



NATIONAL ARCHIVES OF IRELAND

NAI/PLIC/1

Archives are subject to copyright and should not be copied or reproduced
without the written permission of the Director of the National Archives

PLIC/1/2626

3105

John Cahalan

claim not entertained - Cash.

Cross of Cash

10th Octr.,

re Claim No. 3105.

Dear Sir,

In reference to above claim I am to inform you that the Committee regret that they are precluded by the terms of reference from dealing with same.

Yours faithfully,

Secretary.

John Cahalan, Esq.,
General Post Office,
Dublin.

PROPERTY LOSSES (IRELAND) COMMITTEE, 1916.

Inspector's Report.

Claim No. 3105.

Name of Claimant John Cahalan Occupation Principal Clerk G.P.O.

Situation of Property General Post Office, Dublin.

Description	Claim	Insurance (if any)	Valuation of Buildings (Commissioner of Valuation)	Inspector's Valuation of full Damage	Loss Payable on basis of Insurance	Excess of Loss over and above amount payable under the Policies of Insurance
Cash	4. 12. 0.			---		
<p><i>I Inform that this is a claim for the loss of cash which is included by the terms of reference for dealing with his claim.</i></p> <p><i>II loss in Reg. is admitted by Commissioner Done D.O.P. 11-10-16</i></p> <p><i>III Return to me 9/10/16</i></p>						
TOTALS, £	4. 12. 0.			---		

Interests in the buildings

Remarks

I have no alternative but to disallow this claim under the terms of reference.

Signature Herbert Jones

Date Sept. 25th 1916

Award of Committee: Contents _____

Do. Buildings _____

3105

General Post Office,
Dublin.

17 July 1916

Dear Mr. Healy.

I enclose my
Claim for loss of the money
of the Telephone Journal
in the G.P.O. fire and I hope
it is in proper shape.

Perhaps you could
kindly let me know as
soon as a decision is

ack
28/7/16

reached on the question
of compensation for
money losses.

Here is a copy of
the Journal - to show there
is such a thing and as
an item of curious interest

Yours sincerely
J. P. Halan

Property Losses (Ireland) Committee, 1916.

51 ST. STEPHEN'S GREEN, EAST, DUBLIN.

Claim for Damages caused during the Disturbances on the 24th April, 1916, and following days.

I John Cahalan now residing

at By Lindsay Road Glasnevin in the City of Dublin

do hereby solemnly and sincerely declare that on or about the 24th to the 29th April day of

1916, damage was done to the undermentioned Property, namely: * money amounting to ~~£15.00~~ £4.12.9

* State situation of property damaged.

and such damage was occasioned to the best of my belief by ** the destruction

** Here state cause of damage.

of the G.P.O. Dublin. The money was in my locked desk in the G.P.O. Dublin, and no trace of it was found in the ruins.

And we further declare that the Property and Articles specified on the other side were so destroyed or damaged; that the Cost Price of same was as shown in each case; that at the time of the destruction or damage they were respectively of the Values specified under the head "Value of Property at time of Destruction or Damage"; and that, in consequence of such destruction or damage, claim is hereby made for the sums specified under the head "Amount Claimed"; that the Claim is made by me

as Agent in Ireland of the Telegraph and Telephone Journal and that no person is interested in

† Insert "Owner," "Lessee," or "Mortgagee," as the case may be.

the said property except myself and the proprietors of the Telegraph and Telephone Journal copy enclosed.

‡ Insert "myself," or "ourselves," and the names of Mortgagees, Mortgagees, Lessors, Lessees, or joint owners (if any).

and that it is not insured by me or any other person, § except as follows, namely:

§ Strike out the words following if the property is not insured.

Company, Policy No.	Amount £
<u>/</u>	<u>/</u>
<u>/</u>	<u>/</u>
<u>/</u>	<u>/</u>

And we make this solemn Declaration conscientiously believing the same to be true, and by virtue of the provisions of the Statutory Declarations Act, 1835.

Made and subscribed the 17th day of

July 1916, at 23 Capin

Luskine Street in the said City, County,

before me, a Justice of the Peace for the said

City of Dublin County.

Signature of Claimant } John Cahalan

John Ryan

NOTE—This Claim is to be furnished in duplicate, and should be accompanied by the Policies of Fire Insurance and the last receipt, in each case, or certified copies of same. When completed it is to be forwarded to the Secretary of the Committee, 51 St. Stephen's Green, East, Dublin.

PARTICULARS OF THE CLAIM.

(TO BE GIVEN IN DETAIL.)

DESCRIPTION OF PROPERTY DESTROYED OR DAMAGED.	Cost Price.			Value of Property at time of Destruction or Damage.			Value of Salvage.			Amount Claimed		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
<p>Money, made up of bank notes, Treasury notes, coin, and postal orders. Particulars of the Notes and postal orders cannot be given, and in the absence of such particulars the Post Office cannot issue duplicates of the postal orders amounting to about ^s8/- eight shillings, or refund their value.</p>				4	12	-	£	s.	d.	4	12	0
				5	18	6	nil			5	18	6
												26

Carried forward.

3105

Property Losses (Ireland) Committee, 1916.

51 ST. STEPHEN'S GREEN, EAST, DUBLIN.

Claim for Damages caused during the Disturbances on the 24th April, 1916, and following days.

I John Cahalan now residing

We at 87 Lindsay Road, Glasnevin in the City of Dublin County of Dublin

do hereby solemnly and sincerely declare that on or about the 24th to the 29th day of April

1916, damage was done to the undermentioned Property, namely:—money

amounting to £5:18:6 & £4:12:0

* State situation of property damaged.

and such damage was occasioned to the best of my belief by **the destruction

** Here state cause of damage.

of the G.P.O. Dublin. The money was in my locked desk in the G.P.O. Dublin, and no trace of it was found in the ruins

And we further declare that the Property and Articles specified on the other side were so destroyed or damaged; that the Cost Price of same was as shown in each case; that at the time of the destruction or damage they were respectively of the Values specified under the head "Value of Property at time of Destruction or Damage"; and that, in consequence of such destruction or damage, claim is hereby made for the sums specified under the head "Amount Claimed"; that the Claim is made by me

as † Agent in Ireland for the; and that no person is interested in

† Insert "Owner," "Lessee," or "Mortgagee," as the case may be.

the said property except † myself and the Proprietors of the

Telegraph and Telephone Journal, copy enclosed

† Insert "myself," or "ourselves," and the names of Mortgagees, Lessors, Lessees, or joint owners (if any).

and that it is not insured by me or any other person, § except as follows, namely:—

§ Strike out the words following if the property is not insured.

Company, Policy No.	Amount £
.....
.....
.....

And I make this solemn Declaration conscientiously believing the same to be true, and by virtue of the provisions of the Statutory Declarations Act, 1835.

Made and subscribed the 17th day of

July 1916, at 23 Upper

Parish Street in the said City, County,

before me, a Justice of the Peace for the said

City of Dublin County.

John J. Young

Signature of Claimant } John Cahalan

NOTE—This Claim is to be furnished in duplicate, and should be accompanied by the Policies of Fire Insurance and the last receipt, in each case, or certified copies of same. When completed it is to be forwarded to the Secretary of the Committee, 51 St. Stephen's Green, East, Dublin.



VOL. II.

MAY, 1916.

No. 20.

THE CREED SYSTEM

Has been adopted by Six State Telegraph Administrations; all but one of the great Cable Companies; the Marconi Wireless Telegraph Company; and twelve of the great British Daily Newspapers.

NEWSPAPER PROPRIETORS should be interested in the following extracts from testimonials received from "The Scotsman."

"Between 75,000 and 80,000 words were transmitted
"on one wire from our offices in London, and received
"and printed on your instruments at our offices
"in Edinburgh during one evening. We have gained
"considerably in accuracy, speed and all-round efficiency."

THIS TRAFFIC FORMERLY NECESSITATED THE USE OF THREE OR FOUR WIRES

We aim in these advertisements to state only facts, and not to overstate them.
Correspondence cordially invited. For full particulars and illustrated Booklet apply to

CREED, BILLE & CO., LTD.,

EAST CROYDON (Adjoining EAST CROYDON STATION).

And at 36-38, WHITEFRIARS STREET, LONDON E.C.

Telephone: Croydon 2121 (3 lines).

Telegrams: "Credo," Croydon.

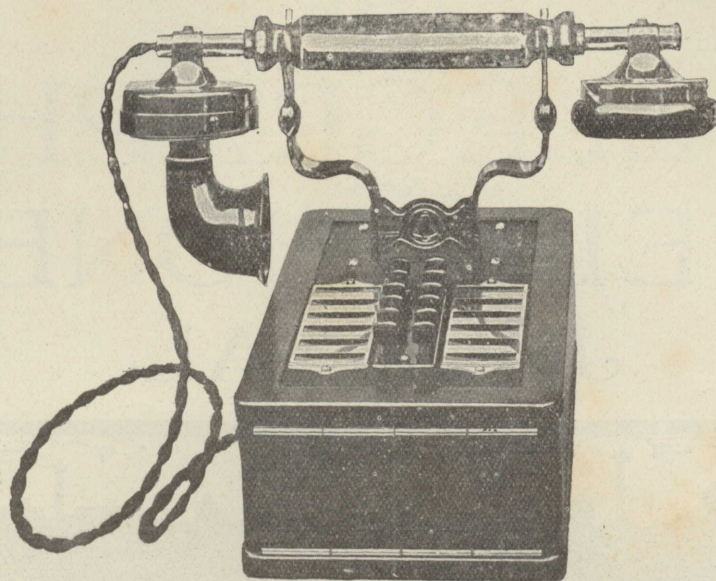
FOR OFFICE or RESIDENCE.

LATEST

AND

BEST

BRITISH



LATEST

AND

BEST

MADE.

AUTOMATIC
REPLACEMENT

Inter-phones

PUSH BUTTON
SELECTION.

BIRMINGHAM.
GLASGOW.
LEEDS.

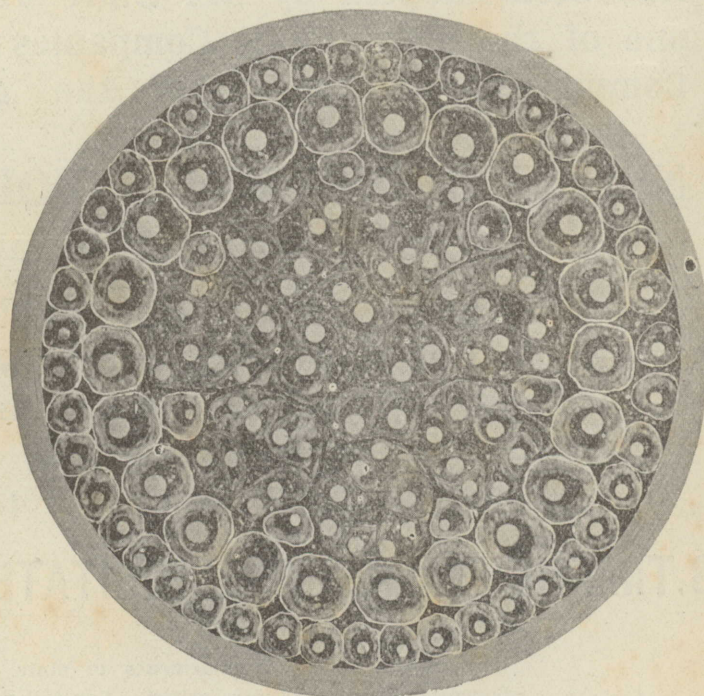
Western Electric Company Limited

WORKS: NORTH WOOLWICH, E.

MANCHESTER.
SYDNEY.
JOHANNESBURG.

DRY CORE TELEPHONE CABLES.

*Electrical Plant of every description
for Power, Lighting, and Wireless
Installations.*



JOHNSON & PHILLIPS L^{td}

CHARLTON, LONDON, S.E.

ESTABLISHED 1875.

THE Telegraph and Telephone Journal.

VOL. II.

MAY, 1916.

No. 20.

CONTENTS.

	PAGE		PAGE
TELEPHONES FOR TELEGRAMS	159	EDITORIALS—	
TELEPHONE RECORDS	160	THE POSTMASTER-GENERAL'S REPORT	168
TELEPHONE OPERATORS AND AN AIR RAID	162	TELEPHONES FOR TELEGRAMS	168
TELEGRAPHIC MEMORABILIA	163	THE ABOLITION OF ABNORMAL TELEPHONE RATES	169
REVIEWS	164	TELEPHONE TROUBLE	170
THE INTERPHONE	166	HIC ET UBIQUE	170
LONDON TELEPHONE SERVICE NOTES	167	THE CORRELATION OF PUBLIC ADMINISTRATION AND FINANCE... ..	171
		PERSONALIA	176

Subscription: To the public, 4s. 6d. per annum, including postage. To the Staff, 2s., including free delivery to any Post, Telegraph, or Telephone Office. Single Copies: To the public, 3d. each, or post free 4½d. To the Staff, 2d. each. Orders should be sent to the Managing Editor, G.P.O. North, London.

All correspondence relating to advertisements should be addressed to MESSRS. SELLS, LTD., 168, Fleet Street, London, E.C.

TELEPHONES FOR TELEGRAMS.

THE OTHER ASPECT OF THE CASE.

It is hardly a matter for surprise that the usefulness of the telephone for the transmission of telegrams should be appreciated so suddenly. The various articles which have appeared in the TELEGRAPH AND TELEPHONE JOURNAL arguing in favour of a considerable extension of telephoning are indicative not of a new discovery so much as a new and extended appreciation of an old discovery. In fact the original application of the telephone was to the transmission of written messages, and the connexion of members of the public for direct speech with each other was a later development. There is now quite a considerable body of thought in telegraph circles which has come to regard a revolution of telegraph practice as inevitable, and to see a day coming when there will only be a small number of telegraph centres in the country, each of them, by means of radiating telephone lines, serving a considerable district. This vista has been opened before us by enthusiasts who show not only great ability but considerable force of imagination in conjuring up the idea of a telegraph service very different from that to which we have grown accustomed. Let it be admitted at once that as a telegraph instrument the telephone is much more efficient than many of us supposed. Traffic loads are carried on many routes up and down the country much higher than those of us expected who have spent our lives in telegraphy. But when this is admitted the case is not made out for such an extension of telephoning as many writers have urged.

To begin with, outdoor telephone plant is more costly than the single wire which is sufficient for telegraph purposes. It may be the case where there is a telephone cable that enough pairs for telegraph purposes are available in consequence of the fact that the telephone development schemes necessarily look ahead. But if a general intercommunication scheme were adopted it would involve the equipment of telephone circuits for telegrams whether or not such circuits were available in telephone cables, and this would cause a considerable outlay. In certain cases where telephone lines happen to be available there is everything to be said in war-time for using them for telegrams, and a good deal to be said for switching subscribers through to a larger centre for

phonogram services, but to leap from this to a general enunciation of the superiority of telephones in all cases is rather a different matter. We must not build too big a structure on the slender foundation of war-time experience, with all its complicating factors.

Nor can it be said that in the provinces the possibility of through switching is sufficient to throw the balance of argument on the telephone side. However much we may regret the fact, there is very little local or quasi-local traffic. A special tariff might conceivably create that traffic, but the signs are not favourable to a special tariff. The great bulk of traffic is from one district to another district, and it follows that—outside London—intercommunication is not of such importance as it might seem to be to those who view the question from the point of view of telephone analogy. A duplex Morse, old-fashioned as it may seem to be, is a highly efficient telegraph apparatus, and with such plant between the centre and each of the surrounding towns of any considerable size the traffic flows so evenly that probably a better result is obtained for telegraph traffic as a whole than with any system of telephoning which would call for switchings for, say, 10 per cent. of the traffic.

Mr. Davis, in his remarkable paper, suggested the use of typewriters with telephones. Herein he showed prescience, though the practicability of using typewriters with telephones is not yet established. But he showed prescience in realising that the weak spot with telephones is handwriting. It may be that we are near to the development of printing telegraphs, cheap in construction, though calling for skill in management and in efficient working, which can be dovetailed—by punched slip or by other means—with the high-speed printing on main routes. At least there are those among us who believe that this rather than the telephone is the direction in which progress will lie.

There can be no doubt that for sub-offices where a telephone call office does not fill the line, there is a strong case for using the same pair of wires for telegraph also. The later doctrine of call offices is that they are of educational value in the utility of the telephone. Hence they are not established because there is a demand but because there is not a demand, and there ought to be a demand. Such a call office may only teach one person a day the usefulness of a telephone; if it does so it is remunerative, or at least it will be remunerative when the happy days come in which again we shall be anxious to extend the number of telephone subscribers. Such

call offices, at small sub-offices, obviously can carry the telegraph traffic and they are welcomed by the sub-postmasters. But this seems to be the proper range of the use of the telephone for telegrams. When long junctions and even trunks are used it is a very different question.

It may be possible that the true method will strike a middle line between the dreams of the telephone enthusiasts and the older ideas of uniform Morse. Telegraph working will be continued, but the telephone organism will be used for those telegrams where transmissions will be saved. There will not be a sweeping change such as that indicated—very cleverly, indeed—in the last number of the JOURNAL whereby a whole district of Yorkshire was suddenly changed from a network of telegraphs to a network of telephones. The use of the telephone seems most likely to be an auxiliary to the use of telegraph instruments, not substituting it but supplementing it, and enabling the telegraphs to serve outlying districts which have always been difficult to serve remuneratively, the telephone circuit in these cases being secondarily a telegraph circuit and primarily a portion of telephone missionary work. If it happens, too, that superposition on local circuits is developed and automatic clearing can be continued, the case for the retention of telegraph instruments will be even stronger. Obviously, if the pair of wires can be used simultaneously for telegraphs and for telephones there is a decided advantage over the method of speech both for calls and for telegrams. We are only at the beginning of these developments, and changes which have been necessary in war time should not lead us too hastily to imagine the telegraph system of the future.

F. B. G.

TELEPHONE RECORDS.

I.—THE FIRST INTRODUCTION OF THE TELEPHONE TO THE BRITISH POST OFFICE.

THE account of the invention and development of the telephone given in Mr. J. E. Kingsbury's book *The Telephone and Telephone Exchanges* suggested the possibility of finding something of interest in the Post Office records as to the impression made by the new discovery on our official ancestors.

The telephone was at first supposed to be an appliance for multiple telegraphy, as is shown by the following correspondence between Mr. Patey, the Third Secretary to the Post Office in charge of Telegraphs, and Mr. Culley, the Engineer-in-Chief. The secretarial minute is in the handwriting of Mr. J. Ardron. It seems to be the first mention of the telephone in the official papers of the Department.

Mr. Culley,

As mention is not unfrequently made of the telephone as an instrument capable of sending several messages simultaneously and giving higher results than are obtainable from any other instrument, the Secretary desires to have a report from Mr. Culley as to its capabilities and practical utility.

C. G. B. P.

The Secretary,

March 1, 1877.

I am not aware that any form of this apparatus is actually used in practice. The most attention has been given to it in America, and when Mr. Preece and Mr. Fischer visit the United States this spring they might enquire into it. I have not seen it nor am I aware that there is an apparatus in this country. I can therefore give no report on it.

Varley patented something of the kind but it has never been publicly tried. It has been (the principle) experimented on in Sweden also as well as in America.

Several messages have been sent at one time, but very slowly, I think.

The principle is this. It is well known that a tuning fork of a certain pitch gives a definite number of vibrations per second. The higher the note the more vibrations.

It is also well known that when a number of different forks are exposed to the influence of vibrations—however caused—the fork whose pitch corresponds to the rapidity of such vibrations will sound, and none other.

If then a fork, say of C pitch, be so arranged as to form a contact maker of an electrical circuit which has an electro-magnet at the other, or distant end, this magnet will be attracted and repelled as many times a second as the C fork vibrates and if set on a proper sounding board together with another fork exactly alike in pitch, will cause it to sound.

Further if forks sounding other notes be set on the same sounding board, only the one in tune with the C will be affected.

Next, forks of A, F, E, or any other notes may be placed in circuit on the same wire at the sending end, with their respective magnets, and so on at the receiving end. The wire will convey all these vibrations without interference and the Morse code can be signalled. One clerk will, we may say, work or send on the C fork—this will influence the distant C, and no other. Another clerk will send on the A. His message will sound in Morse code at the pitch of A, and so on for the rest.

But if the forks are not exactly in tune all goes wrong. The system is very pretty but must be very delicate.

This explanation is but rough, yet I hope it may convey an idea of the system and may show that in rough hands it is hardly likely to give greater results than any other instrument.

R. S. CULLEY,

March 3, 1877.

On Sept. 29, 1877, Col. Reynolds, Professor Graham Bell's agent in England, offered to show the "telephone" to the British Government "with a view to its adoption as a part of the telegraphic system of the country."

The Engineer-in-Chief thereupon reported—

"It is quite unnecessary to accede to his proposal for showing the invention, as we are ourselves fully acquainted with its details.

"I may observe that in its present stage the possible use of the telephone appears to me even more limited than I at first supposed it. In Newcastle, Leeds and Belfast, there is not a single wire held by a private renter on which the telephone could be used. In Liverpool, Glasgow and Manchester, all large centres of private wires, there are but nine altogether on which the new instrument would be available.

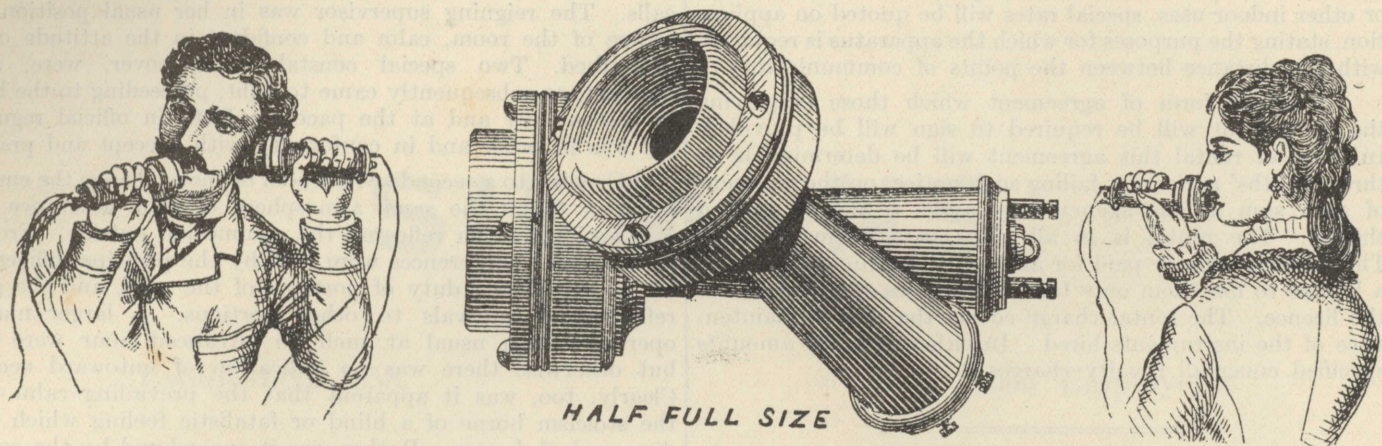
"This arises from the necessity of providing for the telephone a wholly separate and distinct course. In many towns such separate course or wire could not be provided as the local authorities will not permit the erection of overhead lines."

In the same month, October 1877, Messrs. Fischer and Preece handed in their long and able report on the American telephone system, the result of their visit to that country earlier in the year. Their reference to the telephone is as follows:—

M.—THE TELEPHONE.

In no branch of telegraphy have greater strides been made in America than in the establishment of what has been called telephony. The word telephone has been applied indiscriminately to instruments employed in the production of sounds and of music, and to those which repeat the articulations of the human voice. A distinction ought to be drawn between the two, and some such terms as *tone-telegrams* should be applied to the one and *articulating telephone* to that apparatus that repeats human speech—we give in the appendix a full description of this apparatus.

Bell's telephone is in practical use in Boston, Providence and New York. There are several private lines upon which it is used in Boston and several more are under construction. We tried two of them, and, though we succeeded in conversing, the result was not so satisfactory as experiment led us to anticipate. This was due to induction from working wires. There is no doubt that the interference of working



WOOD BLOCK ILLUSTRATING THE FIRST TELEPHONE CIRCULAR ISSUED BY THE POST OFFICE.

wires will seriously retard the employment of this apparatus, but scientific enquiry and patient skill will probably eliminate all practical defects.

At present, however, it cannot be said that the apparatus is in such a form as to be of practical value to the Department, and, beyond suggesting that encouragement be given to its examination and trial we cannot recommend that any steps be taken to secure its use.

As the result of negotiations, Col. Reynolds agreed in December 1877 to supply the Post Office with telephones for use on the Department's privates wires at a discount of 40 per cent. off the rates offered to the public in the circular, a copy of which follows:—

(The block reproduced above was at the head of the circular.)

THE TELEPHONE.

The articulating or speaking telephone of Professor Alexander Graham Bell has now reached a point of simplicity, perfection and reliability such as give it undoubted pre-eminence over all other means for telegraphic communication. Its employment necessitates no skilled labour, no technical education, and no special attention on the part of any one individual. Persons using it can converse miles apart, in precisely the same manner as though they were in the same room. It needs but a wire between the two points of communication, though ten or twenty miles apart, with a telephone or a pair of telephones—one to receive,

the other to transmit, the sound of the voice—to hold communication in any language. It conveys the quality of the voice so that the person speaking can be recognised at the other end of the line. It can be used for any purpose and in any position—for mines, marine exploration, military evolutions, and numerous other purposes other than the hitherto recognised field for telegraphy; between the manufacturer's office and his factory; between all large commercial houses and their branches; between central and branch banks; in shipbuilding yards, and factories of every description; in fact, wherever conversation is required between the principal and his agents or employes, or between the superintendent and his leading men, there the telephone will find place and employment. Ordinarily it may be regarded as a speaking tube attended with all the advantages of telegraphic communication.

TERMS.

	Purchase.	Rental per ann.
	£ s. d.	£ s. d.
For a set of instruments for short circuits ...	25 0 0	or 5 0 0
For a set of instruments for long circuits ...	35 0 0	„ 10 0 0

Each set of instruments consists of a pair of telephones and a call bell—the equipment for one end of a communication.



ILLUSTRATION FROM THE LATEST BOOKLET ISSUED BY THE POST OFFICE ON TELEPHONES.

Where required for domestic purposes, hotel, factory, or other indoor uses, special rates will be quoted on application, stating the purposes for which the apparatus is required, with the distance between the points of communication.

A simple form of agreement which those employing the instrument will be required to sign will be provided. In cases of rental this agreement will be determinable at three months' notice, or, failing such notice, on the payment of such sum as the agency may agree to accept in lieu thereof. The rental is in all cases payable in advance. The purchase-money paid for any set of instruments secures a licence to use them only for the purposes specified within the licence. The rental charge covers the cost of maintenance of the instruments hired. In either case the amounts specified cover all royalty charges.

TELEPHONE OPERATORS AND AN AIR RAID.

THE bomb-shell burst early in the evening with news of cessation of train traffic. Almost immediately afterwards came the order that operators were to remain at their positions until further notice. A whisper of "Zeppelins" went round the switch-room. Sinister confirmation was afforded by the spectacle of an assistant supervisor switching off all lights not absolutely necessary with commendable energy and enterprise. An emergency or volunteer operator, the sole representative of his class present, was "listening in," somewhat listlessly, at a special position when the news arrived. He had been under training for a lengthy period. The experience was interesting, but he was beginning to wish for some slight variation from the usual routine. It was true that his own operating was an appreciable variation from that usually practised, and he had not shown slavish adherence to standard forms of expressions in his replies to subscribers. His variations from ordinary procedure were, however, in themselves so frequent and so regular as to tend towards monotony. The feeling with which he heard the news was, in the circumstances, faintly pleasurable.

The cultivation of memory is a useful pursuit, and the emergency operator wished at the moment that he had devoted more attention to it. He had read descriptions of previous raids and vaguely remembered telephone exchanges and operators entering into them, but could not recollect mention having been made of emergency operators and the responsibilities which they assumed on such occasions. The descriptions of the behaviour of the ordinary day operator had, however, left him coldly sceptical. The reports combined to show that intense coolness in the face of danger was an unvarying attribute of the telephone operator, that such occasions knew no smelling salts, that operators had even been known to yawn at repeated explosions as if bored by the monotony of repetition. Such tales invited scepticism, if not actual and active disbelief.

On the occasion under description the emergency operator, disposed towards liberal conception of his duties, approached the reigning supervisor and indicated willingness to assist in the dispensation of ministrations, instancing more particularly transmission of soporifics to hysterical operators, restoratives to sinking supervisors. Astonished, he received answer, somewhat coldly delivered, albeit with confident tone, that no such steps as he indicated would be necessary, so far at least as the female portion of the staff was concerned.

The appearance of the switchroom seemed to indicate that the supervisor's confidence was well founded. The work at all positions was proceeding as in normal times. Apart from the usual standard expressions, which were being rattled off with customary ease and brilliancy, little could be heard. The assistant supervisors moved quickly and quietly behind the operators' chairs fulfilling the duties proper to their class as described in the Service Instructions and skilfully avoiding pillar and plinth—awkwardly placed at this exchange—on their own initiative.

Monitors were at their desks taking all irregular and exceptional calls. The reigning supervisor was in her usual position in the centre of the room, calm and confident in the attitude officially prescribed. Two special constables, moreover, were, at this moment, as subsequently came to light, proceeding to the building in the manner and at the pace set forth in official regulations. All was in order and in conformity with precept and practice.

Groping to a second switchroom of the exchange the emergency operator found the same atmosphere of calm assurance. There was nothing which reflected the commotion outside. From time to time brief conferences were held by the principal officers which led to relief from duty of portions of the staff, and the grant of refreshment intervals to other portions. A larger number of operators than usual at such an advanced hour were present, but otherwise there was no indication of untoward occurrence. Clearly, too, was it apparent that the prevailing calm was not the stoicism borne of a blind or fatalistic feeling which leads to disregard of danger. Rather was it engendered by the confidence of the trained soldier who, apprehending with clearness of vision the position, and encouraged by the example of those in command, is determined to play worthily the allotted part.

The entry of the two special constables, with a stolidity of demeanour which conveyed the impression that neither would be likely to be accused of incendiarism in connexion with the River Thames, was unattended with furore. "Nothing much to do here" said one of them looking round and addressing no one in particular like a regular member of the Force in a street crowd, "I'll see how they're getting along downstairs." Accompanying him, the emergency one found—further comparison with the Regular Force is deprecated—that the refreshment buffet was the immediate objective.

The refreshment room presented an animated and cheerful spectacle, but naturally the unusual demand had led to a shortage of certain commodities. Claiming as a benevolent neutral the right to receive supplies, the emergency operator was given a mixture of coffee and condensed milk. Bread and butter, cakes, and lighter varieties of farinaceous foods in biscuit form were plentiful. Conversation was abundant and the chances of the exchange building being hit were discussed with much cheerfulness.

Under the revivifying effects of the beverage the emergency operator ventured to make complimentary reference to the way in which the unusual demand was being met, albeit with the reservation that the eatables, although delectable and pleasingly presented to notice, might have been held by some to lack the solidity necessary to meet the needs of a dinnerless evening. The recipient of the observation, apparently regarding the parenthesis as in the nature of suggestion or complaint, enjoined submission to the committee in accordance with ordinary procedure, from which no deviation even during air raids was allowed. An attractive group of senior operators was indicated as forming the committee the strict indivisibility of which was, however, proclaimed when the emergency operator, feebly facetious, repudiated belief in group systems, indicating preference for a system under which approach could be made separately to each committee member.

Late in the evening train traffic resumed and the majority of the operators then remaining went home. The air was cool and the night peaceful when the emergency operator himself left the building. A church clock announced the midnight hour, the dull rumble of some street traffic, belated by the raid, died away, and then all was still like the sword of a sleeping sentry. The raiders had returned to their dens.

In subsequent narration of the impressions of the evening the emergency operator was definitely eulogistic. Admirable the spirit displayed, praiseworthy, heroic, if you will. Heroic? Exaggeration of phrase was straightway imputed to him. They merely did their duty. Yes, but they did it in circumstances of exceptional risk and strain. And they did it willingly, cheerfully, bravely. Surely no misapplication of the word.

Perhaps he was right.

C. W. M.

SIEMENS

Established 1858.

Over 4,000 Employees.

ELECTRICAL CABLES AND WIRES

BATTERIES

TELEPHONE, TELEGRAPH AND SIGNALLING

APPARATUS

LINE MATERIAL

ETC.

SIEMENS BROTHERS & CO. LTD.,

Telephone:
CITY 6400 (7 lines).

WOOLWICH, LONDON, S.E.

Telegrams:
"SIEMENS, WOOLWICH."

Home Branches.

BIRMINGHAM—Central House, New Street.
CARDIFF—89, St. Mary Street.
GLASGOW—66, Waterloo Street.
MANCHESTER—196, Deansgate.

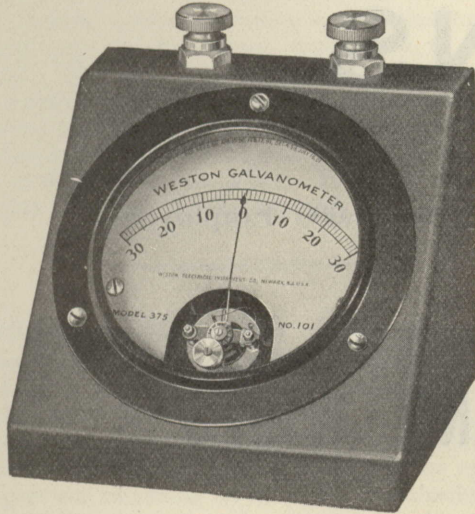
NEWCASTLE-ON-TYNE—
64-68, Collingwood Buildings.
SHEFFIELD—22, High Street.
SOUTHAMPTON—46, High Street.

Indian and Colonial Branches.

CALCUTTA—Clive Buildings, Clive Street.
BOMBAY—Rampart Row.
MADRAS—Smith's Corner, Mount Road.
SINGAPORE—1, 2, 6 & 9, Winchester House.
JOHANNESBURG—Siemens' Buildings.
CAPE TOWN—7 & 11, Waterkant Street.
SYDNEY—42, Bridge Street.

MELBOURNE—Dominion Chambers, 59-61, William Street.
WELLINGTON (N.Z.)—A. & T. Burt, Ltd., Courtenay Place.
DUNEDIN (N.Z.)—A. & T. Burt, Ltd., Stuart St.
AUCKLAND (N.Z.)—A. & T. Burt, Ltd., Customs Street West.

WESTON STUDENTS' GALVANOMETER



MODEL 375.

List Price, 40/-

Write for full particulars to:—

WESTON ELECTRICAL INSTRUMENT CO.

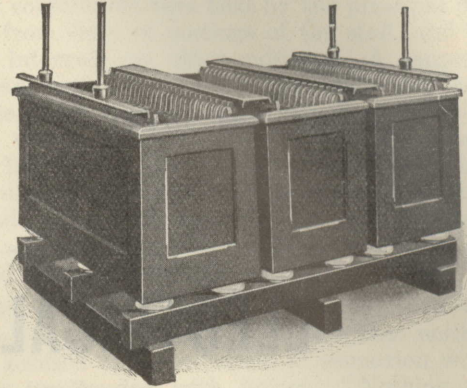
AUDREY HOUSE, ELY PLACE, HOLBORN, E.C.

Telephone: 2029 HOLBORN. Telegrams & Cables: "PIVOTED, LONDON."

HART ACCUMULATOR

CO., LTD.

Hart Storage Cells are **BRITISH MADE** and are in use throughout the world for all purposes.



Many thousands of Cells in constant service for Telephone, Telegraph and Wireless Installations.

SPECIAL TYPES of HIGH DISCHARGE CELLS FOR TELEPHONE EXCHANGES.

PRICE LIST ON APPLICATION.

STRATFORD, LONDON, ENG.

WIRELESS SIGNALS FOR THE HOME

AN IMPORTANT INNOVATION

The Marconi Official Gramophone Records

IN order to meet the present need of skilled instruction in Radio-telegraphic Receiving, the Wireless Press, Limited, have had prepared for them by the Gramophone Co., Ltd., a series of 6 double-sided gramophone disc records, which can be used on any talking machine using the ordinary needle method of reproduction, giving signals in Morse characters as heard by wireless operators.

Single 10" Record, 3s. 6d. (Postage and Packing, 8d. extra).
Set of 6 10" 21s. (Packing and Postage Free).

Write for particulars—

THE WIRELESS PRESS, LIMITED,
MARCONI HOUSE, STRAND, LONDON, W.C.

STANDARD TECHNICAL WORKS

- AUTOMATIC TELEPHONY.** A clear description of the Strowger Automatic Telephone System as adopted by the G.P.O. By S. TURNER, E.-in-C.'s Office. 32 pp., illustrated. 7d. net, post free.
- TELEPHONE TROUBLES, AND HOW TO FIND THEM.** On both the Magneto and C.B. Systems. Sixteenth Edition. 7d. net, post free.
- NOTES ON TELEGRAPHY.** By G. Mogg. A simple exposition of the rudiments of technical telegraphy and telephony. Specially designed to meet the requirements of the C. and G. Ordinary Examinations. 2s. 6d. net, or 2s. 9d. post free.
- THE TELEGRAPHERS' AND TELEPHONISTS' NOTE BOOK.** Third Edition. Highly spoken of by leading P.O. officials. Price 1s. 6d. net, or 1s. 7d. post free.
- QUESTIONS & SOLUTIONS IN TELEGRAPHY & TELEPHONY FINAL EXAMS., 1906-15.** By H. P. Few, Silver Medallist. An invaluable work, recommended by the leading technical journals. Limp Cloth, 8vo., 1s. 8d. net, post free.
- THE TELEGRAPHERS' GUIDE.** By BELL and WILSON. The best work of its kind. For teachers and students alike it is invaluable, and the repeated calls for fresh editions prove its merit. Sixteenth thousand. 2s. net, or 2s. 3d. post free.
- TECHNICAL TELEGRAPHY.** By ROBERTS and BURROWS. Fifth Edition. Contains an exhaustive selection of questions and model answers in all grades of the C. and G. exams. 2s. net, 2s. 2d. post free.
- QUESTIONS & SOLUTIONS IN TELEGRAPHY & TELEPHONY.** By H. P. FEW. Includes model solutions to the C. and G. exams. 1904-1914, as well as to several typical questions set at the Post Office Departmental exams. for Overseerships. Fourth edition. Cloth. 230 pages, 172 illustrations. 2s. 6d. net, or 2s. 9d. post free.
- PRACTICAL TELEPHONY.** By JAS. BELL, A.I.E.E., and S. WILSON, A.M.I.E.E. A simple and practical handbook suitable for students, artisans, &c. Copiously illustrated. Latest edition. Twelfth thousand. 3s. 6d. net, 3s. 9d. post free.

Sent post free at prices stated by

S. RENTELL & CO. Ltd., 36, Maiden Lane, Strand, London.
WRITE FOR CATALOGUE NO. 36.

TELEGRAPHIC MEMORABILIA.

SINCE this April column went to press the great gale has come and gone leaving behind it a track of telegraphic devastation possibly unparalleled since the tempest of 1881. With a sudden change of temper the earth shook off its coat of white, and the sun shone out bright and smiling upon a tangled mass of wires and poles and struts and stays, just as though the whole scene were a huge joke and the very thing one would have asked for in the middle of a great war.

On a journey to the Eastern Counties, made necessary indeed by this selfsame storm, a party of telegraphists were witnesses of many of the freaks and caprices of this Wind in a Frolic. Broken wires by the mile, twisted in and around one another in tangled knots, poles making every conceivable angle with the track except the conventional one and except perhaps in one instance where one had apparently turned a complete somersault and had alighted with its head and insulators stuck firmly in a muddy ditch, while what was originally its base was reared skyward, from which a muddy tuft of grass hung downward looking for all the world like the gruesome pictures of guillotined French aristocrats in the revolution. Such was the picture as the train steamed slowly along lengths of restored railway in the fading light of a March afternoon.

On arrival of the party at their destination, for a few at least, there was no rest that night. Local labour being short, and material far away, departmental demarcations became obliterated and the engineering and commercial staffs just shut up the rule book and mutually helped when and where they could in the united endeavour to rig up a temporary telegraph office in a spot certainly not designed for this purpose. Was an ink-can required? A cigarette tin and a scrap of twisted wire were dragged into use. Was there a lack of table-accommodation? Fish boxes from the shore were commandeered, dried, sawn up and fitted. Was a "finished" receptacle required? Somebody's starch supplied the need. Did apparatus arrive? All hands were ready to open cases and unpack. Were further facilities demanded for Service correspondence? Further accommodation was speedily provided by an appeal to the authority and needs of the King, and to a very obliging serjeant of the guard, who loaned a few planks, "for the period of the visit only," and by the use of a couple of huge cases borrowed *without authority* (please don't tell Mr. Morgan) from the Controller of Stores.

For five or six days telegraphic communication was maintained with a distant land by these temporary measures, in an "ark on the sands." Never for a moment, from start to finish, 24 hours per day, did the whirr of wheels and the pulsation of signals cease, not even when "things from above" dropped more or less lightly on the surrounding land, and the sentries opened their friendly dug-out ready for emergencies.

Perhaps more may be written one day on this as on many other telegraphic and telephonic incidents of the war. All that may be said at present is to thank those members of the engineers' staff who so unstintingly co-operated and to enter one gentle protest against a most friendly communication which has since been received from somewhere in England, and which terminated in the somewhat ambiguous sentence, "Although we experienced four air raids while your party were here, we have had *none since the very day of your departure!*"

The publication of the official report on the treatment of the British prisoners in Wittenberg is not likely to have ceased to stir the sympathies of their kith and kin in the homeland. Those, therefore, who were even but slightly acquainted with Mr. David Jones, of the Central Telegraph Office, London, and who is even better known as the secretary and handicapper of the Centels Athletic Club, will probably and involuntarily turn their thoughts towards him and his situation in the internment camp at Ruheleben, near Berlin.

True, this is not a military but a civil internment camp, and happily its inhabitants have been saved the refined cruelty and the superlative misery of our unfortunate countrymen who chanced to come within the notorious centre of Prussian criminality.

Ruheleben has its amenities. Since the withdrawal of the military, and the vestment of the control of the camp in civilian officers chosen from the prisoners, there has been a marked improvement in its general condition. The camp shelters about 4,000 men including university men, engineers, doctors, musicians, teachers, and professional footballers, other athletes, &c., &c. With the British genius for organising (despite all opinions of the cynics to the contrary) out of this medley of talent has been co-ordinated a male voice choir, cinema show (the building was erected by the prisoners themselves), athletic and literary clubs, and a miniature London of shops and stores.

Fresh from the press the writer has had the privilege of perusing one precious copy of a local literary production, printed (unfortunately) by a German University press for the British authors and called "Prisoners' Pie," which with its highly artistic cover, and interior sketches, its first-class articles and its odes and other verses should one day rank amongst the most valuable literary curiosities of the war. The face value of this production should be multiplied manifold by the time a stray and rare copy reaches Christie's, in the years to come. One sketch speaks volumes of the unspoken thoughts of our exiled countrymen. It is a picture of two prisoners playing a game of chess in winter, and just inside the wire entanglements of an internment camp. The game is apparently a difficult one as the snow has evidently fallen and all but covered the board since the last piece was touched. It is a picture of cheerlessness and its double meaning will be instantly understood. It is entitled "A Slow Move!"

Apart from the fact that these civilians are permitted a certain amount of restricted liberty, the situation must indeed be a weary one. One of the most trying conditions is the lack of really good food. Were it not for the parcels which are sent out from England by one and another from time to time it is more than probable that many of the prisoners would succumb. So far as our colleague Mr. David Jones is concerned, who, by the bye, has been a prisoner since his interrupted holiday at Sobernheim, in July 1914, a parcel of food has been sent out each week since June 2, 1915, and these it has been possible to augment occasionally, by the generosity of friends.

It should be understood that a community of interests is the main principle of this very real brotherhood, for the poorer members of the camp who may not be fortunate enough to receive parcels from home, are looked after by others. In the event of any reader being desirous of assisting in this matter, the writer can assure him or her that cash or goods would be very gratefully received by Mr. Leonard Coombs, "F" Division, C.T.O., who has organised the Davy Jones Fund, which it will be noted reaches some of the poorest of our telegraphist colleague's fellow-prisoners.

One normally reads the Correspondence columns from week to week with considerable interest, and not infrequently with much instruction. That recently appearing from Mr. Baxter and Mr. Thornburn in the discussion as to what was the correct answer to the question. "If you failed to hear the distant station's speech in your telephone (on the Field), state what was likely to be wrong and how you could obtain his "message," and the reply, "use the Morse key," was such as to provoke some comforting meditation in the heart of the telegraphist.

Such an one thus engaged was overheard to murmur pensively, and but very slightly altering Charles Kingsley's "Soliloquy on women"—"Kindly, Morse, Dear Morse, to thy dear hands we must all come at last!"

Our friendly contemporary *Electricity*, writing under "Current Topics" and remarking on the opinion expressed in this column anent the "commercial" knowledge of the average Post Office engineer, somewhat damps down my youthful enthusiasm by agreeing so far as to add that, "he (the average P.O. engineer) is quite sufficiently commercial to meet the requirements of a service which seldom calls for any striking initiative on the part of the general body of its engineering staff." On the whole, however, "from personal knowledge" of P.O. engineers, *Electron* is prepared to allow that the claim made over the initials below is a just one.

In a later paragraph this writer goes on to admit "that genius is by no means lacking in the Civil Service," and that numerous instances have been heard of, in which a subordinate engineer or member of the technical staff has put forward really brilliant suggestions only to have them pigeon-holed by an officer of superior rank who did not appreciate their importance. Doubtless such incidents have happened in the Service, and, it may be added—outside it!

The writer makes a very good hit however when he refers to the "plums," and points to the plate of photographs recently published with the TELEGRAPH AND TELEPHONE JOURNAL, where only one of the prominent officials therein portrayed is directly connected with the technical or engineering staff, "*the very backbone of the administration.*" The italics are mine.

One has only a few lines of space for a remark or two on Mr. Batchelor's enthusiastic article on "Phonograms and Telephone-Telegrams," and those must be reserved for the superlative praise of the telephone-telegram system, the "astonishing success of which, in a brief space bids fair to raise a new method to the almost complete mastery of the existing difficulties caused by the depletion of telegraphists owing to the war." One would like to have had a few specimens of the traffic dealt with which have been so masterfully dealt with. One would appreciate a few more figures in the direction of operator averages, average line-time per telegram, and total output for periods covering the busiest and slackest portions of the 24 hours, and one would esteem it as a favour to know whether the daily average of Dewsbury, the example quoted, is to be taken as a criterion of the type of office and telegram which have served to pronounce so favourable a verdict upon the "new" system. These points are raised in no carping spirit, but when one has seen some of the results of diluted labour and, without offence, diluting machinery, one may be pardoned for not accepting the note of unqualified success without a certain misgiving that this same high note may possibly prove to be at least a quarter of a tone out!

As a token of the methods of a certain type of Pan-German writer, attention may be directed to the fact that the works of Zetzsche and Karrass, which bear the misleading general title of *Geschichte der Telegraphie*, and which would lead one to suppose that the contents dealt with the world-wide history of telegraphy, deliberately omit reference to anything or anyone except it or they prove to be of distinctly German origin! As a chivalrous counterpoise to this narrowness of spirit, one can read with pleasure the pages of M. Montoriol's *La Technique Télégraphique depuis l'origine*, which although it distinctly adds the words "en France," nevertheless pays generous and catholic tribute to such names as Faraday, Bain, Ohm, Wheatstone, Maxwell, Siemens, Hertz, Kelvin, Preece, Pupin, Marconi, &c. Perhaps with the editor's permission a complete review of this interesting French production could be given in these pages. The volume has been published by the French Minister of Commerce in the present year.

J. J. T.

PERFORMANCE OF "EVERYMAN" BY MEMBERS OF C.T.O. STAFF.

On Wednesday, Feb. 15, at the Ashburton Hall, Red Lion Square, the members of the "Interkom Klub" (Intercommunication Switch C.T.O.) gave a most interesting and instructive "open night" in the shape of the old medieval morality play "Everyman."

The proceeds, together with those resulting from several other entertainments, will be devoted to the Post Office Relief Fund.

The members of this club have proved themselves most versatile in their selection of plays. Their programme for the season might have been considered ambitious—by anyone not knowing their capabilities. Those who had the privilege of witnessing "Everyman" will appreciate the beauty of the play and the intelligence and skill with which it was produced.

The undertaking from many points of view was a bold one, but those who embarked upon it—both players and stage managers—are to be congratulated. The results well paid them for the strenuous work it must have entailed. No scenic effects were possible in a play of this description—but the blending of the colours in the dresses and the grouping helped in the production of some very fine tableaux.

REVIEWS.

Wireless Transmission of Photographs. By Marcus J. Martin. Published by The Wireless Press, Ltd., Marconi House, Strand, W.C. 117 pages. Price 2s. 6d. net.—Attempts have been made with more or less success during the past 70 years to develop a method by means of which it would be possible to transmit pictures over a telegraph circuit, and within the last decade experimenters in this field have been at work endeavouring to design a system of picture transmission in which the impulses sent out from the transmitting station shall be conveyed to the receiving station by means of Hertzian waves instead of by the use of a metallic conductor.

The use of Hertzian waves for this purpose has the great advantage that the retardation and distortion of the signals over a line are eliminated. Of course other complications, not met with when a wire is used, are experienced, but these are gradually being overcome, and the wireless transmission of pictures gives every promise of developing into a practicable addition to the present means of communication.

The book under review describes the previous work which has been done in this field, and gives detailed instructions by which anyone taking up wireless telegraphy as a hobby can extend his researches into this new field.

We think that such an extension will be welcomed by many wireless amateurs who are rather mechanically than mathematically inclined. From our experience of many home-made wireless stations we are of the opinion that the average amateur quickly tires of his hobby unless he has some deeper interest in it than merely "fishing" for signals from working stations, or exchanging messages, at a speed of about five words a minute, with some other amateur in the same neighbourhood.

Unfortunately, to go beyond this stage, and to start making measurements, which is the only way by which the hobby can be removed from the plaything stage to that of serious investigation likely to produce some useful results, requires a knowledge of electrical theory which the average amateur does not possess.

Details are given of the mechanical devices and photographic processes necessary to commence experimenting with picture transmission, and we can recommend the book to wireless amateurs as affording them a means by which they can fill up their enforced idleness during the suspension of their hobby during the war. The various mechanical arrangements described could be made now without infringing the provisions of the Defence of the Realm Act, in readiness for the time when the piping times of peace are once more with us, and wireless sets can once more be brought into use.

We notice on page 25 a formula $T = w \times t \times s$, which should

be $T = \frac{w \times s}{t}$. On page 56 "ammonium" is spelt

"ammoniac," and in three places "d'Arsonval" is spelt "de'Arsonval."

On page 57 the author expresses surprise that the iron stylus employed as the electrode in an electrolytic receiver using potassium ferrocyanide and ammonium nitrate should wear away, "as there is nothing very corrosive in the solution used, and the pressure of the stylus upon the paper is so slight as to be almost negligible!"

Also on page 58 he says: "The current required to produce electrolysis [with the receiver just mentioned] is very small, about one milliampere being sufficient. Providing that the voltage is sufficiently high decomposition takes place with practically 'no current,' it being possible to decompose the solution with the discharge from a small induction coil." Apparently the author is under the impression that it is the product of the voltage and current which determines the amount of chemical decomposition which takes place, although he follows the extract just quoted by explaining that the quantity of an element liberated in electrolysis is given by the product of the electro-chemical equivalent of the element, the current, and the time during which the current flows.

But weakness on theoretical points such as the above does

not detract from the merit of the book, which is essentially one for the practical experimenter. It is well printed, the diagrams are clear, and it can be recommended to anyone interested in the subject as giving them in a compact form information which they would otherwise have to seek from sources scattered among patent specifications and other technical literature.

Elementary Lessons in Electricity and Magnetism. By Silvanus P. Thompson, D.Sc., B.A., F.R.S., F.R.A.S. Published by Macmillan & Co., Ltd. Third Edition. 744 pages. Price 4s. 6d.

—Most students of electricity and magnetism will be familiar with one or other of the earlier editions of this book. The second edition was published in 1895. Many excellent elementary books on the subject have since appeared, but these have mostly been written as text books for the use of students preparing for examinations. Silvanus Thompson's book, on the other hand, is without doubt the one which has best met the needs of that increasing class of readers who wish to obtain a broad outline view of the science, more from the point of view of general interest than with the intention of studying for any particular examination. Owing, however, to the enormous advances which have been made in the science of electricity since 1895, the second edition is nowadays seriously behind the times, and the present up-to-date edition, which contains 122 pages more than the previous one, will therefore be welcomed.

To those who know the earlier editions we need only say that the standard of these editions has been fully maintained in the new one. For the information of any of our readers who may not have seen the earlier editions we would say that, if they are interested in the subject, they could not make a better investment than by obtaining a copy of the present one. Even if they are only studying electricity for the sole purpose of passing an examination we feel sure that the breadth of outlook and the great "readableness" of this book will repay them for its perusal, and will render far more interesting and intelligible the special "cramming" necessary for their examination which they will obtain from the other books they are reading.

Wireless Telegraphy and Telephony: A Handbook of Formulae, Data and Information. By W. H. Eccles, D.Sc., A.R.C.S., M.I.E.E. Published by "The Electrician" Printing and Publishing Co., Ltd., Salisbury Court, Fleet Street. 418 pages. Price 12s. 6d. net.—In every branch of engineering it is, of course, physically impossible for the engineer to carry in his head all the various facts and formulae which he uses in the course of his work, and the need is therefore felt for some means by which information on any particular point can be rapidly turned up when required.

This want is satisfactorily met for mechanical and the generality of electrical engineers by the many excellent pocket books which have been published on these branches of engineering. Up to the present, however, no exactly similar book has been brought out for the special needs of the wireless telegraph engineer.

Wireless engineering, however, covers a greater range of different subjects than any other branch of the profession, and therefore the need of a reference book is all the more keenly felt.

The book under review has been brought out in order to fill this evident gap in technical literature. The ground covered is so wide that it has been necessary greatly to condense the information given, but this condensation has not been pushed so far that any point is left unintelligible for the want of sufficient explanation.

For the same reason it would be difficult for us to give a detailed account of the very various matters with which the book deals. Suffice it to say that, as far as we have been able to judge, there is hardly a point which the wireless engineer is likely to meet in the course of his work, on which he will not find information and guidance.

The book is well printed, strongly bound, and is of such a size and form that it can be carried with the minimum of inconvenience. We can strongly recommend it to all who are in any way connected with the practical aspects of wireless telegraph engineering.

OUR MONTHLY RECORD OF NAVAL AND MILITARY HONOURS.

THE following members of the staff connected with the Telegraph and Telephone Services have been mentioned in despatches or have been honoured by other marks of distinction. The Editor will be greatly obliged if surveyors, superintending engineers, or postmasters will, where possible, send him photographs of the officers concerned, and any available information with respect to the deeds for which they have been honoured.

Sapper M. MALONEY, Royal Engineers, Signal Service (Unestablished Skilled Workman, Engineering Department, South Lancashire District), has been awarded the Distinguished Conduct Medal.

Sapper J. E. TAYLOR, Royal Engineers, Signal Service (Unestablished Skilled Workman, Engineering Department, South Lancashire District), has been awarded the Distinguished Conduct Medal.

Driver C. T. BOLD, Army Service Corps, Northumbrian Division (Clerical Assistant, Engineering Department, Northern District), has been awarded the Distinguished Conduct Medal.

Second Corporal W. J. HAWKINS, Royal Engineers, Signal Service (Labourer, London Engineering District), has been awarded the Distinguished Conduct Medal.

Company Serjeant-Major W. T. HUSBAND, 2nd Battn., London Regiment (Royal Fusiliers) (Skilled Workman, Class II, London Engineering District), has been awarded the Distinguished Conduct Medal.

Serjeant G. H. SIMONS, Lincolnshire Regiment (S.C. & T., Lincoln), has been awarded the Distinguished Conduct Medal.

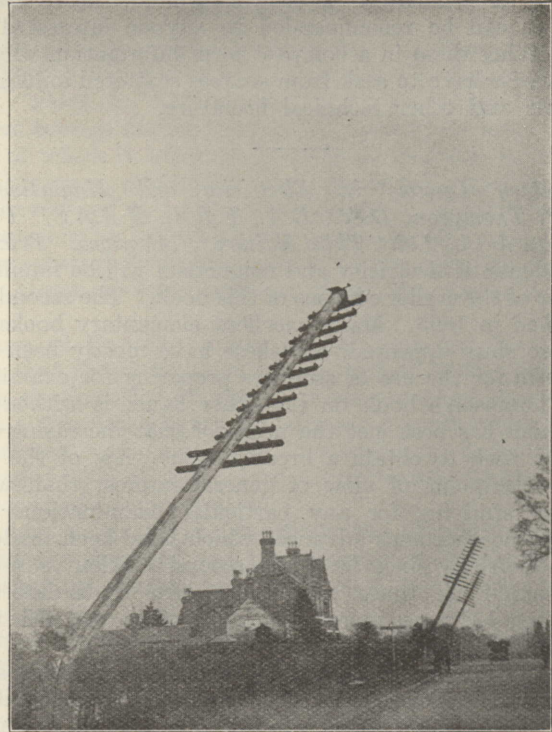
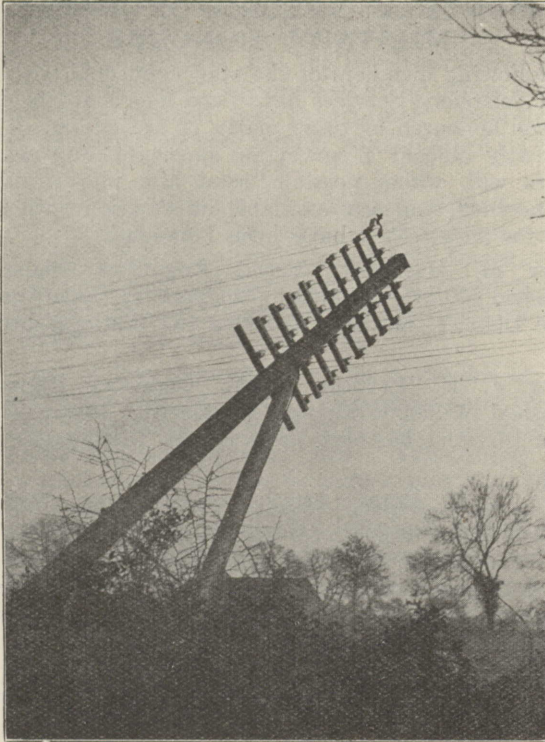
THE MALLOCK-ARMSTRONG EAR-DEFENDER.

WE wish to call the attention of our readers, more especially of those who are with the colours, to this device, which is designed to defend the drums of the ears from the possibility of shock. Although by means of the ear-defender loud sounds are modified and shock is absolutely eliminated, ordinary conversations and telephone messages are perfectly audible whilst wearing the apparatus. At the same time the wearer may stand beside a twelve-inch gun when it is being fired without being deafened even temporarily by the explosion. There is no doubt that terrific noises have a more distracting effect on the nerves than almost any other sights and sensations of war, and the nervous exhaustion due to intolerable sounds, not to mention actual gun-deafness, is a fruitful cause of invaliding of fighting men.

During gas attacks, when the gas helmet is worn, telephonists have had the greatest difficulty, often amounting to positive impossibility, in hearing messages, and this it is claimed had been remedied by wearing the Mallock-Armstrong ear-defender in the ears under the helmet; in some cases officers have perforated the side of their helmets and put the defenders in their ears through the material of the helmet. As there is a diaphragm completely closing the hollow passage in the defender, gases of course cannot enter the helmet under this latter condition. We hear that situations have occurred at the Front where the defenders have been of vital importance to telephonists and those depending on them, and it is understood that at the present moment a more extended use of the defender is receiving official consideration.

OPERETTA AT LEEDS IN AID OF THE P.O. WAR RELIEF FUND.

In the absence of so many of their departmental male *confreres* with the Army at the present time, 26 of the trunk telephonists at Leeds rendered the operetta "The Mystic Mirror" in the Albert Hall, Leeds, on March 7, and all the parts, male and female, were impersonated by the ladies themselves, in appropriate costumes. The operetta drew an audience of 1,250 and realised £50 as an extra contribution to the Post Office War Relief Fund. We present a photograph (p. 176) showing a group of some of those who took part in the operetta for which, by the way, they were effectively trained and stage managed by Mr. W. H. Shaw, of the Telegraph branch.



STORM DAMAGE IN THE MIDLANDS.

THE INTERPHONE.

THOSE who are in the habit of regarding the telephone as an instrument connected to a public exchange possibly do not realise the enormous number of private telephones that are fitted in business premises. There are very few factories or business houses nowadays that have not a private system installed as well as the telephones giving public service, and as these private instruments are not controlled in any way by the Post Office, it can readily be imagined that in construction and efficiency they vary considerably. In the past this was even more noticeable than now, because formerly the manufacturers who specialised in private telephone work did not as a rule make the standard instrument and apparatus used for large exchange work, while firms who specialised in this latter class of apparatus seldom troubled about private equipments. During the last few years, however, matters have changed somewhat and firms whose main business is with what may be described as the heavier type of telephones, have also devoted considerable attention to the lighter types of instruments. One of the most popular forms of private installations is the interphone, and the latest type of this class of instrument as recently placed on the market by the Western Electric Company, Limited, may be of interest as showing the progress which has been made in this direction. An examination of the mechanical construction shows that the private telephone receives as much care in its design as does the public service instrument. In this model great strength combined with lightness and a pleasing appearance is obtained by mounting all the mechanism on a light metal framework surrounded by a polished wood case. The selection is effected by means of automatically replaced push buttons, one button serving to both select and call the required number. The cradle switch is so constructed that by a simple adjustment a wall instrument can be converted to a desk instrument and *vice versa*. The hand microtelephone is rather novel in construction, and special means are taken to obviate any possibility of loose screws or broken handles. As interphones are only suitable for comparatively short lines, no induction coil is fitted, the transmitter and receiver being in series. Calls are received on a small buzzer contained in the instrument. The speaking circuit is a simple

central battery one, a double wound retardation coil of high impedance being fitted in each set. The telephone is designed for metallic circuit wiring, and, with properly paired cable and good dry cells, entire freedom from cross-talk is obtained. The set opens in two places, the top carrying the mechanism rises for inspection and repairs, and the whole of the body rises from the backboard which is fitted with large well spaced line terminals. This double opening allows of very simple connecting up and overhauling. Two central batteries are required consisting of three or four dry cells for speaking and four or five dry cells for ringing. The whole instrument is an example of careful design and finished execution, and its reception by private telephone users has shown that there is a very real demand for high class instruments.

CORRESPONDENCE.

PHONOGRAMS AND TELEPHONED TELEGRAMS.

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

I HAVE read with interest Mr. Batchelor's admirable article in the April issue of the JOURNAL on the question of phonograms, &c. I think every traffic man will agree that the wider introduction of transmitting telegrams over the telephones is proving remarkably successful. The idea of "in" and "out" junctions between the instrument room and the Central Exchange is a good one. Do these go through the "feeder position"? I do not quite follow Mr. Batchelor in the advocacy of a typist on an incoming position. I presume the typist would work in the phonogram room, and if necessary, several could be so employed. Typewriting might then have to be added to the many other accomplishments of our telephonists.

With regard to a reduced charge for deferred telegrams, I have been under the impression that most telegrams were urgent, at least to the sender, but as Mr. Batchelor appears to be a telegraph man, perhaps he can contradict this. However, I think I can see many difficulties ahead in regard to this question. Although use might be made of idle junctions in the slack telephone time, yet what about staffing? An increase of staff following the loading of the junctions with telegrams during the hours 12 to 3 p.m. seems to be a *sine qua non*. The whole question, as it appears to me, is not one of impracticability, but of finance.

The American system by which subscribers give telephone messages to monitors for them to transmit, at an increased fee, might, I think well be considered in conjunction with Mr. Batchelor's idea. I am in full agreement that junctions should be put to some use in the quiet hours of the day. In fact in this district many of the junctions are used for telegrams in the afternoons, such as L V—Blackpool, &c. A junction has also been taken up

between Southport and L V for telegrams all day. It is working splendidly and as many as 32 telegrams have been dealt with in the busy hour without complaint.

It is also to be hoped that after the war the question of subscribers' spreading their calls more evenly over the day will be further pursued.

I wonder if the suspension and alteration of mails and letter deliveries has had any effect on this phase of the question. The ratio of day to busy hour in this district does not appear to have been affected much in comparison with pre-war days. The question of each district's arrangements for telephone-telegrams could, even at this time, I think, be well considered. I am quite certain there is room for improvement in many ways.

I thoroughly agree with Mr. Batchelor, when he says "Facilities for the study of such problems should be accorded *ad lib* to enthusiasts." I am only afraid that traffic men, often like the telephonist, know only too little of what happens at "the other end."

J. A. W. GREGORY

Preston, April 12, 1916.

(Assistant Traffic Superintendent).

LONDON TELEPHONE SERVICE NOTES.

If there is one thing more than another which in these crowded days of war emergency work emphasizes the bewildering rapidity with which month follows month, it is fact that one has scarcely disposed of the copy for "London Notes" before, as it seems, one is faced with a reminder that they are again due! Yet though they make such frequent demands on one, there seems no lack of matters which ought to be noted.

The London Telephonists' Society held their last meeting for the session on Friday, March 17, and save in one particular it proved a peculiarly happy gathering. The L.T.S. Orchestra discoursed sweet music at intervals, and members owe a deep debt of gratitude to Mr. William C. White, the conductor, for the work he has done in connexion with this offshoot of the Telephonists' Society. Excellent essays were read on "Portia as the Ideal Supervisor" and "Jane Eyre as the Ideal Telephonist." The audience were also treated to a recital of the lines on "Accuracy, Courtesy and Speed," by Miss McMillan, who was awarded the prize for the best verses on the subject of these three cardinal points of good operating, it being a condition of the competition that the lines should be suitable for memorising by learner telephonists. All these literary efforts brought forth loud applause from the auditors generally, and a special mead of praise in a happy little speech from Miss Heap. The one drawback to the pleasures of the evening was the absence, owing to indisposition, of Colonel Ogilvie, who had promised to distribute the prizes and give a short account of his visits to the Army in France. He wrote a letter expressing his regret that he was unable to be present, and this was read out by the Chairman, but it is safe to say that whatever Colonel Ogilvie's regrets may have been they could not in measure equal those of the company who were thus robbed of his genial presence. His address we hope is only deferred till some date in next winter's session—his duty as distributor of awards was undertaken by Mr. G. F. Preston, who had a word of praise and encouragement for each recipient as she came up to carry off her well-earned reward.

The election of officers for the coming session resulted in the presidency passing to a highly popular member of the Secretary's traffic staff—Mr. J. Stuart Jones. We feel sure that the society has a most successful year in front of it.

The Telephone and Telegraph Society held their usual monthly meeting on March 27, when Mr. J. M. Rusk read a paper on "Telegraph and Telephone Work in a Provincial Stores Depot." The subject might appear at first sight a difficult one in which to interest an audience not actively engaged in "Stores" work, but Mr. Rusk's touch is a delightfully light one as witness his reference to the "cloistered calm enjoyed by "one's colleagues in a head-quarter's office," and he made even rate-book descriptions of cable sound interesting.

"Change is our portion here," sang the hymn-writer, and one could almost fancy he (or was it she) had had experience in the office of the Controller of the London Telephone Service. If we are not moving our quarters, we are changing branch designations, and if we are not changing branch designations we are welcoming new chiefs or receiving the blessings of departing ones. Failing one or other of these variations we are subject to a condition embracing the whole series. We seem to be approaching the latter

condition just now, if accomplished fact should be succeeded by fulfilled rumours. It is unusual in the Navy for an "A.B. to go to stoke," but many things which would be regarded as unusual in the fighting services are accomplished in the peaceful service of the telephones. Mr. Berlyn, who has been anxious for some years to leave London's lure in order to pursue provincial postal problems, has been chosen to succeed Mr. Tom Taylor as Postmaster of Stoke-on-Trent, and left Queen Victoria Street on April 7. He carries with him the best wishes of the L.T.S. for his well-being in his new sphere of duties. In these war days anything like a general subscription for a present was out of the question, but Mr. Berlyn was not allowed to depart without a reminder of his London colleagues' regards. A silver milk jug, flower vase and two sweet dishes added to the responsibilities and liabilities of the contractor charged with the removal to Stoke of the new postmaster's household effects.

So much for accomplished fact, but rumour is already busy with the name of another highly placed officer in the L.T.S. In this case the fortunate one is destined, so it is stated, for what Mr. Rusk would describe as the cloistered calm of a headquarter's office, and it is further alleged that he will be able to put these mystic letters after his name—D.C.I.O.T.A.T.T.A.O. That beats even the Army's best efforts at alphabetically curtailed descriptions of office, and reminds one of a game beloved of childhood's hours "TIT, TAT, TO, my first go!" Well these are but rumours so far, but it is leap year and strange things are reputed to happen in such years—we may even get another Feb. 14—who knows? For our part we have always regretted that the traditions of the day have not been fully maintained.

We hear that Mr. Thwaites, the Exchange Manager of Croydon, has been winning laurels in the Flying Service. He visited the Croydon Exchange recently and confirmed the report that he was the pilot on a British aeroplane which not long ago brought down a German machine. Mr. Thwaites, so we are informed, flew the capture over to this country and made his return to France by air also, but on the latter occasion he piloted a British craft. It is understood that he had made aviation his hobby for years. We wish him a safe return from his present perilous occupation to the level course of the L.T.S., where the only flights allowed are flights of fancy.

Several of the members of Paddington Exchange staff undertook one of the weekly concerts at the Post Office Home Hospital, and on Friday, April 7, they went thither in the guise of the "Young Hopefuls" to cheer up their wounded comrades with "mirth and youthful jollity." That they had succeeded in their mission was clear from the first—applause greeted their appearance and swelled in mighty waves as one or other of the talented party stepped to the fore and sang or recited.

These Notes cannot be closed without a reference to the "nine days' wonder" of the threatened eight-hour day. How excited we all were, for here was the Civil Service generally depleted of men who had gone, at infinite sacrifice in many cases, to uphold the honour of a country "whose word was as good as its bond." Yet they, whilst fighting for the rights of others, were to be denuded of their own—an astonishing situation. Fortunately "wisdom was justified of her children," and after a petition had been presented to the King in Council, the proposal was withdrawn. God save the King.

ENTERTAINMENT TO WOUNDED SOLDIERS BY THE STAFF OF THE NEW CROSS EXCHANGE.

The staff of the New Cross Exchange entertained for the second time a party of wounded soldiers at the Hanover Park Conservative Club on Saturday, April 1. The tickets were hand printed by the staff, and the designs on the programmes were hand drawn and painted.

An interesting programme was carried out including songs, recitations, violin and pianoforte solos also by members of the staff. A very laughable feature of the entertainment was a burlesque given by the New Cross Orchestra which was encored again and again.

After tea, a delightful function, Miss Epps, the Chief Supervisor, was presented with a bouquet as a token of appreciation of her kindly interest and help. Then a guessing competition for the soldiers took place, which caused great amusement. The soldiers left at 8 p.m. each bearing a parcel containing cigarettes, tobacco, sweets and fruit, and judging from the letters of thanks received, they spent a most enjoyable time.

The
Telegraph and Telephone Journal.

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

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

NOTICES.

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

VOL. II.]

MAY, 1916.

[No. 20.]

THE POSTMASTER-GENERAL'S REPORT.

THE Postmaster-General's report and the White Paper giving statements of account in respect of the Telegraph and Telephone Services for the year ended March 31, 1915, will be eagerly turned to by the many who are curious to see the effect of the war on the financial results of those Services. We shall no doubt be favoured with some chastening criticism on these results, especially on the telephone side, where although the exchange system shows a profit, yet, when the loss on the trunk system is taken into consideration, there remains a net loss of £111,018. This result is explicable and perhaps not altogether unexpected when it is remembered that ordinary economic considerations with regard to these great means of public communication must necessarily subserve the interests of the war. Where commercial development has been at a standstill, where traffic has decreased, and where it is impossible to readjust the staff immediately and entirely to such decrease, the only result can be decreased profits. The profit on the exchange system for 1913-14 was £395,664; the loss on the trunk system was £156,553, giving a net profit of £239,111. The profit on the exchange system in 1914-15 was £143,103 and the loss on the trunk system £254,121, resulting in a net loss on the Telephone Service as a whole. As regards the trunk system, the suspension of the Continental services accounts for a loss of many thousands. Furthermore, this service has borne the cost of transmitting telegrams over its system, a practice necessitated by the wholesale releases of telegraphists for active service, and one of the happier results of the close association between the two Services ensuing on the acquisition of the telephone system by the State. Steps are being taken to enable the necessary adjustment between the accounts for the two Services to be made in future.

Some analysis of the increased expenditure on the exchange system may be of interest. Administrative and operating expenses were increased by £82,426 or 5*d.* per station. This is partly due to the giving effect to the recommendations of the Holt Committee. Pension liability is increased by £34,506. The increase of maintenance costs by £144,673 (2*s.* 4*d.* per station) is largely accounted for by heavy additional storm repairs. Depreciation and renewals were increased by £99,204, or 1*s.* 2*d.* per station, and interest by £69,442, or 1*s.* 3*d.* per station. In this connexion, it must be borne in mind that a full year's charges on heavy capital outlay in 1913-14 and a half-year's charges in 1914-15 had to be met, with no compensating increase in stations owing to the unavoidable derangement of business involved by war conditions. Telephone stations increased by only 2.8 per cent. as compared with 6 per cent. in the previous year—a difference of over 25,000—and traffic declined by 2.3 per cent. as against an *increase* of 4.6 per cent. in 1913-14, involving a heavy loss of fees which may amount to anything up to £100,000. Here again it is not feasible to make economies in staff commensurate with the decreased traffic during the shifting conditions of war, when moreover emergencies may at any time arise requiring the services of the fullest possible staff. Lastly appears an increased item (by £59,169) for the pay of the Staff with the Colours—obviously an unavoidable one. These are, briefly, some of the qualifying factors which must be taken into account when criticising the accounts of a Service which is not only fulfilling adequately its important function in the commercial life of the country, but playing a vital part in the rapid communications which are so essential at every moment of the stern conflict through which we are passing.

TELEPHONES FOR TELEGRAMS.

THERE are two sides to every question, and we need not be surprised that a contributor should send us an article in which he shows that there are limits to the use of telephone circuits for the transmission of telegrams. It is quite possible that war conditions have had some influence in distorting our vision. The increase in the telephone rates has checked the growth of telephone traffic in certain districts, and telephone circuits have become available for the transmission of telegrams in a way which would hardly have happened in ordinary circumstances. But this may have opposite effects. While it may reveal to us the possibilities of the telephone as a medium for the transmission of written messages it may also reveal to us the limitations of the telephone for this purpose. The very success of the trials, including as they do the use of longer circuits than many of us believed to be desirable, has brought into bold relief the plain fact that it is only because the telephone circuits are there and are available that telegraphs can use them. We could hardly imagine a telegraph administration building long telephone circuits for the transmission of written messages. It is only when some arrest of telephone development on already existent telephone routes leaves gaps for telegraph traffic—itself somewhat attenuated—that the joint user of inter-urban telephone circuits is sound policy.

Put in this way we can see some indications of the right

conclusion. The telephone circuits which will always leave gaps for telegraph traffic are obviously those which connect sub-offices to head offices. Our contributor enounces the call office doctrine which is now generally accepted. A call office which is fulfilling its purpose as an educative medium offers a favourable opportunity for the transmission of telegrams. It may be that a certain amount of through switching is possible whereby telegraph transmissions will be saved, but in the broader aspect of telegraph traffic an extensive return to the earlier telegraph ideals of switching one town through to another for individual and occasional telegrams is hardly practicable. The contrary theory of loads borne upon regular routes is more akin to the modern development of telegraph machines, and that development seems to have in mind the closer association of machines for short distance wires with those for long distance wires. And it is quite conceivable that this conception of a telegraph organism will modify those ideals which regard telegraph transmissions with particular disfavour. If the work entailed by telegraph transmission is modified so that the labour involved is less than that involved in Morse signalling, it might be an advantage to work in this direction rather than in the direction of the through switching of a series of telephone circuits for the transmission of occasional telegrams.

It is, however, hardly wise at the moment to do more than to suggest that there is this, the other, side of the question. It is necessary in war time to adopt all manner of devices which as their central aim assist in the release of skilled telegraphists. Even when those devices are more useful than anyone dared to hope at the outset, it does not mean that they are part of what may be called the permanent progress of telegraphy. There are certain aspects of through switching from district to district, for example, the through switching of subscribers for phonogram purposes when local offices are closed, which seem destined to be a portion of the future telegraph methods. However interesting and even exhilarating it may be to speculate on the possibility of a revolutionised telegraph service with telephone circuits as its tributaries flowing into a central series of arteries, there is just as much interest and just as much exhilaration in speculatively regarding a telegraph service in the future which will convey the written or the printed word both over the main stream and over the thousands of tributaries. Probably in the event we shall find neither method solely in possession. Prophecy loves black and whites, but fulfilment often finds one of the many shades of grey.

THE ABOLITION OF ABNORMAL TELEPHONE RATES.

IN our October number last year, we commented on the increase of the subscriptions for unlimited telephone service. Since then another seven months of war have compelled us all to adopt many economies which are unwelcome; and the Post Office is similarly bound to do away with any privileges which cannot be defended on the ground of economy and which indeed may be regarded as contrary to its guiding principle of equality of treatment to all its clients. Amongst these privileges must be counted the obsolete measured and message rate tariffs for telephone service—tariffs which start as low as $\frac{1}{2}d.$ a call with a yearly minimum payment of 25s. These abnormal rates were offered in some cases as the result of competition between the National

Telephone Company and the Post Office or its other licensees, and in all cases before the completion of that close study of the costs of construction and maintenance which is so important a part of tariff-making. Those who followed the proceedings before the Railway and Canal Commission, when that body undertook to assess the price to be paid by the State for the National Telephone Company's plant and assets, know what is involved in the analysis of the cost of constructing and maintaining a big telephone undertaking, and how differences of opinion on the question whether any expense is proper to revenue or capital may in the aggregate involve a depreciation of value from £21,000,000 to £12,500,000. But this is a digression.

The abnormal rates are uneconomical in many ways. Firstly, they do not cover the full value of the service afforded. The value not to the consumer—which is an unstable factor—but the value to the provider which must in all cases be based on the cost of production and of working expenses together with a reasonable return on the capital invested. Then they involve extra operating costs. It is necessary to mark the indicators at the telephone exchanges in such a way as to indicate to the operators that the charges for the calls are at abnormal tariffs, and, however carefully such markings are conceived and carried out, it yet remains that each call involves an additional mental effort on the part of the operator; and each such effort of course increases the operating time of each call and reduces the number of calls which can be handled by one operator. In fact the whole machinery becomes more complex; mistakes must also be more frequent and complaints more numerous. All these factors involve increased cost.

Not only the operating but the accounting is more complicated. Separate account forms are necessary for each of the many tariffs and the clerical work involves a knowledge of a greater variety of tariffs and a corresponding mental effort in registering the charges. Under ordinary conditions such variation increases the expense; and it will readily be realised that further expense is caused under present conditions when many of the experienced officers in the district telephone offices are on military or naval duty, and the work is carried on by less experienced staff. Any additional complications in the accounting work of course react on the work of auditing and raise the cost of the audit.

The abolition of abnormal tariffs will therefore result in direct economies in staff for the Post Office and it should remove one of the main difficulties in effecting improvement of the service. The failure of a telephone call may be due to any of several causes, one of the most frequent of which is the overloading of the called subscriber's line. Subscribers at abnormal tariffs are prone to overload their lines and, as the provision of adequate telephone facilities would involve the surrender of the old contract, they are generally loth to agree to the reconstruction of their telephone equipment on modern principles.

Telephone men at least will agree that the suppression of abnormalities of tariff is an important step in the right direction.

TELEPHONE TROUBLE.

WE publish in another column a reprint of a drawing which illustrated the first circular on the subject of telephones issued by the Post Office. It was issued in 1877 and in the short history of telephony has therefore quite an archeological interest. We feel sure that our feminine readers will consider as archeological the costume and coiffure of the lady in the picture. We also reprint an illustration from the latest telephone pamphlet, *Telephone Trouble*, issued in the present year of grace. This brochure has attracted some attention in the Press. The *Lancet*, with a pro-

professional touch happily refers to it as "Prophylaxis of Telephone Trouble," and the *Evening News* in an amusing and discerning article as "Telephone without Tears." Other critics are not so friendly. They gird at its issue in war time. Such are indeed of those redoubtable spirits who hold that in these times we may do nothing except fight, make munitions, or conduct anti-German propaganda, esteeming very properly loss of life more than loss of meat, and loss of body than loss of raiment, but not enquiring too closely whence the necessary meat and raiment is to come even for the fighter and the propagandist if all civil pursuits are to be laid aside.

The booklet is not precisely an official production, as internal evidence discloses. It is written by a journalist in a sufficiently breezy style and brings out admirably two important points, viz., (1) that in all telephone calls four operators, two professional and two amateur, are involved, and (2) the necessity for trusting that the professional operator is doing her best for you. It may be that in some cases there are only three operators, two amateur and one professional, but this is a small criticism. In defending the operator the writer is very happy. "To put it on no higher ground," says the author, "she has nothing whatever to gain by deceiving you. It causes her extra work and is 'as much as her place is worth.'" The instructions as to telephone and postal facilities, he says, need to be studied "with the end of a wet towel round the head," but he is handsome enough to say they are worth mastering. We bow to this correction, and frankly admit that the pamphlet if less dignified is certainly less dull—to quote again—than official productions, and is quite worth mastering by the telephone user.

HIC ET UBIQUE.

THE election of Mr. A. B. Walkley to be chairman of the Telephone and Telegraph Society of London for the ensuing season is an event in the history of the society. Mr. Walkley is so frequently described by our contemporaries as a "distinguished literary man" that beyond quoting the formula we make no further reference to this aspect of his position in the world. To us he is a colleague whose conception of human relationships involves a considerateness for all those who serve him which draws from them their best in work and their highest in esteem. He is a chief whose ideals of responsibility include the appreciation of the lowliest work as of that which may seem to be more prominent, and a punctiliousness in judgment as regards individuals which is passionate to be just. Of course he is a thinker: of that the wide world is aware. But to us he is a thinker to whom no institution of which he is a part can be resolved into a mere machine, a mere "hive of industry." We shall look forward to his opening address with keen interest. It will certainly be unconventional; we are confident that it will be inspiring.

ANOTHER step in the development of a common organisation for Telegraphs and Telephones has just been taken. The staff of the Provincial Superintendents of Telephones has been amalgamated with that of the Telegraph and Telephone Traffic Managers. At the head of the combined staff will be Mr. R. A. Dalzell with the title of Chief Inspector of Telegraph and Telephone Traffic. He will have two Deputy-Chief Inspectors, Mr. Harvey Lowe and Mr. John Lee. Below these gentlemen will be five Inspectors, Mr. A. Martin, Mr. A. E. Cotterell, Mr. T. A. Prout, Mr. W. Napier and Mr. J. Stuart Jones. The Assistant Traffic Managers will in future be known as Assistant Inspectors of Telegraph and Telephone Traffic.

Mr. W. A. Valentine will take Mr. Lowe's place as Deputy Controller of the London Telephone Service.

WE have received a pamphlet of some length from Mr. J. C. Vail setting out the claims of his father, Alfred Vail, to his share in the invention of the system of telegraphy known as the *Morse*. We believe that there is a considerable literature dealing with the subject, but we doubt if there is any justification for Mr. J. C. Vail's contention that "some one is manufacturing telegraph history for future consumption." In the progressive stages between the germ, the bud and the flower of a great invention, many outside influences are at work, and much happens to obscure the true history of its first beginnings. We are disinclined to enter into the Morse controversy. We only wish to say that when Mr. Vail describes our reference "to transient and unhappy controversies" as "saving trouble to easy-going trade journals," he misunderstands our remarks altogether. He appears to identify us with Professor Taussig, from whose book we quoted, whilst all we did was to comment very briefly on Morse's beliefs and eccentric controversial habits.

ONE of our most regular and valued contributors aided by a faithful band has been engaged in a coast town in restoring telegraphic communication—interrupted by the recent storms—with a neutral country. Aerial visitants were in the neighbourhood four times during his stay, but the good work was duly accomplished by the party, which much appreciated the thanks they earned from the Postmaster-General.

WAR taxation in Germany has hit the telegraphs and telephones. The charges for local telegrams are increased by nearly 2*d.* (15 pfennig), and other telegrams by 3*d.* There is a 20 per cent. increase in all telephone charges, viz., on flat rates, on the annual charge for message rates as well as on each message, on each local junction or trunk call, and on each auxiliary line. We hear also that the deficit on the Austrian telephone service is to be met by increased charges, but we are not yet in possession of the proposed rates.

THE promotion of Mr. Berlyn, Assistant Controller, to the Postmastership of Stoke-on-Trent, removes from the staff of the London Telephone Service one who by ability and hard work has taken a full share in bringing up the service on the traffic side to its high standard of efficiency.

Mr. Berlyn, mainly for reasons of health, has long had ambitions for a provincial career, and at the time of the Transfer was, we believe, actually classified for a short time as an assistant surveyor. It was thought scarcely fair to Mr. Preston to withdraw Mr. Berlyn from London in the midst of the difficulties which attended the amalgamation of the P.O. and the company's systems. But now that the pressure is over, it has been found possible to accede to Mr. Berlyn's repeated applications for a provincial appointment. He carries with him the good wishes of a host of official friends.

THE following is an extract from report of an air raid:—

The resident operator had placed his wife and child in the basement at the sound of the first explosion, and with the very able assistance of the lineman, who was fortunately in the building, attended with commendable promptitude to the numerous telephone calls immediately asked for, giving special attention to the police calls for the medical men and the hospitals.

Great credit is due to these officers for the way they rose to the occasion.

WE heard at a recent meeting of the Telephone and Telegraph Society of London a novel explanation of the cause of stores surpluses and stores deficits and the scientific remedy. Scotsmen are inclined, so the speaker said, to give short weight—hence the surpluses; while Englishmen and Irishmen are temperamentally prone to give overweight and thus to cause deficits. His remedy was simple, though we cannot recommend it on the ground of morals. Strive not, he urged, to secure greater accuracy, but so select your staff that the surplusses of the Scot will be swallowed up by the deficits of the Sassenach.

THE CORRELATION OF PUBLIC ADMINISTRATION AND FINANCE.*

By F. C. COOK (of the Accountant-General's Department).

THE original intention was the submission of a few observations on the general subject of Administration and Finance. The addition of the word "Public" enlarges the conception of the paper, but the necessities of the case require that the document shall not extend beyond the recognised limits of time allowed. The more comprehensive title demands a degree of analysis. One definition of administration is the "Executive of Government; the persons collectively who are entrusted with the execution of laws, and the superintendence of public affairs." The same authority speaks of finance as simply the income of a State, public money, revenue. The two expressions appear to stand apart: they relate to two categories: they might exist without correlation. But the definitions of both expressions contain an allusion to functions of the State, and permit the use of the title Public Administration and Finance. The purpose of this paper is an endeavour to contribute something to the interrelation, the correlation of public administration and finance with special reference to the Post Office.



MR. F. C. COOK.

I should perhaps observe, at the outset, that I have consulted a number of officially published documents dealing directly or indirectly with administration and finance. I have sought to establish precisely what is the official mind on the subject: the investigations have revealed an apparent hesitation, a degree of doubt, as to a scientific definition. The authors of the official reports were accustomed to the ideas conveyed in the term administration: they were not so sure of their ground when it became necessary to introduce the word "finance." For example, the fourth report of the Royal Commission on the Civil Service gives prominence to the expression "administrative": very rarely, if at all, do the Commissioners use the word finance. Under the heading Organisation (*i.e.* of various public departments specially referred to) the brief description includes here and there, the term "financial." One of the reports of the Engineering Committee of the Post Office (1910) has the significant phrase "administrative and financial control." "Financial order," "financial regulations," "financial administration" occur in Treasury minutes mentioned in the handbooks to the Public Accounts Committee prepared by the Comptroller and Auditor-General.

If we turn from public documents to the text books of the Universities we find the same disagreement or want of precision. In one of Professor Bastable's well-known works there is an important note on the point. It may be regarded as sufficiently valuable to be quoted.

"The original idea (*i.e.* of finance) is that of paying a fine (*'finare'*): unfortunately in England the word has been used with a wider meaning, as including all monetary and even industrial facts. Thus we have *Jevons' Investigations in Currency and Finance*, Mr. Patterson's *Science of Finance*, and Sir R. Giffen's *Essays on Finance*, all dealing mainly with those wider questions. An English writer is therefore compelled in order to avoid misapprehension, to limit the word, as in the text, when he is treating of what the Germans can without inconvenience call *Finanzwissenschaft*, or the French *Science des Finances*. In French there is a convenient distinction between the singular and the plural, the former being used in the general sense, as in *La haute finance*, while the latter is reserved for public finance. Professor Adams has recently employed the term 'Science of Finance' to describe an investigation of public expenditure and public revenue. Professors Plehn and Daniels have followed in the titles of their manuals the example of this work (*i.e.* Public Finance)."

Towards the end of Professor Bastable's book a special place is given to Financial Administration and Control.

Having brought the terms public administration and finance into closer relationship we will enter upon our explorations. Our quest is one of the Departments of State, the British Post Office, and what its boundaries are in time and extent: in other words how far back and how far afield must our studies go if we are rightly to understand the financial administration of the Post Office in regard to the conduct of public business at the present time. I do not propose to deal with the history of the Post Office, or the history of any one of the departments of the Post Office. I am thinking

of matters which can never be lost sight of in the consideration of problems and proposals, however insignificant they may appear to be. In this connexion I will deal first with

Permanent Factors in Financial Administration.

Let us take the sovereignty of the State. For a Foreign Office appointment international law is one of the subjects mentioned in the Regulations of the Civil Service Commissioners. Though the staff of the Foreign Office need to be experts on the subject of Sovereign rights, the Post Office Administration is brought face to face with problems immediately related to it. It is a matter of importance to realise that Sovereign rights extend throughout the Empire. The high seas are free, but every small islet officially recognised as under the sovereignty of Great Britain is of a possible potential value, *e.g.*, the linking up of an ocean cable. The doctrine of the "high seas" is revealed in a paragraph on page 84 of the Post Office Guide (October 1915).

"All persons on board British ships on the high seas are entitled to send their correspondence prepaid by means of British postage stamps."

The emphasis is on the idea of jurisdiction of the State over British ships upon the ocean, but the paragraph is intimately related to international problems. The control of the littoral is seen in the question of so-called "landing rights." The subject is repeatedly referred to in the report of the Inter-Departmental Committee on Cable Companies (1902). At page 24 of the report we read: "But by far the most powerful lever which the State can employ in dealing with the Cable Companies is the power to grant or withhold landing rights."

The Wireless Telegraphy Act, 1904, indicates the extent of sovereignty from another point of view. Under Section 3, Clauses 2, 3 and 4, Great Britain claims dominion over "all British ships in the territorial waters abutting on the coast of the British Islands." His Majesty in Council may order that the Act shall, subject to any conditions, exceptions and qualifications contained in the order, apply the continuance of the order to British ships whilst on the high seas. No person is allowed, without the authority of the Postmaster-General, to work any apparatus for wireless telegraphy installed on a foreign ship whilst that ship is in territorial waters. It will be observed that Clause 2 contains the words the territorial waters abutting, &c.: the sovereignty is not limited to the three mile rule. The distinction is very important, and has given rise to much controversy, but this is not the place to study the problem.

While our attention is drawn to this principle of international law we should perhaps go one step further in the same direction and allude to ex-territoriality. This is easily understood when we take cognizance of the presence of the Foreign Embassies in our midst. The importance of the rule is accentuated when the sovereign representative of a Foreign State lands upon the shores of Great Britain. The Telegraph Administration knows that special facilities must be afforded. The finance side has duties to perform, not only on occasion of special visits, but in the conduct of the ordinary business of the legations. According to the custom of nations the bearers of despatches have the privilege of inviolability. They must be duly accredited representatives or, like the unauthorised American correspondent, the courier will find the despatches are liable to confiscation. The unlawful conveyance of postal packets between Great Britain and the Continent during the present war, has been disastrous to the persons found guilty of the crime.

The rule as to ex-territoriality is apparent when we turn to the 1915-16 Estimates. Public expenditure is incurred in the maintenance of British Postal Agencies in China, and districts where sovereignty is not recognised in international law. China is not yet a sovereign State. The British Agencies are enumerated in the list of countries of destination of the "Foreign and Colonial Mails," and the "Foreign and Colonial Parcel Post" shown towards the end of the Post Office Guide. In the Post Office Circular of Nov. 20, 1915, there was a very important looking announcement. It declared that two British Agencies in Morocco had been closed, and that henceforth the postage on letters must be at the international rate. Nothing important may have happened, but the change might be associated with an international agreement between Great Britain and France in the same manner as the status of Egypt has altered since the beginning of the war. British Post Office Agencies were once established in Japan. But the Postmaster-General's Report for 1879-80 mentions the withdrawal of the agencies, and the conduct of business henceforth restricted to the staff of the Japanese Post Office. Japan was admitted to sovereign rights under the Treaty of 1899. Great Britain was the first to accede recognition.

One other reference to the theory of sovereignty must suffice. Under Section 4 of the Post Office Act, 1908—the great Consolidation Act to which, I believe, the late Sir Robert Hunter earnestly devoted himself—where an arrangement has, either before or after the passing of this Act, been made by His Majesty with any foreign State with respect to the conveyance by post of any postal packets between the British Islands or between places out of the British Islands whether through the British Islands or not, the Treasury may, by warrant, make such regulations as may to them be necessary for carrying the arrangement into effect, and may make provisions as to the charges for the transit of postal packets, single or in bulk, and the scale of weights to be adopted, and the accounting for and paying over to any foreign State of any money received by the Postmaster-General.

We will now pass on to consider briefly another permanent feature of the financial administration of the Post Office, *viz.*, the international conferences. These periodical gatherings embrace four great departments of Post Office activities, Postal (including money orders, &c.), Parcel Post, Telegraphs, Radiotelegraphs. Seventeen conferences in all have taken place. They have chiefly been held on the Continent of Europe. One took place

* Paper read before the Telephone and Telegraph Society of London on Jan. 24, 1916.

at Washington. They cover an epoch of 41 years so far as concerns this country immediately. The foundation of the international postal system was laid in 1874 by the Convention of Berne. The fundamental principles of the international telegraph system date from the St. Petersburg (Petrograd) Convention of 1875. The consideration of an international parcel post system takes us back to the Paris Conference of 1880. The initiation of an international radiotelegraph service belongs to the year 1903 when delegates met at Berlin.

At first sight the four—or preferably three by regarding the Parcel Post as part of Postal—great departments appear to be entirely independent of one another. Different groups of delegates attended as representatives of their respective administrative departments. The infinite detail of each department demanded this. Nevertheless the correlation of administration and finance is complete, and whether postal, telegraph or radiotelegraph the delegates belong to one or other of the two sides of financial administration, and all are intimately related by reason of the necessity for interchangeability.

The three great departments have, however, something in common in their relationship to international conceptions. Let us for a few moments examine one or two of the documents. The analysis must be in the direction of fundamental principles; it can only be of an elementary character.

- (1) All the conventions were "subject to ratification. As regards the Radiotelegraphic Convention of 1906 (Berlin) a Select Committee was appointed in this country to report what, from the point of view of national and public interests, would, in their opinion, be the effect of the adhesion or non-adhesion of this country to the convention.
- (2) Official correspondence relative to the Postal Service is exempt from postage; similarly telegrams relating to the international telegraph service are transmitted free. Article 17 of the Radiotelegraph Convention of 1906 makes provision for the application, *inter alia*, of Article II of the St. Petersburg Convention, 1875.
- (3) All the international services provide for a central office, the expenses of the institution to be borne by the contracting countries.
- (4) The conventions recognise the right of all persons to correspond.
- (5) All the services are subject to the right of transit; in the case of Radiotelegraph Convention, Article 5 provides that each of the high contracting parties shall cause its coast stations to be connected with the telegraph system. . . .
- (6) All the conventions provide for periodical conferences.
- (7) The franc is the monetary unit in the composition of international tariffs.

From the point of view of differences the following may be mentioned as illustrations:—

Postal.

The general union rate of 25 centimes—with maximum weight of 15 grammes. The margin of difference in the conversion of money was fixed as a maximum charge of 32 centimes and a minimum of 20 centimes.

Telegraphs.

The rate of charge to be fixed between State and State; a European State may be divided into two large territorial divisions, but not more. At the London Conference of 1880 the principle of a charge per word instead of per message was established.

Radiotelegraphs.

Coast charge not to exceed 60 centimes a word; a ship charge 40 centimes a word. The country on whose territory a coast station is established which serves as a medium for the exchange of radiotelegrams between a ship station and another country is considered for the purpose of applying the telegraph rates as the country of origin or of destination of those radiotelegrams and not as a country of transit.

Having established the right to send a postal packet to any part of the General Postal Union which forms a "single postal territory," to despatch a telegraphic communication to any one of the many thousand stations published in the Berne list, and to "exchange radiotelegrams" between coast stations and ship stations open for the service of public correspondence, most minute points of detail have been considered and recognised in the conduct of these systems of communication. But the foundations of the three systems of 1874, 1875, and 1906, respectively, remain as permanent features of Post Office administration.

I know that we regard our revised Post Office Guide with admiration. Its pages number nearly one thousand, and every conceivable service which the State Post Office is prepared to render is fully explained. But the three international documents which represent the beginnings of our organised relations with foreign States appear to me to stand out as epoch-making records. They are far removed in importance from ordinary transactions of postal business. The provision of a margin of difference in the exchange values shows how carefully the foundations were laid.

This is not the occasion to compare the work of succeeding conferences with the pioneer difficulties in drafting articles which would be acceptable, in principle, to all the contracting parties. The original treaties represent how far the signatories were authorised at that time to bind their country. I think we can safely say the establishment of the Telegraph Union paved the way for a more rapid development of every form of international service;

countries were brought into immediate relationships, and the needs, aspirations, and possibilities of the future became more insistent. Radiotelegraphic communication has come as a great move forward, and the potentialities of the telegraphs, radiotelegraphs and telephones are still beyond.

This division of our paper will be incomplete if no mention is made of the part played by private telegraph and cable companies, more particularly the latter, in the organisation of British and European and British and extra European systems. A glance at the authorised map of the world prepared by the Berne Office periodically is sufficient to indicate the extent of submarine communication. Regulation LXXXIII, paragraph 3, of the St. Petersburg Convention refers specifically to the "Companies whose lines link two or more of the contracting States together, at least to the extent that they may be bound by their Articles of Concession, to submit themselves, in this respect, to the conditions prescribed by the State which granted the concession."

Preparations for the international conferences are made many months in advance. Every State has the development of its own vital interests to consider, and the preliminary proposals and counter-proposals of the administrations circulated to the adhering States through the Berne Office require to be examined from every point of view. The correlation of public administration and finance is most marked in this respect. The proceedings at the conferences are, of course, confidential. The results are embodied in treaties which can be studied in the Hertslet series. The separate treaties concluded between individual States are very numerous. The agreements concern more immediately two or more States, but do not relate to matters common to all the adherents of the conventions. For example, in the list of treaties we find an agreement with Switzerland respecting express parcels delivery dated 1897; a supplementary agreement regarding parcel post with the same State and on the same date, and so on.

Some indication of the nature of the negotiations of the treaties is afforded us in connexion with the "Radiotelegraphic Convention signed at Berlin on Nov. 3, 1906," already referred to. The report of the Committee is a most interesting document. The whole subject of wireless telegraphy was discussed.

The international aspects of Post Office activities may perhaps conveniently be followed by one or two references to the all-important subject of Crown privileges in regard to the financial administration of the Department. These privileges, prerogatives, powers, stand apart from the international conceptions of the sovereignty of the State. "Sovereignty" is used in relation to the territorial property of a State. Crown privileges operate as great factors in the public life of this country. As a simple illustration of the existence of these privileges Section 79 (Clause 1) of the Post Office Act of 1908 may be cited:

No person shall demand any toll on the passing of any carriage or horse conveying mail bags at places where tolls are demanded.

It can at once be seen how this principle affects administration as well as finance.

No time runs against the Crown. The Crown is entitled to priority in the collection of moneys due: the salaries of Crown officials, and the pensions of Crown officials who may be liable to render further effective service are safeguarded from certain points of view in regard to claims by private citizens. The Crown has exemption from parochial and other rates: as an act of grace the Treasury make contributions to local authorities. The Crown admits no liability for the consequences of the negligence of its servants.

These silent powers of the Crown are considerable. Every now and again they reveal themselves in "cases" referred to in the Press. Though the Post Office "cases" may not be so frequently before the public the powers exist, and influence executive and financial action in the conduct of public business.

In close relationship with these considerations are the exclusive rights of the Postmaster-General (page 141 of the Post Office Guide):

"Subject to certain exceptions the Postmaster-General possesses the exclusive privilege of carrying letters from place to place," of transmitting telegrams within the United Kingdom. No person may establish a wireless telegraph station . . . except under licence, extended by Order in Council dated Feb. 29, 1908, to British ships on the high seas. And under the Defence of the Realm (Consolidation) Regulations, 1914, no person may, without the written permission of the Postmaster-General make, buy, sell . . . any apparatus for the sending or receiving of messages by wireless telegraphy. . . .

At this juncture it may be opportune to allude to what is known as the Index to the Statutes *in force*. We are not as individuals immediately interested in legal procedure, but what lies beneath the words of Acts affecting the Post Office are surely of some concern to all. Possibly it may astonish some that the statutes in force extend over so long a period. Postal Acts go back to 1822—it will be remembered that the Postmaster-General in his speech at the meeting of the Rowland Hill Benevolent Fund held at the Mansion House on Nov. 10 last said that Sir Rowland Hill's work of 1840 only just escaped destruction in connexion with the proposals embodied in the 1915 Act—Telegraph Acts to 1844. They lead up to the Consolidated Act of 1908. They deal with administration, postal regulations, conveyance of mails, money orders, revenue, offences and legal proceedings, arbitration, financial arrangements, and many other details. That these Acts of Parliament have continued to be of real force is revealed in the Act of 1915. For 30 years the Act of 1885 fixing the statutory limits of the cost of a telegram, has been effective, and proposals to modify the limits demanded a reference in the 1915 Act to the earlier document. The alteration in the Press tariff required the citing of a much earlier Act, viz., the Act of 1868. It is easy to speak of Press rates, but the original statutory regulations in 1879, eleven

years after the Act of 1868, effective until Dec. 31, 1916, look very faded: the paper is of a different texture to that manufactured to-day: even the type has an old-world appearance. The revision of the Statutory Rules and Orders, 1915, No. 1,041, respecting inland written telegrams, carry us back not to 1868, but to 1863. The Postmaster-General declares that the regulations are made by virtue of the power vested in him by the Telegraph Act, 1863 to 1915. The change in the parcel post rates reveal the fact that 32 years have elapsed since Parliament first decided to give the Postmaster-General power to introduce a Parcel Post service, the outcome of the International Parcel Post Convention of Paris held in 1880. The British delegates could not adhere to the convention at that time because the conditions of the service could not be carried out in this country.

These series of Acts of Parliament deal entirely with matters coming within the financial administration of the Post Office. They are somewhere beneath the surface of all formal rules and regulations of the Department. The purport of them is spread over the pages of the Post Office Guide. I have made a few quotations from that volume. Sometimes non-legal language would convey more easily the true meaning of the clauses and sections of the Acts, but the sphere of law is restricted we are told to a "very close Trade Union." I have ventured to attach great importance to this permanent factor of financial administration for two reasons: in the earlier years of my service I was taught the paramount importance of the study of original documents. On one occasion I innocently quoted a rule book as evidence of what should or should not be done. I was instantly taken to task by the master mind which was considering the problem, and informed that I must refer back to the actual clause containing the authority on the subject. The second reason I have for putting Acts of Parliament and Statutory Regulations published in the *London Gazette* under the Acts, in the forefront, is, I understand, that leading men of business in America are including in their training the study of legal principles in order that they may be fully cognizant of the bearing of law on commercial and industrial problems.

The study of the Acts of Parliament appertaining to the Post Office is peculiarly fascinating. The Acts reveal the intervals between one step and another. They indicate how difficulties presented themselves, and how additional power was required in the development of the Post Office system. I have here a rough summary covering the period 1868 to 1908 in the case of Telegraphs. Perhaps I may read it (omitted).

As an indication of how changes in regulations are made, perhaps I may quote the following instance. Under the Statutory Regulations (Inland written Telegrams) of 1898, Clause 24 (2) the "Postmaster-General may from time to time vary the rules specified in this regulation, and make such other rules with reference to the reckoning of the contents of telegrams for the purposes of the charges in respect thereof as may seem to him meet, but due notice of all rules shall be given in the *London Gazette* and in such other manner as the Postmaster-General may from time to time direct." The permission refers, I believe, only to the particular clause. In the *London Gazette* of May 2, 1913, appears a notice taking advantage of this permission, viz., "The names of districts in towns when used in addresses in addition to the names of thoroughfares, &c." This is a simple case of administrative action which had and still has a financial bearing on Post Office revenue: administration and finance are correlated.

At this point I had better deal with an apparent omission. I have not referred specifically to individual Departments, but have directed attention to the central idea of financial administration. The technical sides of telegraphy, telephones, engineering, stores, &c., have been considered by specialists. The Comptroller and Accountant-General has addressed the society from the point of view, more particularly, of recent developments in the region of engineering expenditure. Mr. Wylie, now principal book-keeper, has presented an exhaustive paper on the general subject of accounting. I had, therefore, either to choose another technical subject, or to endeavour to pass beyond and reach a point of view from which we might consider the relation of central questions to the organisation as a whole.

For example, I am perhaps at liberty to turn to the correlation of administration and finance in relation to the *personnel* of the Post Office. I do not propose to unfold questions relating to remuneration, to methods of payment, to calculations, to the theory of service scales, &c., &c. I want rather to "discover" wherein all these problems dwell.

Both effective and non-effective services claim some consideration. The historical data of the existing Civil Service is practically complete and ready to hand. The foundation year was 1853. The fourth report of the Royal Commissioners (1914) covers all the ground. Still there is room to make one or two suggestive remarks. Someone may have thought that my allusions to the Crown in relation to administration and finance were rather too far away to be of practical assistance. They are not, however, distant. In paragraph 3 of page 1 of the Report we read: "Your Majesty's permanent Civil Service is a clearly defined entity being the subject of a definition both precise and authoritative." Farther down on the same page the Commissioners declare they have "left to another body the task of inquiry into the special organisation of the General Post Office. The report is itself addressed to the King's Most Excellent Majesty.

Similarly the Civil Service Commissioners Annual Report commences as follows:—

May it please your Majesty. We, your Majesty's Civil Service Commissioners, humbly offer . . .

What underlies the Royal Commissioners' enquiry? I am not sure whether the meaning of service is fully realised. Civil servants appear to be servants from the same point of view as a great Minister of State. They hold their office at the pleasure of His Majesty. Until 1 Edward VII, cap. 5, on a demise of the Crown there was a proclamation to the effect that the holders

of offices were re-instated in their situations for a period of six months. There is no redress against the Crown. The principle accepted in 1855 was the admission to the Civil Service of any subject after "open competition." The principle is, of course, not entirely adhered to. It is not for me to examine the *pros* and *cons* why there are exemptions. In the general regulations of the Civil Service Commissioners would-be competitors are warned that examinations are "open to all natural-born or naturalised British subjects." This clause has had greater significance since August 1914, and its meaning is now perhaps better understood than formerly. The Commissioners have also had special regard to the question of limits of age and health. The age problem has evidently given rise to many reflections. For example, it appears to be generally accepted that severe open competition should not be insisted upon after the age of 24. The ordinary channels of admittance into the Civil Service cease after that age.

The successive Orders in Council are of special interest. They are not of absolute application—I think I am right in stating this. They represent broad generalisations for the control of the Civil Service. In one of the reprints of the Orders, parts which had been repealed were shown in italics and indicated the action taken to provide for new conditions. The Orders were consolidated in 1910.

That these features of the service are of a permanent character and are constantly before the experts on both sides of the financial administration, is well known. If we extend the scope of the inquiry so as to include the general organisation of the Post Office we find how considerable is this problem of the establishment. At first sight it might be thought that the purpose of the Post Office, its vast interests in many directions, would occupy the greater part of the time and thought of the administration. The principle of introspection has, however, been developed in the Post Office on a large scale. The enumeration of even the names of the Committees is formidable. There is now practically a library of volumes containing evidence and reports.

I suppose it will be right to say that nearly every detail of work, when, where and how it is performed has now been tabulated: that every point connected with the status of the individual—the conditions of his service—has been a matter of consideration: that every question as to aids to sustained and constant efficiency has been examined. Sometimes the relations of the service with the outside world of commerce are referred to. The general conclusion appears to be the Civil Service cannot be compared exactly with commercial and industrial organisations. The Royal Commissioners devote several paragraphs to the subject. They include the General Post Office in the short list of Government Departments to which the "commercial criteria of the successful conduct of business transactions may to some extent be applied." But they proceed to state that much of what is "commonly described as 'red tape' is due to the exigencies of Parliamentary Government, much of the delay and expense of public departments should in truth be regarded as part of the price paid for the advantages of public discussion and criticism of public affairs."

But I should like to intrude a word or two here. Notwithstanding what has already been said I sometimes think the conception of service is capable of enlargement in one direction particularly. The Civil Service has splendid traditions, the strongest incentives to loyalty and devotion exist on every hand, and the honour of the Service is precious to all. Still, in spite of everything—and I am only thinking of a possibility—does the service—the actual rendering of service—include a real, permanent interest in the industrial and commercial "life" of the country. I interpose the question as a line of thought, and may have occasion indirectly to refer to the point again.

I must not omit the non-effective side of the establishment. Having entered the Civil Service every one present is personally concerned with the continuity of his service when he cannot actively take part in the work of the Post Office. The non-effective side has been a matter of repeated legislation in like manner as appointments to His Majesty's service have called for periodical alterations expressed through Orders in Council. His Majesty may appoint: His Majesty with the advice and consent of Parliament controls the effective and non-effective expenditure. Pensions for all practical purposes are controlled by the series of Acts passed since 1834. The early Acts are as real as more recent enactments. Replying to a question in the House of Commons recently the Financial Secretary to the Treasury stated that the payment of pension to a retired Civil Servant upon re-employment is governed by the provisions of Section 20 of the Superannuation Act of 1834. Every one hopes that when his time for retirement arrives he will have a duly and authoritatively signed certificate that he has served the Crown with "diligence and fidelity to the satisfaction of his superior officers." The idea of service is surely brought near to us by this means, though the outward display of a medal for "faithful" service is restricted. The words of the certificate are contained in Clause VIII of the Act of 1859. Clause 10 of the same Act conveys the idea of how long a period the service should extend as a minimum, and safeguards indifferent regard to the rightful claims of the service. The clause declares it shall not be lawful to grant any superannuation allowance to any person who shall be under 60 years, unless upon medical certificate to the satisfaction of the Commissioners of the Treasury that he is incapable from infirmity of mind or body, to discharge the duties of his situation, and that such infirmity is likely to be permanent.

The association of these principles to permanent officers of the Crown is alluded to in a report of the Public Accounts Committee (page 33, Vol. III of Handbook):

"No authoritative definition of what constitutes a permanent Civil Servant is known to the Treasury. A partial definition of the term may, indeed, be extracted from the provisions of the Superannuation Act, 1859: and as concerned with them, a permanent Civil Servant would appear to be an officer appointed by the Crown,

or holding a certificate from the Civil Service Commissioners, giving his whole time to the public service, remunerated out of the Consolidated Fund, or out of the moneys voted by Parliament, and liable to retirement or removal; therefore, holding only at pleasure and not during good behaviour. . . ."

The same document contains the expression of opinion:

"It should, further, be noted that although it is incumbent on the Treasury, as the office primarily responsible for the regulation and conduct of the Civil Service, to issue directions giving administrative effect to Statutes and Orders in Council affecting Civil Servants, the Treasury does not claim to be a final and conclusive interpreter of the law which it puts in action."

The only other permanent factor I would recommend to your notice as a subject for study is the revolution effected in financial administration by the passing of the Exchequer and Audit Act of 1866. Within the next six years the Lords of the Treasury decided on their future course of action in regard to their "agents" and the control of public money. I will quote one paragraph from the Treasury Minute of Aug. 14, 1872:

"It will be remembered that the Exchequer and Audit Act which became law on June 2, 1866, was intended to come into operation on April 1, 1867. The amount of labour, however, connected with the entire remodelling of the estimates and accounts of the Civil Service, and to some extent of the Military and Naval Services, and the arrangements necessary to reduce them into working order proved so great that it was quite impossible to bring the Act into full operation at the prescribed date. It was, indeed, only on April 1, 1868, that every branch of the Imperial service became actually subject to its provisions; and for a long time subsequent to that date the Public Accounts Commissioners were continuously employed in working out the balances which would form the basis of the audit ordered to commence as from the date mentioned."

This extract is taken from the Handbook to Reports from Committee of Public Accounts 1911. In the preface the Comptroller and Auditor-General mentions that the volume comprises "all the matter of permanent interest contained in the Reports of the Committees and the Treasury Minutes thereon, since 1857." He goes on to say that "it has been his aim to include:

- (1) All recommendations on question of principle affecting accounts, generally, if still in force.
- (2) Recommendations afterwards amplified or amended, only when it seemed desirable to illustrate the historical development of a principle.
- (3) Recommendations relating to particular accounts, only when necessary to explain the form or contents of the current estimates or accounts."

The ordinary handbooks of the Comptroller and Auditor-General are issued periodically.

We have now passed under review the chief permanent factors of Post Office Administration and Finance. These factors are, as I have said, everywhere present. They enter recognised or unrecognised into every comprehensive subject of discussion. Isolated and apparently insignificant "cases" have some relationship with these fundamental principles. It matters not whether the "case" originates in an obscure village in Cornwall in the South, or at a busy centre in Northumberland in the North: beyond the Tweed, across the Irish Sea, in the Isle of Man or the Channel Islands they operate though their application may be provided for by special clauses in Parliamentary documents. In the international conception of the whole subject there is no distinction.

Besides permanent factors some attention should perhaps be given to what may be called

"Temporary" Factors in Public Administration and Finance.

They may be classified as of minor importance, of considerable magnitude, of far-reaching significance, of periodical character. Here we seek the episodes in the "life" of the Post Office. Quite close to them in time they may appear to be of surpassing interest. As time passes their disturbing influence becomes less felt until, like the great wars of the past, they are scarcely observable. While the events are current the strain upon the principal agents may be immense, almost overwhelming, and the attainment of the end desired a great triumph.

From this standpoint the date, the occasion of the first occupation of one of the modern group of buildings which form St. Martin's le Grand is of minor importance. Much is revealed by the construction of these public offices, and the fact that the military authorities are guarding them at this hour helps to remind us that we are at the centre of the Empire. But the transition from one building to another is of the day.

Perhaps the purchase by the State of the National Telephone Company's system of trunk lines must be given a higher place in the list of comparatives.

Higher still, though this is a matter of opinion, were the negotiations entered into during 1884 and the next five years for the acquisition, in conjunction with the administrations of Germany, France, Holland and Belgium, of the cables owned by the Submarine Telegraph Company and connecting this country with the Continent of Europe. The purchase of the cables was carried out in 1889.

The recent purchase of the National Telephone Company was a much larger, yet still, I venture to submit, only a temporary factor. Looked at as a commercial undertaking and compared with other enterprises controlled by private persons the transaction was of the first magnitude. At least, it

appeared so at the time. All our ideas of magnitude have, however, undergone a change since Aug. 4, 1914. £12,000,000 is an insignificant sum when we think of the nation's expenditure on the war reaching a figure not far short of £5,000,000 a day. How silently and rapidly has the commercial enterprise passed into the activities of the State, and the episode become almost wholly a matter of history.

Under the heading "Temporary" I am inclined to place "those borrowing powers conferred by Parliament" since 1892. The loans were raised by the National Debt Commissioners; they are redeemable by terminable annuities; they represent spending public money on particular objects. The right appropriation of these moneys gave rise to many serious questions in regard to policy, contracts, staff, apportionment. All sections of financial administration were concerned, and perhaps the Comptroller and Auditor-General by no means the least. The difficulties of presenting the financial statements in "commercial" form were fully set out by the Comptroller and Accountant-General.

As an illustration of factors of a periodical character mention must be made of the preparation of the estimates annually. There is great activity in this connexion during the last quarter of the calendar year. Every item of expenditure included in the total of £26,800,000 (1915-16) is reviewed, and I recall to mind the remark of an authority on finance that he was astonished at the accuracy with which the estimates were framed. With the passing of the final proof—every figure of which is of vital interest—and unless, at the last moment other Parliamentary proposals affect the totals—the estimates "pass," and ere long the work of the principal bookkeeper begins and does not finally end until the last days of the November in the following year but one.

Day to day Correlation of Public Administration and Finance.

This is a stage removed from the great episodes of the past. In the earlier part of the address emphasis was laid on correlation on a large scale in regard to laying down fundamental principles, to the closest unity of action in preparing the way for executive measures, to the adoption of considered policy. This section must be devoted to "current business," business over and above the work involved in Sections 1 and 2.

How does day to day correlation arise? What does it mean? Suppose it were possible to enumerate every class of "case" under consideration on any one day, how many subjects should we have? There is no need to press for an answer, but the enunciation of the idea is sufficient for my purpose; the number is legion. Let us ask another question. What is the key to the financial administration of the Post Office? I think we shall find that intercourse is at the basis of Post Office activities. Intercourse gives rise to a thousand problems in relation to the expansion of one service, to the contraction of another, to the adoption of alternative services, the partial use of possibly three services. Intercourse may be subdivided into trading and non-trading. It primarily has importance in local areas, the larger urban districts, the great cities; it exists between individuals in different parts of the United Kingdom; the principle extends to the dominions beyond the seas, and, until the outbreak of the war, in a greater degree to individuals on foreign territory. The intercourse may take the form of written communications in sealed or open packets—telegraphic messages—telephonic conversations—the transmission of articles of value—despatching of larger packets as parcels—the exchange of monetary documents. The tendency is for the intercourse to increase and touch the farthest points of civilisation, and beyond civilisation. From this point of view the annual report of the activities of the Post Office is of living interest, and the results of day to day—April 1 to March 31 of each financial year—administration are tabulated and valued. There is no complete collective summary of the activities of the Post Office in relation to foreign States. If there were time I think it would be of interest to see what variations exist in the number and value of the different classes of transactions during the year. Another helpful subsidiary study is an examination *e.g.* of the frequency of the "lines of communications" between the mainland of Great Britain and Ireland, and the isles of the surrounding seas. I may not be quoting the very latest standard time, but here is an interesting item. By means of the correlation of administration and finance a Home Packet Service has been arranged so exactly that the time on outward journeys (including transfer on both sides of the Channel) between Holyhead and Kingstown is fixed at 3 hours 37 minutes night service, and 3 hours 22 minutes day service. Time on inward journeys (including transfer) 3 hours 32 minutes night service, and 3 hours 17 minutes day service. Turning over the pages of the report we find a service between Shetland (Walls) and Foula; its frequency is once a fortnight (October to March); once a week (April to September). A page or two farther on we have the services to places outside the United Kingdom. Like as the Berne official map shows the international and submarine telegraph lines it would be instructive to place on the same chart the lines of communication for the conveyance of mails. The routes to Australia, alone, point to the constant correlation of administration and finance. On page 712 of the Post Office Guide we find Australia is reached *via* France and P. & O. line, *via* France and Orient line, by sea direct, *via* San Francisco, and *via* Vancouver. The dates of despatch and arrival of Foreign and Colonial mails and parcel post, &c., take up no less than 144 pages of the Post Office Guide. Though it is not part of my duty to speak of sea power the safety, due departure, and arrival of mails, is a matter of supreme importance to the nation.

From an interior point of view I submit for consideration the Post Office financial problems arising out of the customs, the more or less permanent factors of our English life. I think the central point in the calendar year is the August Bank Holiday, and its immediate association with the vacation

Gell Telegraphic Appliances Syndicate, Limited.

ON WAR OFFICE, ADMIRALTY, POST OFFICE, CROWN
AGENTS, AND OTHER COLONIAL ADMINISTRATIONS
LISTS OF CONTRACTORS.

SOLE MANUFACTURERS OF THE

GELL KEYBOARD PERFORATOR.
GELL Motor - Driven Transmitter.
GELL Motor - Driven Receiver
for Morse and Cable Wheatstone working.

Also Manufacturers of

**LANDLINE, CABLE AND WIRELESS
TELEGRAPHIC APPARATUS.**

Registered Offices:

GELL TELEGRAPHIC APPLIANCES SYNDICATE, LIMITED,
Sardinia House, Sardinia Street, Kingsway, W.C.
Telephone: Holborn 6826.

Works:

GELL TELEGRAPHIC APPLIANCES SYNDICATE, LIMITED,
Pine Grove Works, Tollington Park, London, N.
Telephone: North 1196. Telegrams: "Gelltas, London."

EBONITE.

TONS of SHEET, ROD and TUBING in London
Stock in various Qualities and numerous Sizes.
EBONITE-VULCANITE owing to its special nature,
can only be made successfully after many years of experience.

We have been manufacturing this Material for
OVER 60 YEARS.

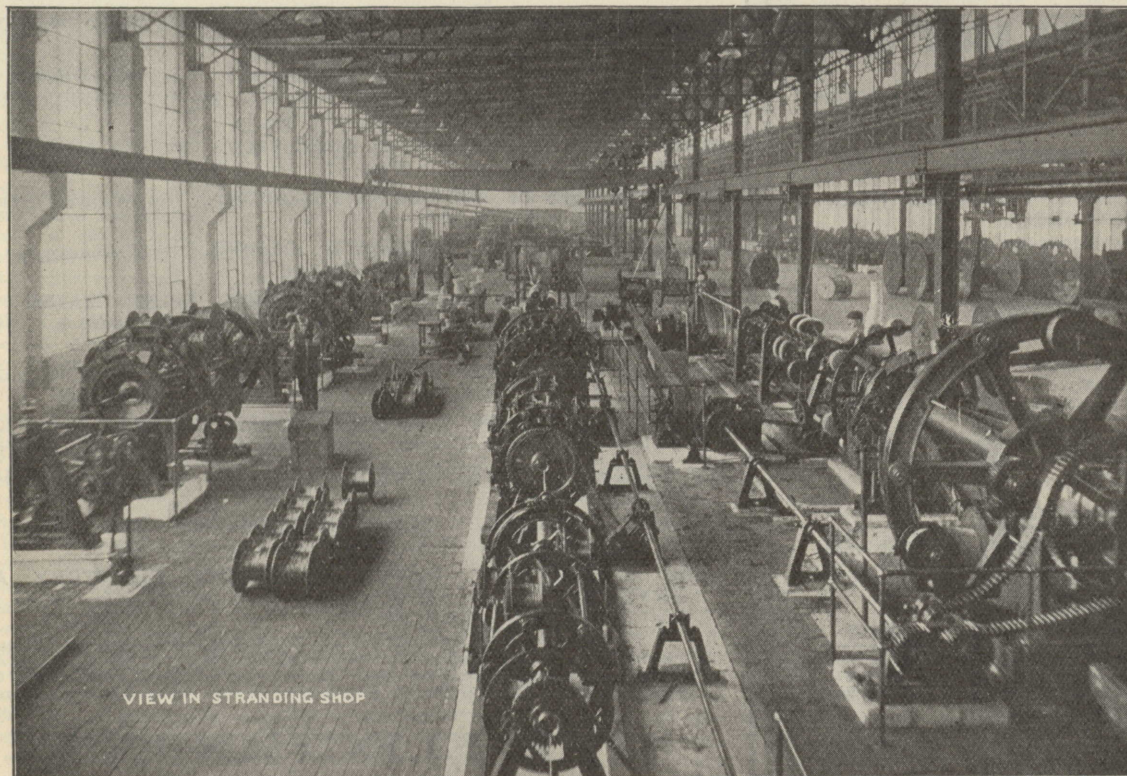
AMERICAN HARD RUBBER CO.,

13a, FORE STREET, LONDON, E.C.
"EBONISETH, LONDON." CENTRAL 12754
Head Office: 9-13, MERCER STREET, NEW YORK, U.S.A.
Factories: Akron, Ohio. Butler, New Jersey, College Point, New York.

Silk and Cotton-Covered H.C. Copper Wire,
Asbestos Covered Wire,
Charcoal Iron Core Wire,
Resistance and Fuse Wires,
Binding Wires,
&c., &c.

P. ORMISTON & SONS,
ESTABLISHED 1793.
79, Clerkenwell Road, London, E.C.
13259 CENTRAL.

Braided and
Twisted Wires,
Bare Copper Strand
and Flexibles of any
construction. Wire Ropes and
Cords, down to the finest sizes, in
Galvanized Steel, Phosphor Bronze, &c.



VIEW IN STRANDING SHOP

Electric Cables

Insulated with

Impregnated Paper,
Vulcanised Bitumen,
Vulcanised Rubber,
Paper and Dry Air.

Suitable for

Lighting,
Power,
Telephony,
Telegraphy, &c.

THE UNION CABLE CO. LTD.,

Telegrams: "CABLEWELL, DAGENHAM."
Telephone: RAINHAM 25 & 26.

DAGENHAM DOCK ESSEX.

CARE OF THE EYES.

THE EASTERN OPTICAL CO.

(Principal - M. SAMMES).

2, 3, & 4, Workman's Hall Buildings, Romford Rd., Stratford, E.

Telephone: 177 STRATFORD.

HOURS OF ATTENDANCE: 10.30 A.M. TO 8 P.M. THURSDAYS, 10.30 A.M. TO 1 P.M.

City Depot.—152, 154, and 156, CITY ROAD.

(Adjoining Moorfields Eye Hospital).

Telephone: 1309 LONDON WALL.

HOURS OF ATTENDANCE: 9 A.M. TO 8 P.M. SATURDAYS, 9 A.M. TO 1 P.M.

Clapham Depot.—96, ST. JOHN'S ROAD, CLAPHAM JUNCTION.

Telephone: 3033 BATTERSEA.

HOURS OF ATTENDANCE: 9.30 A.M. TO 8 P.M. WEDNESDAYS, 9.30 A.M. TO 1 P.M.

Ophthalmic Opticians by Appointment to Hospitals, Doctors, Public Institutions, &c.

MAKERS TO:—The London County Council; The Metropolitan Hospital Sunday Fund, Mansion House, E.C.; The Salvation Army; and numerous other Institutions, London and Provincial.

LOCAL APPOINTMENTS:—The West Ham and Eastern General Hospital; The West Ham, East Ham, Leyton and Leytonstone School Children's Hospital Fund; West Ham Guardian; West Ham and East Ham Education Committees; The Infant Orphan Asylum, Wanstead; Mansfield House Settlement, &c.

AS TO OUR ABILITIES WE REFER YOU TO OUR APPOINTMENTS.

The Glasses we supply to Hospital Patients are the best modern Science can produce, and in no case exceed 3/6, in Steel Frames.

ARTIFICIAL EYES FITTED FROM STOCK OR MADE TO ORDER 3s. 6d. NO EXTRAS.

SPECIAL TARIFF TO CIVIL SERVANTS.

	PER PAIR
Spectacles or Pince-nez in steel or solid nickel frames, with sphere or compound Lenses	3 6
Spectacles or Pince-nez with sphere or compound lenses in 10-year gold-filled frames	7 6

MADE TO OCULISTS' OR HOSPITAL PRESCRIPTION INCLUDING A GOOD SERVICEABLE CASE, WE HAVE ALWAYS IN ATTENDANCE A FULLY QUALIFIED REFRACTIONIST TO TEST AND ADVISE YOU, FREE OF CHARGE.

VOLUME III.

THE

CABLE PLANT

By A. V. A. ABBOTT,

Chief Engineer, Chicago Telephone Co.

153 pp., 5 x 8, 52 ill. Price 6/3 net.

CHAPTER I.—The Principles of Circuit Design. II.—Mechanical Properties. III.—Installation. IV.—The Question of Electrolysis. V.—Cost of Cable Wire Plant. VI.—The Construction of Cable Plant.

AMERICAN ELECTRICIANS' HANDBOOK.

BY TERRELL CROFT.

Over 500 pp., pocket size, flexible leather, full gilt. Price 12/6 net.

THERE ARE SIX MAIN SECTIONS:—

- I.—FUNDAMENTALS.—A reference section on principles of electricity and electrical engineering.
- II.—GENERATORS AND MOTORS.—Characteristics and Management—Troubles and Remedies—Direct and Alternating Current Machinery—Starting and Controlling Devices—Installation.
- III.—DISTRIBUTION.—Pole lines—Underground Conduits—Transformers—Design of Systems, &c.
- IV.—INSIDE WIRING.—Every detail for all kinds of wiring, including old buildings, mines, signs, &c.
- V.—TRANSFORMERS.—Connections—Operation—Types—Special Forms—Installation.
- VI.—ILLUMINATION.—Interior and Street—Types of Lamps—Design—Installation, &c., &c.

STANDARD TELEPHONE WIRING,

BY J. F. FAIRMAN.

Leather. 91 pages, 4 x 6, 74 Illustrations. 4/2 net.

HAVE YOU SEEN OUR CATALOGUE TT ?

Hill Publishing Co. Ltd. 6 & 8, Bouverie Street, LONDON, E.C.

THE Telephone Rendered Audible under Gunfire

BY THE USE OF

MALLOCK-ARMSTRONG Patent EAR DEFENDERS.

(Mr. A. MALLOCK, F.R.S.—Sir W. G. ARMSTRONG, WHITWORTH & Co. Ltd.)

SMALL SOUNDS ARE PRESERVED.

WHEN WEARING THE DEFENDER THERE IS:—

NO TEMPORARY DEAFNESS, NO LOST TIME,
NO MISUNDERSTANDING.

IT IS WORN IN COMFORT UNDER THE RECEIVER OR GAS HELMET.
CONSTRUCTED ON ACOUSTIC PRINCIPLES.



Supplied to every Ship in H.B.M. Navy.



Involves no inconvenience to the wearer.

Remove the Defenders from the Clips and place one in each ear.

In Metal Pocket Case with "Safe-find" Rubber Clips, as illustrated,

4s.

Per Pair.

Post Free,

4s. 2d.

with full particulars.

Many thousands already in use in the firing line.

Indestructible.

From Stores, Outfitters and Surgical Instrument Makers, or from:—

MALLOCK-ARMSTRONG EAR DEFENDER CO.,

FACTORY: 5 CARTARET STREET, WESTMINSTER.

NEW & RECENT BOOKS

In "THE ELECTRICIAN" SERIES of Standard Electrical Works.

WIRELESS TELEGRAPHY AND TELEPHONY: A HANDBOOK OF FORMULAE, DATA AND INFORMATION. By W. H. ECCLES, D.Sc. *Now ready.* 12s. 6d. nett, post free 13s.

COMMON BATTERY TELEPHONY SIMPLIFIED. By W. ATKINS. *New Edition.* 3s. nett, post free 3s. 6d.

THE PRINCIPLES OF AUTOMATIC TELEPHONY. By WALTER ATKINS. 2s. nett, post free 2s. 2d.

AMATEUR WIRELESS TELEGRAPH DESIGNS. By "ALFREC." *New Edition.* 2s. 6d. nett, post free 2s. 9d.

LOCALISATION OF FAULTS IN ELECTRIC LIGHT MAINS. By F. C. RAPHAEL, M.I.E.E. *New and Revised Edition.* JUST PUBLISHED. 8s. 6d. nett, post free 9s.

ELECTRIC SWITCH AND CONTROLLING GEAR. By C. C. GARRARD, Ph.D., M.I.E.E. *Nearly ready.* 15s. nett, post free 15s. 6d.

STUDENTS' GUIDE TO SUBMARINE CABLE TESTING. By H. K. C. FISHER and J. C. H. DARBY. *Fifth Edition.* 7s. 6d. nett, post free 8s.

THE THEORY OF THE SUBMARINE CABLE. By H. W. MALCOLM, D.Sc. *Nearly ready.*

PRIMARY BATTERIES: THEIR CONSTRUCTION AND USE. By W. R. COOPER, M.A., B.Sc. *New Edition nearly ready.*

"THE ELECTRICIAN" ELECTRICAL TRADES DIRECTORY AND HANDBOOK. 34th (1916) *Edition now ready.* 15s. nett, post free 15s. 9d.; abroad 17s. 6d.

This work of over 2,000 pages has been carefully revised to mid-February, 1916, and, in addition to the Directory Sections, it contains many electro-technical Tables, a Digest of the Law of Electric Lighting and Traction, the Board of Trade and Home Office Rules as to the supply and use of Electrical Energy, Wiring and Fire Risk Rules (British and Foreign), &c., &c.

"THE ELECTRICIAN,"

THE OLDEST AND BEST WEEKLY ELECTRICAL JOURNAL.

Every Friday, price 6d., Post free 7d.

Full catalogue of books will be sent (post free) on application to

"THE ELECTRICIAN" PRINTING & PUBLISHING COMPANY, LIMITED,
1, 2 & 3, SALISBURY COURT, FLEET STREET, LONDON, E.C.

permitted to all classes of students, particularly the more youthful. The activities of the Post Office are centred here. There is no doubt this is so in connexion with inland telegraphic communications, and the highest point in foreign telegraphic traffic is reached during October. Of course, I shall be told that the greatest part of the Postal revenue is derived from the English custom of keeping Christmas. I speak not from exact knowledge, but I have ventured to assert that the profits of the Post Office would dwindle down to vanishing point if Christmas, and all that it means to commerce and industry months before, were to become a festival only of the past.

Our special purpose is, however, financial administration, considered somewhat apart from the effects of administrative action, and before I leave "day to day" correlation I ask permission to allude to one or two points which I hope will be regarded as free from unbecoming criticism.

(1) I acknowledge the value of accurate statistics. They are the very breath of business the other side of the Atlantic. The telephone specialists keep the subject in the forefront. As a whole I am of opinion that the preparation and use of statistics has not reached its highest point. For example, is there no danger that the figures, the tabulations, the measurements, as they are called, may remain cold and lifeless if the investigator has no appreciation of what the figures represent? I was much struck by the skill with which Mr. Tyrrell, of the Central Telegraph Office, interwove his discussion of the Baudot system, as introduced into India, with illuminative details of native life in that great peninsula. Do we study sufficiently the effect on the statistics of Post Office activities of the different geographical features of the United Kingdom? What difference does it make to Post Office revenue and expenditure by reason of the continuous chain of hills passing down the centre of northern England? Apparently the junior students of Post Office institutes are being prepared for a truer comprehension of regional geography, and in time the work of Professor Mackinder of the School of Economics will familiarise us with the import of the natural features of the country, and the existence of different "wants" will be perceived as something more important than the tabulation of figures.

(2) May any observations be made respecting methods of financial administration. One great advance was the introduction of the *précis* system. But have we even now devised the shortest means of reaching our goal? I quite admit that the constant review of a subject, large or small, is of the greatest advantage. The files of documents extending over perhaps 20 or 30 years all contain facts to be borne in mind—I am not thinking of the permanent or temporary factors which formed the more important portions of my address—but can we be sure that all the facts are there? Can they be isolated? Are they readily accessible?

I feel that scientific organisation demands some means whereby the progressive development of every subject should be instantly available. Not a collection of papers, not files of incidents of the moment, not files which derive their importance from the initial number registered upon them, not simply records of decisions, but something in line with the methods of records of scientific societies who add chronologically each contribution to the list, and everyone can trace precisely what has happened.

Without this procedure there is danger that a decision may have outlived its time, an estimate or measurement may be used belonging to wholly different phenomena, a vital point may be missed by the accidental withdrawal of a file of papers or the omission, through no one's fault, of the correlation of two sets of papers dealt with by two different sections of a department but as entirely separate and distinct developments, though intimately connected as regards fundamental principles.

Perhaps you will bear with me while I mention one or two personal reminiscences respecting many years' study of organisation. For example, we had a chronological list of every Treasury letter dealing with the establishment of the Accountant-General's Department. We always knew exactly where we stood. Similarly every Order in Council was closely studied the moment it appeared, and the exact bearing of every important point set out for future developments. So also, in regard to pensions, every important point of principle was extracted and studied as to possible eventualities. Every piece of information was there in its place.

(3) The question of training. I know that the general opinion of scholars is in favour of the severest mental training carried on beyond the ordinary years of school life, is the best preparation for public life. On the other hand the highest technical training is said to require an apprenticeship commencing at a comparatively early age. The point I want to insist on is that all the great problems of financial administration, affecting all branches of the public service, have to be mastered by officers whose preparation has been spasmodic and perhaps haphazard. The highly trained officer, however the training has been acquired, must start *de novo* to grapple with problems on comprehensive lines, and while his criticism may be destructive in character, it must include the more difficult achievement, viz., constructive power. But how many months—in fact how many years may be, and often are spent under present conditions—and I do not venture a solution of this type of problem—in getting a grip of essential principles and collecting the available data so as to form readily a sound judgment. I regard this as independent of the ascertainment of the facts. That is after all the preliminary part only of study. The facts are the evidence, but the consideration of the data in relation to public affairs generally is quite a different matter. The importance of training arises from another factor—the staff must be interchangeable. As I have imperfectly shown the range of financial administration keeps extending, the conception of public business is always enlarging, the ramifications of the Post Office systems in the area of other State and municipal activities extend from year to year. All the time financial

administration is such that an officer may, at a moment's notice, be called upon to take up new responsibilities in other spheres of thought.

(4) A word as to pure research. In every department of science research work is being carried on. Until recently the State devoted but little attention to the subject. Research has been rendered possible chiefly through the magnanimity of private citizens. We see the process of research operating on a small scale in relation to the Awards Committee of the Post Office. Committee work partakes of the nature of research, but I venture to think the investigations are chiefly concerned with known complexities of public business. Individual officers of the department seize upon a subject now and again, and produce an exhaustive memorandum on the lines of historical analysis. Pure research seems to be something apart from these. I mean the research student is not only working in the "unknown" of the present, but he is trying to put himself into the future so that when the future becomes the present, everything shall be ready for applied science and based on fundamental principles. This class of work does not favour the introduction of schemes hurriedly put together in a time of tumult; it means that the certainty of the future shall be settled now in the quiet of the laboratory and on comprehensive lines. I shall be told that such research or development is already a part of the normal extension of telephones, but I am thinking of the possible and probable eventualities in financial administration generally.

In this connexion I would draw attention to a very striking prefatory essay by Professor Karl Pearson on the "Function of Science in the Modern State," which fronts the Vol. XXXII of the *Encyclopedia Britannica*. I wonder whether while we read the following extract we can think of the Post Office as an interested party, as having an equally keen interest in developments: "Especially, owing to the rapidly altering, ever contracting and developing processes of commerce, will it be needful for the teacher to keep in touch with current progress and methods. Nor can a man rear men to be pioneers unless he has done pioneering work himself. It is a big task which the Commercial University sets before itself, full of difficulties and possibly pitfalls, but one of essential national importance to-day. When our commercial leadership has been more than threatened, we have to rear a new type of worker who will see in trade not only a source of individual profit, but a patriotic duty. Developing commerce on the Yangtze, or struggling against fever in West Africa, or starting new enterprises in the Argentine, the trader must realise the relation of his efforts and those of his colleagues to thousands of handworkers at home, whose bread must come from over the sea by exchange. He must recognise that on his intelligence, on his linguistic and local knowledge, on his readiness to adapt goods and transit to environment, depends, to a far larger extent than has been dreamt of in the past, the national fitness to survive." This vision of things can surely be associated with the growth and development of the Post Office.

Outside the consideration of permanent, temporary, day to day factors in the financial administration of the Post Office are many extraneous problems continuously demanding attention. I will mention only a few; for example, bank notes, treasury notes, bills of exchange, valuation and destruction of spoilt stamps, manufacture of stamps, purchase of lands, contracts of all kinds, criminal law investigations, workmen's compensation, and so on. There are also, e.g., direct relations with the National Debt Commissioners, the Inland Revenue Department, the War Office, the Admiralty, municipal authorities, railway companies, the principal banking institutions of the country, &c., &c. These auxiliary matters may not come prominently under notice, but they are all features of the financial administration of the Post Office.

Thus we draw naturally to the close of our brief survey of the correlation of public administration and finance.

We have tried to "discover" the Post Office, what that two hundred and fifty year institution means, where it stands in relation to the sovereignty of the State, to the international agreements which form the basis of our intercourse with foreign States, to the privileges, the prerogatives of the Crown, to the expressions of the will of Parliaments in the Acts passed from time to time and still in force, to the comprehensive manner in which the Civil Service and the special organisation of the Post Office, are the subjects of Treasury control through Orders in Council and Parliamentary Revisions, and to matters subsidiary to these fundamental considerations. We find that fresh activities enter almost daily into the life of the Post Office. What is comprehended under the title of Post Office is far beyond the work of ten years ago. The complexity of things increases.

In conclusion, what shall we say of the future, that future which imperceptibly becomes the present before we have time to detach ourselves and see what has happened. The site on the eastern side of St. Martin's le Grand is vacant. Some day a new structure will appear. The architecture will not be quite the same as the old General Post Office. The imaginative power of the architect will, however, help us to realise ideas of proportion, of dignity, of magnitude, and I am sure a fitness to one of the finest sites in the City of London, the centre of the Empire. Likewise, while we associate ourselves with the traditions of the architecture of public business can we imagine, for the moment, the passing away of those customs, methods, and the entering upon an entirely new phase of things, a new life. If so, will it not be that the architecture of the business of the Post Office will be more nobly conceived, that degrees of magnitude undreamt of before the war will be reached, that the Post Office, with its wonderful past, will take to itself yet more activities and deal with more and greater financial interests. The omens are that the British Postal, Telegraph, and Telephone Administrations, including in that description all branches of the one great Department, will rise to what is required, and continue to be collectively one of the greatest, if not the greatest, in the family of nations.



GROUP FROM THE CASTE OF THE "MYSTIC MIRROR," LEEDS, MARCH 7 (see p. 165).

PERSONALIA.

NEWS OF THE STAFF.

LONDON TRAFFIC STAFF.

Transfers—

Miss E. NURSE has been transferred from London Wall Exchange to Hop, and her place at London Wall has been taken by Miss FORGE from the Hop Exchange.

Miss RUBY COX has been transferred from Stratford to London Wall.

Miss E. ELLIOTT has been transferred from Finchley to Hornsey Exchange.

Miss LAYTHORP has been transferred from Kensington to Western.

Miss VERNON has been transferred from Western to East.

Miss K. HOWARD, of East, has been transferred to the Savings Bank Department.

Resignations—

Miss PRING, the Chief Supervisor of Regent Exchange, has resigned on account of her approaching marriage. She received many presents from the staff, among which are included a silver tea set and candlesticks.

Miss C. M. GRIGG, Assistant Supervisor, Class II, of City Exchange, has resigned in view of her approaching marriage, and was presented with a silver tea set and other gifts.

Miss B. LEWIS, a Private Branch Exchange Telephonist attached to London Wall Exchange, has resigned on account of marriage.

Miss DOROTHY L. PEACOCK, of Dalston, has resigned on account of her approaching marriage, and was presented by the staff with a rose bowl.

Miss A. K. M. JACKSON, of East Exchange, has resigned.

Miss A. JELLEY, of East Exchange, has resigned.

Miss A. L. BUTCHER, of East Exchange, has resigned.

Miss V. REAY, of East, has resigned.

Miss A. SCARFE, Assistant Supervisor, Class II, of Avenue Exchange, has resigned on account of her approaching marriage.

Miss E. E. CRAVEN, of Avenue, has resigned to be married.

Miss E. M. FITCH, of Avenue, has resigned to be married.

Miss A. F. GOSNEY, of Avenue Exchange, has resigned.

Miss E. LAING, of Avenue, has resigned.

Miss A. SILVERMAN, of Avenue, has resigned.

Miss M. JORDAN, of Avenue, has resigned.

Miss C. L. HISLOP, of Battersea Exchange, has resigned in view of her approaching marriage, and was presented by her colleagues with a tea service and several other useful gifts.

Miss L. E. CROCKETT, of Paddington Exchange, has resigned to be married, and was presented with a tea service and other useful gifts by the staff.

Miss D. OWEN, of Paddington Exchange, has resigned on account of her approaching marriage, and was presented with a dinner service and other useful gifts.

Miss A. MARPLE, of Mayfair Exchange, has resigned to be married, and was the recipient of many useful presents from the staff and personal friends, including a silver tea service.

Miss A. D. E. SWIFT, of Mayfair, has resigned.

Miss L. J. HARRIS, of Mayfair, has resigned.

Miss V. S. HEALY, of Mayfair, has resigned.

Miss H. HAWLEY, of Holborn Exchange, has resigned to be married, and was presented with a tea service by the staff.

Miss M. B. FORDHAM, of Holborn, has resigned in view of her approaching marriage, and was presented with a tea service by the staff.

Miss A. E. SMITH, of Holborn Exchange, has resigned to be married, and was presented with a tea service by the staff.

Miss A. E. F. ROWE, of the Trunk Exchange, has resigned in view of her approaching marriage, and was presented with a dinner service and numerous other gifts.

Miss A. M. WELCH, of the Trunk Exchange, has resigned, and was presented with a dinner service.

Miss TURNER, of Western Exchange, has resigned to be married, and was presented with a dinner service, salad bowl and servers, a silver cake basket and several other useful articles.

Miss MACNAMARA, of Western Exchange, was the recipient of several useful presents on resigning to be married. They include a dining-room clock and silver toast rack.

Miss E. TAYLOR, of Regent Exchange, has resigned in view of her approaching marriage, and was presented with a dinner service.

Miss E. BARNARD, of Regent Exchange, has resigned to be married, and was presented with fish knives and forks.

Miss DEAVIN, of Dartford Exchange, has resigned.

Miss M. C. MARTIN, of Dartford Exchange, was presented with a gold brooch on resigning.

Miss DRAKE, of Erith Exchange, has resigned.

Miss YOULL, of Greenwich, has resigned in view of her approaching marriage, and was presented by the staff with a set of pictures and some glass ware.

Miss A. M. MERCHANT, of City Exchange, has resigned to be married, and was presented with a clock and other gifts.

Miss M. SADLER, of Holborn, has resigned.

Miss L. M. A. HARRIS, of Holborn, has resigned.

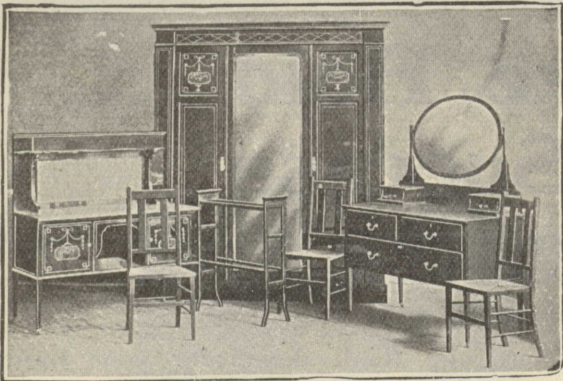
PROVINCIAL STAFF.

Mr. S. McFADDEN, Traffic Superintendent, Norwich, upon the occasion of his transfer to Bournemouth in a similar capacity, was presented with a handsome inlaid china cabinet, which was subscribed for by numerous colleagues and friends.

Miss D. E. BOOT, Telephonist, Nottingham Trunk Exchange, has been promoted to be Assistant Supervisor, Class II, Nottingham Trunk Exchange.

Miss ELSIE STUBBINGS, of Chelmsford Trunks, has resigned to be married to Sapper F. FROST, of this office. They were presented by the staff with cutlery, silver and other gifts.

Miss W. BUTCHER, of Chelmsford Trunks, has resigned.



Antique and Modern
Furniture

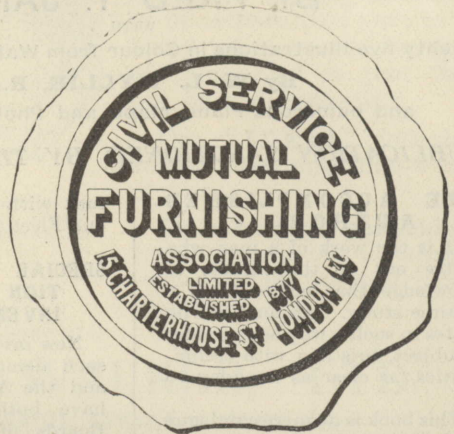
of Distinction and Durability

For **CASH** or **EXTENDED PAYMENTS**

can be obtained by

CIVIL SERVANTS

on the most advantageous terms from the



**CIVIL SERVICE
Share Purchase and Investment Society, Ltd.**

ESTABLISHED 1885.

Registered under the Industrial and Provident Societies' Act, 1876.

143, QUEEN VICTORIA STREET, LONDON, E.C.

This Society offers facilities for purchasing or mortgaging Shares in the Civil Service Supply Association and other Stocks, Shares and Securities, by means of Advances repayable by monthly instalments at the following rates for each £10 advanced.

ADVANCES MADE ON LIFE POLICIES.

Monthly Rate of Repayment (Principal & Interest Included) for each £10 advanced.

1 Year. 2 Years. 3 Years. 5 Years. 7 Years. 10 Years.
17s. 5d. 9s. 1d 6s. 3d. 4s. 1d. 3s. 1d. 2s. 5d.

Stocks and Shares bought or sold through the agency of this Society.
Full particulars may be obtained of the SECRETARY.

The amount advanced since the commencement of the Society exceeds the sum of £600,000.

STAMP AUCTIONS

of FOREIGN and COLONIAL
POSTAGE STAMPS held
Weekly from September to July.

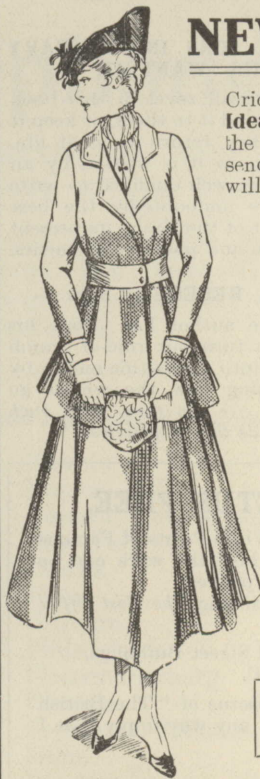


We have sold nearly a Quarter of a Million lots during the last 14 years, obtaining many record prices. All lots are offered within 10 days of receipt. Expert Advice and Valuations free. Liberal cash advances made on stamps sent for sale.

ESPECIALLY WANTED: High-class Colonial Stamps and Collections of Great Britain. Marginal Varieties of Edwardian and Georgian issues.

HARMER, ROOKE & CO., STAMP AUCTION SPECIALISTS,
(DEPT. K), 69, FLEET STREET, LONDON, E.C.

**HAVE YOU SEEN THE
NEW STYLES?**



Crichton's New "Book of Ideas" is now ready—all the new Spring Fashions; send a postcard, and a copy will be sent immediately.

Why don't you open an Account at
Crichtons'?

You can order your New Coat and Skirt, Overcoat, Mac, or Raincoat, Furs, Fur Coats, Blouses, Underwear, Shoes, Trunks, &c., &c. on the "Times" System—quite private and confidential—
from 5/- monthly.

A postcard sent off to-night and full details will reach you by return.

Special Terms to Telephone and Post Office Staff.



CRICHTONS' LTD.

Ladies' Tailors, Furriers and Outfitters,
14, CRICHTON HOUSE, DEVONSHIRE SQUARE, LONDON, E.C.
(One minute from Liverpool Street Station).

How will the War be Won?

The British Ambassador at Petrograd says: "The Navy will, unless I am mistaken, prove a vital factor."

Another equally high authority says: "It is the Navy that will—slowly but surely—strangle the life out of the Huns and bring them to their knees."

To understand aright the debt you owe the Navy get

THE BRITISH BATTLE FLEET

ITS INCEPTION AND GROWTH THROUGHOUT
THE CENTURIES TO THE PRESENT DAY

BY FRED T. JANE,

WITH

Twenty-five Illustrations in Colour from Water Colour Drawings

By W. L. WYLLIE, R.A.,

and numerous Plans, Maps, and Photographs, &c.

PUBLICATION SANCTIONED BY THE ADMIRALTY.

THE ACCOMPLISHED AUTHOR.

It is the work of a man who writes out of the fulness of knowledge that comes from a lifetime study. An author who writes in such a way as to render a subject, bristling with technicalities, as clear as noonday to all.

This book is no mere catalogue of fighting ships, but the only genuine

HISTORY OF THE NAVY.

It treats of types and designers of those types, takes account of every genuine improvement in "effectiveness" from the days of the "Great Harry," commissioned by Henry VII. (the first British ship designed and used exclusively for war), down to the largest and latest of our super-dreadnoughts, "The Queen Elizabeth."

It gives an authentic account of the important new arms

THE SUBMARINE AND THE WATERPLANE.

Mr. Jane graphically describes both the uses and the limitations of these remarkable engines of war.

In short, this is probably the most vital book of the day, for it makes plain to all the great

task with which our men and our Fleet is entrusted.

SPECIAL VALUE TO MUNI- TION WORKERS AND INVENTORS.

New inventions were never in such demand. The Admiralty and the Munition Department have both set up influential Boards of Distinguished Men specially to examine all ideas submitted, *but these ideas must be practical.* Read "The British Battle Fleet" to understand what is wanted by the Navy.

YOUR SONS IN THE NAVY WILL WANT IT.

They will revel in this book if you send it to them, or keep it until they return to civil life. They know it is written by an able man well qualified to write what is undoubtedly the best account of the Navy, its present purpose and past achievements.

"THE REFEREE" says:—

"The author has 'done his bit' to turn our rule-of-thumb nation into a scientific nation by explaining how the wheels go round. . . . *In these days such a book as this is priceless.*"

ILLUSTRATED CONSPECTUS FREE.

Containing Coloured and Black and White Prints of Famous Ships together with full details showing how the work can be purchased by all without strain upon the pocket.

Please send Form or a postcard mentioning *The Post Office Telegraph and Telephone Journal.*

The Library Press, Ltd., 5 & 6 Portugal Street Buildings, Portugal Street, London, W.C.

Please send me the Illustrated Conspectus of "The British Battle Fleet." This request does not in any way imply that I will purchase the book.

Name

Address.....

Take Hold of Success

More chances are opening up to-day for better-than-average men and women than ever before.

Don't be left behind.

Stop right here and think—don't mar your future by hesitation and timidity—develop your mental efficiency on practical lines—train your mind to achieve—to grip every chance and make the most of it.

Arnold Bennett says mental efficiency is essential to success.

This series of mental efficiency books, edited by a business expert who has helped thousands to success, has just been printed, and to first buyers we offer to send them on approval at our risk. They are marvellous books, unfolding the secrets of business success, rapid progress and certain fortune. Apply quickly for an approval set; only a certain number available.

MENTAL EFFICIENCY SERIES.

Poise: How to Attain It. By D. STARKE.

Force of Character: How to Develop It. By D. STARKE.

Timidity: How to Overcome It. By YORITOMO-TASHI.

Influence: How to Exert it. By YORITOMO-TASHI.

Opportunities: How to Make the Most of Them. By L. CHARLEY.

Common Sense: How to Exercise It. By YORITOMO-TASHI.

Practicality: How to Acquire It. By R. NICOLLE.

Perseverance: How to Develop It. By H. BESSER.

Speech: How to Use It Effectively in All Phases of Daily Life. By XANTHES.

Personality: How to Build It. By H. LAURENT.

Any single volume can be supplied for 3/-; 3/4 by post.

Exclusive Terms to readers of the T. T. J.

By using the Coupon below you can have the entire set to examine for Three clear days, at our risk. You can then either return them or keep the set and send

2/6 only,

the rest being payable by monthly instalments.

YOU RUN NO RISK.

WAR WORDS and their meaning.

Enclose two Penny Stamps for a copy of this valuable book. Ask for complete catalogue, which will be sent post free.

Coupon for Free Inspection.

To Messrs. FUNK & WAGNALLS,
134, Salisbury Square, London, E.C.

Please send me on approval for three days, carriage paid and entirely at your own risk, a set of the MENTAL EFFICIENCY BOOKS. If approved, I will send 2/6 within 8 days and 2/6 per month thereafter till the full purchase price of 30/- is paid. If I do not want the books after inspection I will return within three days of receipt.

Name.....

T.T.J. Address.....

HAND PAINTED PORTRAITS IN OILS or WATER COLOURS.

On Canvas and Stretcher. 15 x 12 inches.

PRACTICALLY LIFE-SIZE.

10/-



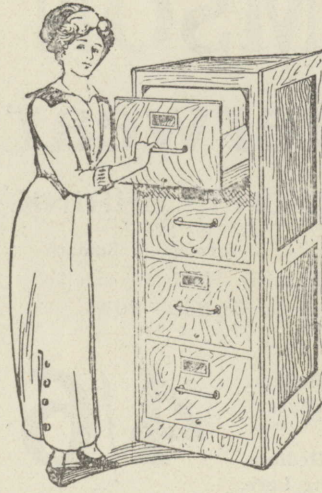
10/-

Do not keep photos of your friends hidden away in albums. Have their features before you in the natural colours of life. For 10/- we supply a permanent Portrait painted in oils or water colours, on canvas and stretcher, size 15 inches by 12 inches (practically life-size), ready for framing. We are making a speciality of Army Portraits at the present time. Accurate likeness guaranteed. Send photo and full details of colour of hair, eyes, complexion, and dress.

ART PHOTOGRAPHY LTD.

(T. & T. Dept.), 47, MINORIES, LONDON, E.C.

Neverstick FILING DEVICES



The Drawers are guaranteed never to bind or stick in any climate. They have Roller Bearings and can always be opened with the little finger.

Meet the needs of all Businesses, Trades and Professions. None too large and none too small. Our devices are all arranged on the Building-up System, so that you can start with sections for your requirements of to-day and add others as needs arise.

Has it ever occurred to you the amount of time that is wasted in waiting for letters or documents that have to be found when wanted, instead of being filed so that they can be had instantly?

Our "IDEAL" indexing system overcomes this waste of time.

Let us send you particulars together with our Catalogue containing 60 pages of Ideas, post free.

Write NOW whilst you think of it

SHAW-WALKER, LTD.,

33, ST. BRIDE STREET, LONDON, E.C.

THE Telegraph & Telephone Journal

A JOURNAL PUBLISHED IN THE INTERESTS OF THE TELEGRAPH AND TELEPHONE SERVICES UNDER THE PATRONAGE OF THE POSTMASTER-GENERAL

is an exceptional medium for advertising telephonic and telegraphic apparatus of all descriptions, circulating as it does amongst the principal European and Colonial Telegraph Administrations, Indian, Colonial and American Telephone and Telegraph Companies, and British and Continental Electrical Manufacturers.

The Journal circulates in all the principal Towns of Great Britain and Ireland, and in the following places abroad:—

Albany, New York
Alexandria, Egypt
Amsterdam
Baltimore
Berne
Bombay
Brooklyn
Brussels
Buffalo
Buenos Aires
Cairo
Calcutta
Cape Town
Chicago
Christiania

Colombo, Ceylon
Copenhagen
Denver
East Orange
Gyantse, Tibet
The Hague
Hong Kong
Johannesburg
Kuala Lumpur, Malay
Lisbon
Madras
Madrid
Mauritius
Melbourne
Mount Vernon, N.Y.

Nairobi
Napier, N.Z.
Newark, New Jersey
New York
Ottawa
Paris
Petrograd
Philadelphia
Pietermaritzburg
Pretoria
Reykjavik, Iceland
Rome
Rangoon
Santiago, Chili

San Francisco
Shanghai
Simla
Singapore
Soerabaja, Java
Stockholm
Sydney
Syracuse, N.Y.
Tokio
Toronto
Umtali
Vancouver
Wellington, N.Z.
Winnipeg



Leonard Lyle's

GOOD WEARING

"SAMSON" Underwear

THAT WON'T SHRINK.

Specially made of Strong but Smooth-Finished Natural Wool of suitable thickness for Comfort—NOW.

VESTS
PANTS

with Short, Medium, or Long Sleeves

with Short, Medium, or Extra Long Legs,

Strengthened with Merino at the Knees, Pockets, Seat.

4/6

Out Sizes extra.

LEONARD LYLE,

MAKER OF "COMPASS" COLLARS.

100, NEWGATE ST. (The Nearest Hosier to G.P.O.)

Safeguard your Health with
**Dr. J. Collis Browne's
CHLORODYNE**

THE RELIABLE FAMILY MEDICINE.

Doctors and the Public in all parts of the world have used it with unvarying success for upwards of 60 years.

THE BEST REMEDY KNOWN FOR
**COUGHS, COLDS,
ASTHMA, BRONCHITIS.**

Acts like a charm in **DIARRHŒA, COLIC, and other complaints of the bowels.**

Cuts short attacks of SPASMS, HYSTERIA, PALPITATION.

A true palliative in GOUT, NEURALGIA, TOOTHACHE, RHEUMATISM.

Checks and arrests FEVER, CROUP, AGUE.

NO BETTER PRESENT can be made to a friend on Active Service at home or abroad than a bottle of this well-known Medicine.

Of all Chemists, 1/3, 3/-, 5/-.

Always ask for a "DR. COLLIS BROWNE."

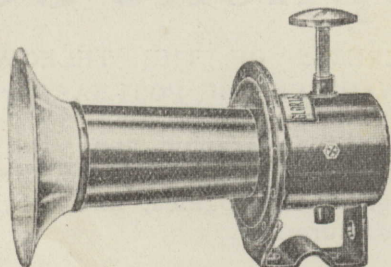
THE...
GLORIAPHONE
Hand-operated Mechanical **WARNING SIGNAL**

Type 'A' for Motor Cars

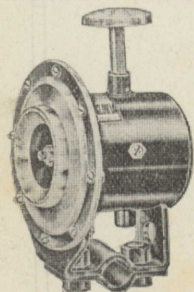
PRICE

21/-

Finish Black and Brass or Black and Nickel.



SIMPLE CONSTRUCTION. BEST WORKMANSHIP.



Type 'B' for Motorcycles

PRICE

18/6

VERY COMPACT EASILY OPERATED

Finish Black and Nickel.

The GLORIAPHONE is the most reliable Warning Signal on the market—ask to see one.

Also supplied in Black & Nickel with Top Tube Clip.

Large stock of **SIDECARS, BODIES, MAGNETOS, TYRES, TUBES, &c.,** at low prices.

CALL OR SEND YOUR REQUIREMENTS.

E. & A. BASTONE,

MOTOR DEALERS,

228, PENTONVILLE ROAD, KING'S CROSS, LONDON, N.
Telegrams: Bastones, Kinross, London.
Telephone: North 2481.

Why pay big prices for
Foreign Cigars?

Try a sample box of our well-known

"EL ECUADOR"
BRAND.

BRITISH CIGARS made from the finest tobacco grown.

El Ecuador Royals	-	-	50/-	per 100.
" " Conchas	-	-	42/-	" "
" " Gloriosos	-	-	32/6	" "
" " Princessas	-	-	26/-	" "

All packed in boxes of 50. Any quantity sent carriage paid.
Special quotations for larger quantities.
Send for sample box of 50.

Let us have a trial order, or send for full list.
You will be pleased both as to quality and price.

JAMES F. SNOW & CO.

SARACEN HOUSE, SNOW HILL,
LONDON, E.C.

