in use	3	3
Total number of valves in power units ...	54	54
Aerial circuit { Current ...	550 amps.	600 amps.
{ Power ...	257 kW	306 kW
Primary circuit current ...	275 amps.	300 amps.
Coefficient of coupling to aerial ...	0.015	0.015
Efficiency of coupled circuit { Voltage ...	97½ %	97½ %
{ Current ...	5,820 volts	6,780 volts
D.C. Input { Power ...	61 amps.	64 amps.
{ Power ...	355 kW	434 kW
Filament power ...	48 kW	48 kW
Efficiency { Excluding filament ...	72%	71%
{ Including filament ...	64%	64%
Voltage on antenna ...	165,000 volts	180,000 volts

These figures are for about two-thirds power of the station, and the present limitation is the fact that only a portion of the main aerial is available, and this is already being used at antenna voltages in excess of 165,000 volts. With this power, however, the station has been proved to have a world-wide range, and only the collection and scrutiny of data over a long period will

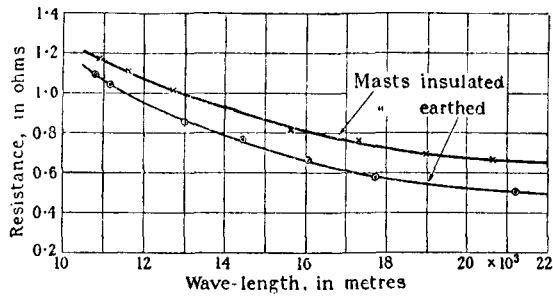


FIG. 28.—Curves of aerial resistance with masts insulated and earthed.

show to what extent, if any, an increase of power is necessary for a continuous world-wide service. From the experience already gained it can be predicted that, if it is proved to be necessary, 3 power units using a d.c. supply of about 9,000 volts will be able to give an antenna current of the order of 750 amperes in the larger antenna of 0.045 μ F, with an increased overall efficiency.

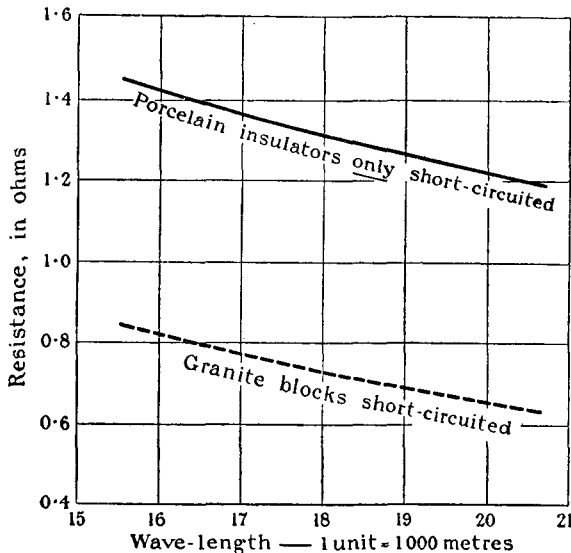


FIG. 29.—Curves of 8-mast aerial resistance with insulators partly short-circuited.

Tests taken first week in November, 1925. Ohmic resistance of each granite block = 12 000 ohms. Ohmic resistance of porcelain insulators under each mast = 3 megohms.

It is interesting to note that during the several months that the telegraph station has now been testing and working commercially with type D circuit, not a single complaint has been received in regard to interference with broadcast or other reception by harmonics from the telegraph transmissions, and, moreover, broadcasting stations have been received without interference, on the site under the aerial.

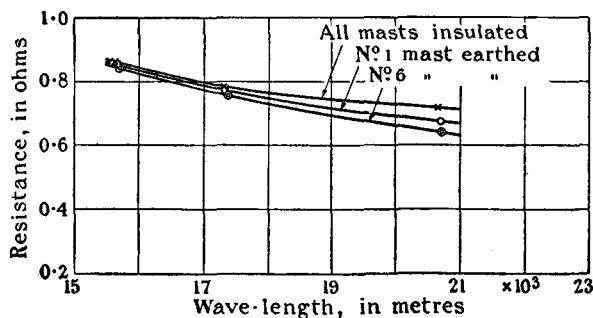


FIG. 30.—Curves of aerial resistance, earthing separate masts.

EXPERIMENTAL TELEPHONY INSTALLATION.

The experimental telephony installation is smaller than the telegraphy installation and works with the smaller aerial. It utilises the American Telephone and Telegraph Co.'s "single-side-band" system, described by the late Dr. H. W. Nichols.* The modulating and filtering circuits, and the valve amplifying panels were made and installed by the Western Electric Co., Ltd., in co-operation with the American Telephone and Telegraph Co.

From Jan. 31 to the present time† a period which covers the best radio transmission conditions in this country, experimental week-end tests show that good speech is received in New York during most hours of the day when using an aerial current of about 185 amperes. This installation may form the subject of a separate paper when reliable data have been collected over the period of bad atmospheric conditions.

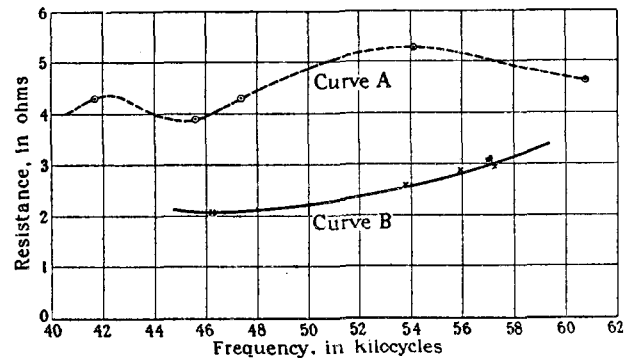


FIG. 31.—Resistance curves of telephony aerial

Curve B shows the effect of joining together the ends of all the wires of each arm of the counterpoise. Counterpoise insulated in each case. Insulation resistance about 60,000 ohms.

In addition, two other installations to work with smaller aerials supported on the existing masts are being provided. One will be a medium-wave 50-kW valve set, and the other a short-wave 15-kW valve set.

CONCLUSION.

As liaison member between the Wireless Telegraphy Commission and the Post Office, the author would like to remark on the cordial collaboration which existed between the Commission and his engineers throughout the progress of the work, and in conclusion he desires to acknowledge the valuable help received in writing this paper from the Post Office Engineers directly responsible for the various sections of the work, namely, Mr. A. J. Gill on the power plant, Mr. R. V. Hansford on the wireless plant, and Col. A. S. Angwin and Mr. T. Walmsley on the masts, aerial and external plant.

PRESENTATION TO MR. MEAKING, STAFF OFFICER.

ON leaving the North Midland District for a similar post at Birmingham, Mr. Meaking, Staff Officer, was the recipient of a fine antique clock in oak, the gift of the staff. The presentation was made by Mr. Haley, District Manager. Although Mr. Meaking was only a few months at Nottingham—he was the first Staff Officer of the newly formed North Midland District—he has earned the respect and esteem of the whole staff. By his unflinching tact and sympathetic consideration for the staff, he helped to reconcile them to the inevitable inconveniences which accompanied the early days of amalgamation, and he materially assisted in overcoming them.

Sincere regret was felt on all sides when it was known that Mr. Meaking was leaving Nottingham.

TOUJOURS LA POLITESSE.

AN old maid who lived in a London suburb was shocked at the language used by the men working on telephone wires near her house.

She wrote to the engineer about it, and the foreman was asked to report. His report included one submitted by one of the workmen accused of using bad language, who explained as follows:—

"Me and Bill Fairweather were on this job. I was up the telephone pole and accidentally let the hot lead fall on Bill. It went down his neck. Then he said, 'you really must be more careful Harry'."—(Forward, Glasgow).

* Journal I.E.E., 1923, vol. 61, p. 812.

† (March, 1926).

BRITISH TOWNS AND THEIR AMERICAN AND COLONIAL NAMESAKES.

A TELEPHONIC COMPARISON.

As we know, it is a frequent practice of colonists when founding a township in a new country to give it the name of their native place. The United States, Canada, Australia and New Zealand abound with cities and towns bearing the names of British places. Sometimes a small town or village in the new world bears the name of a great city in the mother country, but more often it will be found that the new settlement has grown into a vast city while the old market town or parish in England after which it is named remains comparatively stationary in growth. It is interesting to compare the telephone development of a number of the principal places abroad with that of their namesakes in Great Britain.

	Telephones.		Telephones.
Boston ... Massachusetts ...	393,000	Lincolnshire ...	527
Portland ... Oregon ...	84,000	Dorset ...	89
Newark ... New Jersey ...	77,000	Notts ...	416
Rochester ... New York ...	55,000	Kent* ...	1,494
Worcester ... Mass. ...	38,000	Worcester ...	1,109
Richmond ... Virginia ...	35,000	Surrey ...	4,349
Birmingham ... Alabama ...	32,000	Warwick ...	40,500
Lynn ... Mass. ...	24,000	Norfolk ...	562
Hamilton ... Ontario ...	23,000	Lanark ...	644
Reading ... Pennsylvania ...	23,000	Berks ...	2,783
Lincoln ... Nebraska ...	20,000	Lincolnshire ...	1,576
Lancaster ... Penn. ...	17,000	Lanes. ...	1,013
London ... Ontario ...	15,000	(Middlesex, Surrey, Kent, Essex) ...	476,100
Flint ... Michigan ...	15,000	Flintshire ...	108
Manchester ... New Hampshire ...	14,000	Lancs ...	63,000
Windsor ... Ontario ...	12,000	Berkshire ...	976
Halifax ... Nova Scotia ...	11,700	Yorkshire ...	3,141
Perth ... Western Australia ...	10,000	Perthshire ...	1,342
Christchurch ... New Zealand ...	9,632	Hants ...	267
Chester ... Penn. ...	7,000	Cheshire ...	2,432
Salisbury ... Rhodesia ...	677	Wilts ...	964

* Chatham Exchange.

Comparisons between Boston, Mass., and Boston, Lines, on the one hand, and between London, Ont., and London, Eng. (as our American friends style it) on the other are amusing rather than instructive. Some of the towns of the same name are places of importance on both sides of the Atlantic, such as Birmingham, Reading and Rochester, but even in these cases the differences in the respective populations are very large. W. H. G.

TELEPHONE NOTES.

ANOTHER indication of the progress being made in the installation of facilities for telephonic communication between the important cities of Europe says *Telephony*, is the completion by the Czecho Slovak Telegraph administrations of a telephone cable between Prague and Kolin. The cable is of lead covered armoured type, 58.7 km. in length, and, according to the plans of the administration, will be extended to Bratislava (Pressburg) to take the long distance telephone traffic between the Czech and Slovak capitals.

Repeaters have been installed at Prague and Kolin to link up the cable with the existing open wire network.

The cable is being extended to Jihlava (Iglau), a distance of 84 km.

* * * *

The question of costing is becoming one of increasing importance to the Telegraph and Telephone Traffic staff, and in a communicated article *The Electrical Review* urges the need for close attention in order to secure accurate results in this important branch of industrial science.

The writer points out that costing is now rapidly becoming a separate and distinct science of its own. It is not accountancy, and it is not economics, but something between the two, and yet different from either. What really matters in the training of a specialist in costing is practical knowledge of the process which he has to cost.

Though a little costing is now included in the syllabus of training of a chartered accountant, the majority of accountants realise and admit their inability to tackle costing problems, because they have had no opportunity of studying "shop practice."

The wisest of them, consequently, leave costing to those who have made a special study of the subject and have had the essential advantage of practical experience in the particular process.

* * * *

Two articles of outstanding interest appear in the July issue of the *Post Office Electrical Engineers' Journal*. In one, Mr. A. B. Hart describes very fully the new London-Glasgow Trunk Telephone Cable and its Repeater Stations. The second article from the pen of Dr. Maitland deals with Maintenance Experience in Automatic Telephone Exchanges in Amsterdam.

Both contributions furnish striking evidence of the developments now taking place in the art of Telephony, and afford some indication of the complexity of the problems of modern telephone engineering work.

* * * *

The Department of Overseas Trade announces, says *The Electrical Review*, that according to the annual report just published by the Swedish Telegraph Administration, the number of telephones in use throughout that country in 1925 amounted to approximately 434,594 or about 72 instruments to every 1,000 inhabitants (Stockholm 282 per 1,000 inhabitants).

The total number of conversations recorded amounted to 640,318,200 in 1925, compared with 609,843,400 in 1924, showing an increase of 5%.

At the end of 1925 there were 3,604 telegraph stations in Sweden compared with 3,566 in 1924.

* * * *

A sum of 100,000,000 marks is to be used, says *The Electrical Review*, by the German Post Office authorities for the development of the telephone system of the country. Most of this amount is to be devoted to expediting the completion of the work of introducing automatic exchanges and the laying of further long distance cables.

H. J. E. S.

CORRESPONDENCE.

WOLVERHAMPTON EXCHANGE.

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

DEAR SIR,—I notice in your August issue, on page 245, a short paragraph in which it is stated that a Wolverhampton paper puts in a plea for that town as the possessor of the first exchange. Whilst I agree that Wolverhampton had one of the earliest exchanges I am in a position to state positively that the above-mentioned plea is an entirely mistaken one. The Wolverhampton telephone exchange was not opened until about a year after the Birmingham exchange, which was established at the end of 1879; the latter having been preceded by London, Manchester and Liverpool, which were opened in the order mentioned.

Shortly after the Birmingham exchange was opened by The Midland Telephone Exchange, a syndicate which was formed into The Midland Telephone Company, Limited, early in 1880, Mr. Thomas Ironmonger, of Wolverhampton, who was one of the directors, urged the opening of an exchange in his town, and the work was carried out under the direction of Lient. Henry Sandford, R.N., the exchange being established in an upper room over the Free Library in Garrick Street. It was considered necessary before the exchange was opened that there should be intercommunication between the two towns, and negotiations were entered into between the Company and the Post Office for the provision of the latter, on some sort of rental terms, of the necessary trunk lines. When these were erected they were the first I ever saw constructed on the metallic circuit twist, and we used Bennett's translators for connecting with our single wire lines.

I have no doubt that the correspondence regarding these lines which was conducted by Mr. Robert Ryder, the Secretary of the Company, and Mr. C. H. B. Patey for the Post Office could be found if desired in the Post Office registry. The minute book of The Midland Telephone Company, Limited, if still in existence, would also prove it.—Yours truly,

ARTHUR E. COTTERELL.

Beckenham, Kent. August 6, 1926.

OBITUARY.

THE LATE MR. A. E. DUNSTALL.

THE Brighton Post Office and the Telegraph service generally has sustained a distinct loss in the untimely death of Mr. A. E. Dunstall, who was accidentally drowned whilst bathing at Brighton on Aug. 18. Mr. Dunstall, who was only 40 years of age, was attached to the Telegraphs and was a brilliant officer. He took first class honours in the City and Guilds examination in Telegraphy some years ago, and it can truly be said of him that all the work he set his hand to, officially or otherwise, bore the stamp of "first class." Well-read, a polished speaker, and one of the most lovable of men, his passing was deeply regretted by all. He joined the Royal Engineer Signal Service soon after the outbreak of war in 1914 and went out with the 28th Division, seeing active service in France, Belgium, Greece, Egypt and Turkey. It is a melancholy reflection that one who served his country so well, and passed through the countless dangers of the Great War should meet his end whilst indulging in recreation on the shores of his native town.

The funeral on Aug. 21 was largely attended by his former colleagues and friends, amongst whom were ex-members of the old 28th Division. The Acting Telegraph Superintendent, Mr. Richard Sayers, represented the Postmaster (Mr. A. E. Osler) who was unavoidably prevented from attending.

Sincere sympathy is extended to the widow and young daughter left behind to mourn the loss of a devoted husband and father. May they, and we, find some little consolation in the thought expressed by Shelley who, it may be remembered also met his death by drowning, wrote :-

"Peace, peace! he is not dead, he doth not sleep—
He hath awakened from the dream of life." J. S.

THE LATE MR. JAMES LIVINGSTON.

WE regret to record the death, on Aug. 2 last, of Mr. James Livingston who for several years was Chief Superintendent, Telegraphs, Leeds, and who retired from the service in 1917. Mr. Livingston was well-known in the telegraph service, and his death will be regretted by many of his old friends. He was 73 years of age.

CRICKET.

READING v. GUILDFORD (P.O. TELEPHONES).

A very enjoyable cricket meeting took place on July 31 between the staffs of the Reading and Guildford District Managers' offices.

By the courtesy of the Bursar and Sports Committee of the Reading University, the match was played on the University Cricket Ground at Elmhurst Road. The delightful surroundings and a most fortunately-chosen day as regards weather combined to make the fixture a real attraction to visitors, of whom nearly 100 were entertained to tea by the staff of the Reading Office.

The match resulted as follows :-

Reading P.O.T.		Guildford P.O.T.	
P. Luscombe, l.b.w. b. Stewart	3	J. Plant hit wkt. b. Leake	6
C. A. Beasley, run out	6	C. A. Stewart, b. Miller	76
W. Werry, l.b.w. b. Freeman	71	T. Freeman, c. Matthews, b. Miller	15
W. Leake, b. Plant	7	F. Bellam, c. Prince, b. Beasley	1
E. S. Miller, run out	0	G. Howlett, b. Beasley	0
S. Amy, b. Stewart	4	G. Sargent, b. Beasley	0
S. Parsons, b. Ballam	8	C. Burdook, st. Luscombe, b. Miller	1
A. G. Matthews, b. Freeman	7	J. Weller, st. Luscombe, b. Miller	1
F. Simkin, c. Burdook, b. Freeman	0	B. Bailey, st. Luscombe, b. Miller	2
E. Jones, not out	0	J. Hood, c. Prince, b. Beasley	0
H. Prince, b. Bellam	1	A. Mason, not out	1
Extras	21	Extras	8
Total	128	Total	111

Werry, for the home team, and Stewart for the visitors, each played a splendid innings of 71 and 76 respectively. Miller for the home team bowled well.

Messrs. Moorhouse and Tucker (the District Managers for Reading and Guildford respectively) were present, supported by their principal officers.

SECRETARY'S OFFICE C.C. INTER-BRANCH COMPETITION: SEMI FINAL. MAILS BRANCH v. T. & T. TRAFFIC SECTION.

PLAYED AT CHISWICK ON THURSDAY, AUGUST 5.

T. & T. Traffic Section	Mails Branch.		
Magnall, c. Appleby, b. Oakshott	73	Lester, c. & b. Earle	0
Lennox, b. Appleby	3	Appleby, b. Magnall	28
Earle, b. Appleby	4	Viney, b. Findley	12
Key, c. & b. Appleby	10	Oakshott, b. Magnall	28
Higham, b. Abramovitch	2	Wyles, b. Earle	5
Burton, c. Lester, b. Twinn	19	Abramovitch, not out	9
Still, c. Figines, b. Dalby	33	Dalby, not out	0
Leaver, not out	5	Extras	16
Macdonald, not out	0		
Extras	21		
Total for 7 wks. declared	170	Total for 5 wks.	98

Messrs. Findley and Bailey did not bat. Messrs. Twinn, Howard, Sellars and Figines did not bat.

SEMI FINAL (REPLAY).

AT CHISWICK, JULY 16.

T. & T. Traffic Section.	Mails Branch.		
Magnall, not out	103	Lester, c. & b. Magnall	17
Lennox, b. Abramovitch	0	Viney, b. Magnall	8
Earle, c. Lester, b. Abramovitch	10	Appleby, c. & b. Leaver	18
Key, b. Appleby	3	Abramovitch, c. Leaver, b. Magnall	0
Burton, run out	5	Wyles, c. Earle, b. Lennox	10
Beaver, b. Bromley	26	Bromley, b. Magnall	0
Macdonald, c. Rodice, b. Abramovitch	6	Savage, b. Magnall	0
Whiffin, b. Appleby	4	Howard, b. Findley	5
Leaver, not out	0	Rodice, l.b.w. Earle	0
Extras	7	Sellars, c. Leaver, b. Findley	6
		Figines, not out	0
		Extras	3
Total for 7 wks. declared	164	Total	67

Messrs. Findley and Higham did not bat. Magnall 5 for 9.

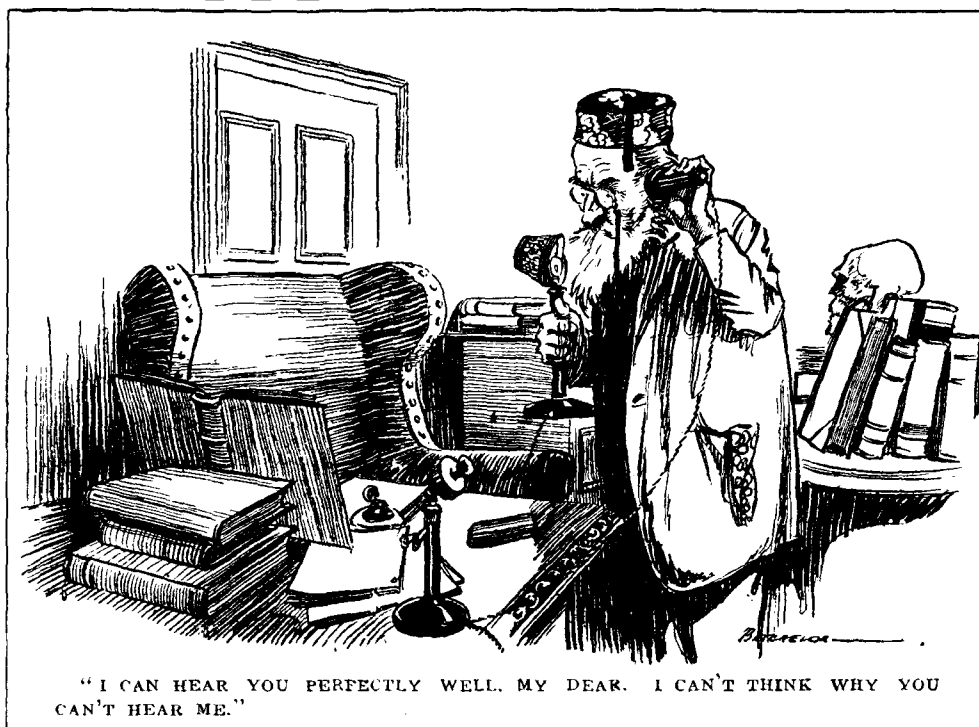
SECRETARY'S OFFICE C.C. INTER-BRANCH COMPETITION.

FINAL ROUND.

AT CHISWICK, AUG. 27, 1926.

Telegraph Branches.	T. & T. Traffic Section.		
Welch, b. Magnall	17	Magnall, c. & b. Hoare	29
Read, c. Leaver, b. Earle	27	Findley, c. Price, b. Moore	0
Moore, b. Magnall	11	Earle, c. Hill, b. Moore	4
Hoare, c. Findley, b. Whiffin	19	Beaver, b. Price	14
Belgrave, c. Macdonald, b. Earle	16	Key, b. Price	10
Price, b. Magnall	29	Burton, b. Price	4
White, b. Magnall	0	Whiffin, b. Price	0
Mallett, l.b.w. Magnall	3	Macdonald, c. Mallett, b. Price	7
Mason, c. Earle, b. Magnall	0	Leaver, l.b.w. Hoare	19
Crowe, not out	1	Higham, b. Read	10
Hill, c. Leaver, b. Magnall	9	Bailey, not out	1
Extras	9	Extras	12
Total	141	Total	110

Magnall took 7 for 70. Price took 5 for 37.



"I CAN HEAR YOU PERFECTLY WELL, MY DEAR. I CAN'T THINK WHY YOU CAN'T HEAR ME."

[With acknowledgments to "The Humorist."]

EDGWARE.

THE THIRD SIDE OF THE TRIANGLE.

A LITTLE knowledge it is said
Is oft a dangerous thing,
And so where ignorance is bliss,
Let us instruction bring,
To those who in the vasty depths
Of darkness always stray,
That thus on their Cimmerian gloom
May shine the light of day.

What do they know of forecasts
Who but the figures know?
The toiling 'neath the blazing sun,
The trudging through the snow,
The lunch deferred unduly,
And taken ill at ease,
Seated upon a stony bank,
With a hunk of bread and cheese.

The blue prints blurred and patchy,
The spottings oft untrue,
Many divisions ill-defined,
And other catches, too.
The snubbings from the agents,
Information sometimes wrong,
Will these green fields be left to bloom?
And if so, for how long?

Which of these houses will be flats?
Will shops come on that site?
Building estates we know will grow
Like mushrooms in a night.
Some neighbourhoods depreciate
While others yet improve,
And populations ebb and flow
For ever on the move.

If Engineers and lesser men
Who forecasting decry,
Think they could make a better show,
Well—let them have a try.

While *Tim Orous* and *Tim Ider*
With modest flutterings pant,
I'll be more bold and sign myself,
Yours truly

VAL I. ANT.

[This metrical controversy must now close.—EDITOR.]

A WIRELESS BIRTHDAY.

TWENTY-FIFTH ANNIVERSARY OF FIRST TRANSATLANTIC MESSAGE.

As this year witnesses the twenty-fifth anniversary of the first wireless signal sent across the Atlantic, the Marconiphone Company are setting up, at the National Radio Exhibition, which is being held in Olympia from Sept. 4 to 18, a striking tableau of the scene in the low room of the old barracks on Signal Hill, Newfoundland.

Much of the original apparatus used for transmitting and receiving the signal will be on view. The receiving apparatus used on the historic occasion was of peculiar sensitiveness, and a telephone receiver, which was no part of the ordinary instrument, had been supplied so that the slightest clicking might be conveyed to the ear.

It was through this receiver that Mr. Kemp, who had accompanied Marconi to Newfoundland for the event, heard the three dots of the Morse telegraphic "S," transmitted from Poldhu, Cornwall, which announced that wireless had conquered the Atlantic.

Mr. Kemp himself will be present at Olympia.

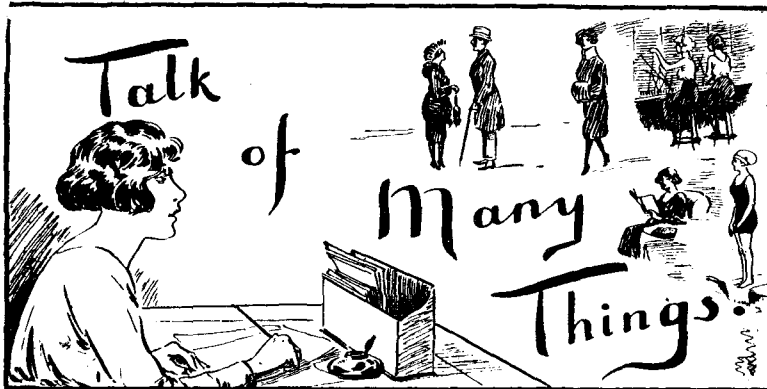
CIVIL SERVICE ARTS COUNCIL (OPERATIC AND DRAMATIC SECTION).

The Civil Service Arts Council are holding a special General Meeting in Room 209, Treasury Chambers, Whitehall, on Monday, Sept. 20 next, at 5.30 p.m., at which the chair will be taken by N. Curtis-Bennett, Esq., C.V.O.

This meeting has been called for the purpose of forming a Civil Service Operatic and Dramatic Society, and it is hoped that every Civil Servant interested in such a society will endeavour to be present. The Council are of the opinion that with sufficient support a society worthy of Service traditions can be formed, and it is hoped that this meeting will prove the beginning of an all-Service Operatic and Dramatic Society.

Further particulars respecting the meeting will be supplied on application to the Honorary Secretary of the Operatic and Dramatic Section: Percy W. Nash, Adj. Branch, Post Office Savings Bank, W. 14 (phone, Riverside 2000, Ex. 108).

WE TELEPHONISTS



The Sins of the Fathers.

There is a great deal of satisfaction to be obtained from saying "I told you so." It implies wisdom, foresight, and infallible judgment based on lengthy experience and acute observation. It implies also that the weighty and sober advice, rendered in the face of obstinate and unreasoning opposition, has at last been justified. The humiliation, too, of those who would not heed our words is as a sweet odour in our nostrils. From the point of view of those at whom the remark is aimed, few if any phrases are more exasperating or better suited to lash them into impotent rage. But for the incompleteness of criminal statistics it could no doubt be proved that many crimes of violence arise directly as a result of the use of these words. Violence indeed, is the only answer, the only effective means of silencing the mentor and of shattering his smugness and self-conceit.

But sadder still and more hopeless and helpless was the lot of our youth when, surrounded by an admonitory crowd of aunts and uncles, very grown-up sisters and brothers, and possibly even one or more sets of grandparents, we were told that "We never did such things when we were children." It was in the nature of a wholesale condemnation of our character, and it seemed as if nothing that we had ever done or ever could do would save us from a dark and dreadful career of perpetual naughtiness. There was absolutely no defence, and we had perforce either to pout in sullen defiance or to surrender abjectly with a flood of tears. In subsequent reflection, however, the assurance of our elders was viewed with suspicion, although we never dared, of course, to voice our disbelief. In unguarded moments of family confidences had we not heard somewhat of these selfsame relatives? In the light of these revelations it was not possible, indeed it was unthinkable, that we were worse than they. Then, visualising their aged appearance and their general spoil-sport attitude in matters of legitimate pleasure, it was difficult to conceive that they had ever been children. Even if they were once it must have been so long ago that they could not possibly have remembered what they did, let alone what they did not. To remember things you have not done seems almost like forgetting things you have never remembered. Had they been children how could they have avoided doing what we had done—yes, and we jolly well bet they did worse, so there!

Forthwith we would emerge from that critical atmosphere into the forest at the bottom of the garden. There we would regain our self-respect in heroic combats with wild beasts and Red Indians. These latter, not having had the supreme advantage of possessing relatives as pious and spotless as ours were surely worse than us, and deserved therefore to be slain. It was curious, too, how in the heat of battle, the dahlia blooms so often resembled Indians' heads.

PERCY FLAGE.

August Bank Holiday.

Another short holiday has come and—like its predecessors—departed. The lucky ones have had a brief spell in the country or at the seaside. This is the time of the year when London, although the greatest city in the world, begins to pall, and the call of the wilds is strong within us. The rush and roar of the traffic; the scrambling and hurrying of the daily journey; the bricks and mortar which shut out the sky-line; these all tend to tire and depress us.

But come! enough of this picture of ultra-civilisation—let us dwell on another picture.

A glorious stretch of undulating fields, with the ripe corn and barley swaying in the breeze. A long, wide stretch of pasture land, with great trees

clustered here and there. A group of haymakers filling the hay waggons, slowly and rhythmically, for one never hurries in the country? The waggons of bright blue drawn by white horses, and a lovely old sheep-dog, who apparently thinks himself the master of the assembly. Every time the cart moves, Bob (for I am sure that must have been his name), walks along behind it, and at length when it is full he sees it off the field and then scampers about for very joy, as much as to say "Well, I have done my bit, and now for a game and a roll in this delicious hay."

Wild flowers growing in profusion, and the blue sky overhead. London! Why it might be hundreds of miles away—for here is a deep peace, and to think of hurry and bustle would be a desecration.

The picture fades, and here we are back again at the desk, or the switch-room, once more grinding out our own particular little bit of corn, which provides us with daily sustenance.

But, somehow, our outlook has changed—for we have dwelt for a space with Mother Nature, and the vision is with us still.

L. R.

The South London Hospital for Women.

In connexion with this Hospital the staff at Streatham Exchange were asked to assist at the Fete held recently. A Sweet and Cake Stall was taken in hand, and through the generosity of the staff who contributed home-made cakes and sweets, and help from Brixton, Battersea, Hop, Putney, and Wimbledon, a total sum of £18 4s. 3d. was realised and handed over to the hospital.

A warm letter of thanks has been received from Viscountess Cowdray appreciating the help and service rendered by the staff.

E. W. W. (Streatham.)

Those Chimes.

"Alas! those Chimes so sweetly stealing, sweetly stealing on the ear."

Reminding me of wedding bells for friends whom I love dear.

There are lasses at the Hop Exchange who certainly must wed,

And lasses here at Sydenham should down the aisle be led.

For some years past in my blue book

I've kept a list, and often look

At names of those who should be soon

Tripping along on their honeymoon.

I cannot think that all of these—(exclude, of course, myself)—

Deliberately intend to stay upon the old maids' "shelf."

Beneath those blushes deep and red there's more than meets the eye,

I'm sure they know the meaning true of "Coming through the Rye."

A friend I cherished fondly often gave me answers "nay"

When I raised a gentle query *re* the "right one's" sad delay.

She'd say with firm decision "I'll be here for evermore,—

And the years of my glad service will be not less than threescore."

But vanished is now the thoughtful frown,

There's a twinkle of light in the eyes of brown,

When I asked the reason she'd blushing say,

"Harold has stolen my young heart away."

There's a maiden at Sydenham I'll recommend

No knight has yet offered her life to defend.

She once had long hair, but now it is shingled.

(Without my permission, she won't have it bingled.)

When I come across her I oft have to say

"Now, look here! dear child, you are still in my way."

Won't any gay youth with position and fame

Allow me to place a straight line through her name?

If any young man who throughout all his life,

Has been hunting a good lass to make him a wife,

I have fine opportunities, not to be missed,

I have qualified applicants on my long list.

There are grey eyes and brown eyes and blue eyes so fair,

Some maids who are shingled and some with long hair.

He'll find for his choice a remarkable range

If he writes to "G. Turner" at Sydenham Exchange.

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.

AUTOMATIC TELEPHONY

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COURSE "B" deals with:—

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The Course is covered in 12 papers, the inclusive fee (United Kingdom) being 40/-.

The importance of the subject of Automatic Telephony is recognised by the CITY AND GUILDS OF LONDON INSTITUTE. This body now includes AUTOMATIC TELEPHONY as a separate subject in technology, for which a separate FINAL TELEPHONY certificate can be obtained. In this connexion, the correspondence courses of TELEPHONE TUTORIAL will be extremely valuable in assisting students for the Certificate.

Course "A" is now in progress and may be taken at any time. Course "B" will commence during the first week of September.

Enrolment forms and further particulars can be obtained from the Secretary:

Mr. C. W. BROWN, "Merrywood," 5, Montacute Road, Catford, London, S.E.6.

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LONDON TELEPHONE SERVICE NOTES.

Telephonists' Society.

A very attractive programme has been arranged for the Session which commences on October 1, when Mr. J. Hinshelwood will give his presidential address on the subject of "System."

At the second meeting Mr. C. W. Brown, of the Engineer-in-Chief's School of Automatic Telephony, will give a lantern lecture entitled "Automatics in Being." This is a most topical subject and is sure to create widespread interest.

On Dec. 3 Mr. H. G. Corner is to read a paper expressing "Some Thoughts on the Telephone Jubilee."

Two short papers will be read on Feb. 4, the first by Mr. W. Glenny, of the Contract Branch, on "Contract Work as affecting the Traffic Branch," and the second by Miss A. M. Kingshott on "The Operating School."

Automatic telephony will again be the subject on March 4, when Mr. E. S. Abbott will discourse upon "The Human Element in Automatics."



[By kind permission of "London Opinion."]

Competitions will be held as usual, and the successful efforts will be heard at the first meeting of the Session on April 8.

On the lighter side four events are announced. There will be two performances of a new musical play by Miss J. M. McMillan, entitled "Broadcasting," whilst the Annual Dance will be held on Jan. 1 and a Whist Drive on March 18.

It should be noted that the meetings are to be held at the Y.M.C.A. Hall in Aldersgate Street and not at the Y.M.C.A. Central Hall as was the case last session.

* * * *

Sport.

The Accounts and Traffic Branches met on the cricket field at Dulwich Park on Aug. 12, when the Traffic team proved easy winners by scoring 115 runs for 7 wickets against the Accounts total of 52.

The match was notable for a remarkably fine bowling performance by Capt. H. A. Berry, who dismissed four of the Accountants with four consecutive balls and took in all 6 wickets for 26 runs. The scores were:—

Accounts Branch.		Traffic Branch.	
Boston, b. Shepherd	... 3	Cracknell, b. Edwards	... 3
Wright, b. Shepherd	... 16	Miles, b. Young	... 0
White, b. Berry	... 15	Berry, b. White	... 38
Vacher, c. Holdstock, b. Berry	0	Gregory, b. Edwards	... 8
Young, c. Miles, b. Berry	... 0	Webb, c. Mimmack, b. Edwards	0
Edwards, c. Groves, b. Berry	0	Holdstock, c. Mimmack, b. Young	... 16
Mimmack, b. Berry	... 6	Groves, run out	... 37
Mayle, b. Shepherd	... 4	Shepherd, not out	... 8
Pick, b. Berry	... 0	Extras	... 5
Hough, b. Shepherd	... 1		
Martin, not out	... 5		
Extras	... 2		
Total	... 52	Total (7 wickets)	... 115

Messrs. Adams, Mears, and Hancock did not bat.

PERSONALIA.

LONDON TELEPHONE SERVICE.

Promotions to Chief Supervisors:—

Miss E. M. TRINGHAM, at Mountview Exchange.

Miss B. REDMOND, at Western Exchange.

Miss L. J. PITT, at Willesden Exchange.

Promotion to Assistant Supervisor, Class I:—

Miss E. N. BICK, at City Exchange.

Promotions to Assistant Supervisor, Class II:—

Miss M. M. KNAPP, at East Exchange.

Miss G. H. HARRIS, at Mayfair Exchange.

Miss M. A. MEADWAY, at Clerkenwell Exchange.

Miss A. M. KINGSHOTT, at School Exchange.

Miss A. WOODALL, at City Exchange.

Miss E. LADBROOK, at Central Exchange.

Miss M. E. M. ROWE, at London Wall Exchange.

Miss A. L. CAMP, at Holborn Exchange.

Miss D. V. WALLACE, at Hop Exchange.

Miss E. B. HUTCHINGS, at Museum Exchange.

Miss B. E. DAVIS, at Hampstead Exchange.

Miss F. WALSH, at Victoria Exchange.

Miss A. M. YOUNG, at City Exchange.

Miss M. HEAD, at Speedwell Exchange.

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