

# THE MARCONIGRAPH

WIRELESS-TELEGRAPHY-ILLUSTRATED-MONTH-BY-MONTH

NOVEMBER 1911

PRICE 20



**E C C**

MANUFACTURERS  
OF  
ELECTRICAL PLANT  
OF EVERY DESCRIPTION.

THE  
**ELECTRIC CONSTRUCTION Co.,**  
LTD.

HEAD OFFICE:—

Dashwood House,  
9, New Broad Street, London, E.C.

WORKS:—

Bushbury,  
Wolverhampton.

**WIRELESS TELEGRAPHY**

THE BRITISH SCHOOL OF TELEGRAPHY, Ltd.

Telephone : BRIXTON 215.

179 CLAPHAM ROAD, LONDON, S.W.

- Y**OUNG MEN, 18 to 24 years of age, trained for the Wireless Telegraph Service.
- ☛ The School specialises in the Marconi System. It is fully equipped, having two Stations fitted with 1½ K.W. Standard Marconi Sets (supplied and fitted by the Marconi Wireless Telegraph Company). It is recognised by the Company as a training School for Candidates for their Service.
  - ☛ The most successful School of Wireless Telegraphy in the Kingdom owned and controlled by Telegraph men.
  - ☛ 88% of our Students obtained the Government Certificate of Competency during the past year.
  - ☛ A knowledge of a foreign language is a recommendation. Day and Evening tuition. Fees moderate and inclusive.

For illustrated prospectus, post free, write **ARTHUR W. WARD, Manager.**

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

**P. ORMISTON & SONS,** 79 CLERKENWELL ROAD,  
LONDON, E.C.

"Ormiston, London."

ESTABLISHED 1793.

13259 Central.

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



**Schweppes**  
SODA WATER. DRY GINGER ALE.

Supplied at all First Class Hotels Clubs & Stores throughout the World.

Please mention "The Marconigraph" when writing to Advertisers.

# **SHIPS**

---

# **AT**

---

# **SEA**

---

*TELEGRAMS*  
*to all the*  
*PRINCIPAL*  
*ATLANTIC*  
*L I N E R S*  
*VIA*

## **— MARCONI —**

## **WIRELESS TELEGRAPH**

Write or telephone for MARINE  
FOLDER giving rates and  
particulars, or inquire at any  
POSTAL or WESTERN UNION  
TELEGRAPH OFFICE

---

---

**DEMONSTRATED**  
that Merchant and Pleasure Craft  
cannot afford to be without a

## **MARCONI EQUIPMENT**

A Wireless Outfit on your Vessel is a  
Safeguard against LOSS OF LIFE,  
PROPERTY, AND TIME

*Write for Estimate to*

**MARCONI WIRELESS TELEGRAPH CO., of AMERICA**  
27 William Street, New York City. Telephone: 5545 Broad

*Learn a Profession  
with a Great Future*

## COLLEGE OF WIRELESS TELEGRAPHY

Fitted with the most  
modern Marconi Apparatus

Including the MARCONI  
1½ K.W. POWER SET

The Instructors of this College have  
had over eight years' practical ex-  
perience with the Marconi Company

*Address:*

Old Post Office, Warrington

**PROSPECTUS FREE.**

*Apply The Principal, Dept. B.*



# OVER 600 VESSELS

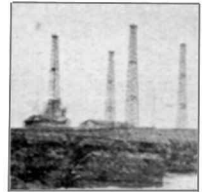
of the Mercantile Marine are  
now equipped with Marconi  
Wireless Apparatus, which  
enables the public to avail themselves of a tele-  
graphic communication between ships and the shore.

### How to Send your Marconigram.

**From Shore to Ship.** Hand your message in at any Telegraph Office and it will be accepted as an ordinary telegram. A list of boats equipped for a public telegraph service will be found in the British Post Office Guide, together with routes, rates, &c. The usual charge is 10½d. per word.

**From Ship to Shore.** Hand your message in at the Receiving Office on board and it will be transmitted to any part of the world. Rates obtainable on board.

Messages are received at the Office of the Marconi International Marine Communication Co., Ltd., York Buildings, London, W.C., where any further particulars will be gladly given.



## Brandes' Long Distance Receivers



**DOES YOUR HEAD OR EARS ACHE  
FROM THOSE HEAVY 'PHONES**

BRANDES' 'phones are the smallest, lightest, most comfortable and sensitive head set made. Can be worn constantly without fatigue. Sold with guarantee. Money refunded if not perfectly satisfied. Send for Pamphlet giving full description.

Pneumatic Rubber Ear Cushions, to fit all types, 60 c. each.

C. BRANDES, Wireless Receiver Specialist, 111 M Broadway, New York.

## The Post Office Electrical Engineers' Journal

(OFFICIAL ORGAN OF THE INSTITUTION OF POST OFFICE ELECTRICAL ENGINEERS)

PUBLISHED QUARTERLY.

PROFUSELY ILLUSTRATED.

Principal Contents of Vol. IV., Part 3, October, 1911.

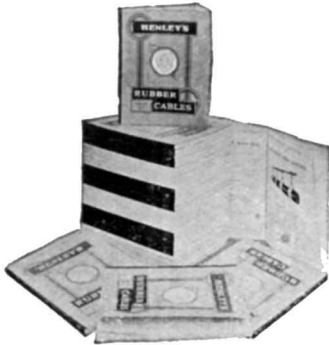
**PNEUMATIC DISTRIBUTION IN TRUNK EXCHANGES.** By H. P. Brown.  
**HOLLOWAY TELEGRAPH FACTORY.**

**CABLE PROBLEMS.** By G. F. Odell, B.Sc.  
**ENAMELLED WIRE.** By W. B. Smith.  
**FARADAY.** By A. Fraser.

New Ideas, Notes and Comments, New Books, &c., &c.

**Publishers: H. ALABASTER, GATEHOUSE & CO., 4 Ludgate Hill.**  
Annual Subscription 4/-. in advance.





## HENLEY'S NEW LIST OF RUBBER CABLES

with increased discounts, will be sent you by return if you have not had a copy.

☐ The most complete and useful list ever issued by anyone.

**W. T. HENLEY'S TELEGRAPH WORKS CO. Ltd.**  
BLOMFIELD STREET  
LONDON, E.C.

## WIRELESS

Communication between  
**SHIPS AT SEA**  
and

# CANADA

Marconigrams are accepted by all public telegraph offices in Canada for transmission to incoming or outgoing vessels fitted with

Messages are transmitted via the following coast stations at the charges indicated, plus the usual land tolls for Telegrams. Messages should be addressed S.S. .... via .....

	For 10 words	For each additional word	For 10 words	For each additional word
Montreal ...	\$ .30	\$ .02	Heath Point \$1.00	\$ .06
Three Rivers ...	.30	.02	Grindstone 1.00	.06
Quebec ...	.50	.03	Gape Ray ... 1.00	.06
Grosse Isle... 50	.03	Whittle Rocks 1.00	.06	
Father Point 50	.03	Point Rich 1.00	.06	
Fame Point ... 1.00	.06	Point Armour 1.00	.06	
Clarke City ... 1.00	.06	Belle Isle... 1.00	.06	
North Sydney 1.00	.06			

The service from SHIPS AT SEA is also directed through the above mentioned stations. Full particulars obtainable on board.

Any information gladly given at Marconi's  
Wireless Telegraph Co. of Canada, Ltd.,  
86, Notre Dame Street, Montreal.

## PERFORATED METALS

**W. BARNES & SON,**  
QUEENSLAND ROAD, HOLLOWAY, LONDON, N.

29th YEAR OF PUBLICATION.

## THE Electrical Engineer

(now under entirely New Proprietary, Editorship, and Management) is a High-class Illustrated Record and Review of Electrical Progress at Home and Abroad. Every phase of Electrical Activity is dealt with by experts, and a special feature is made of

### Wireless Telegraphy & Telephony.

Circulates all over the World. Every Friday, 2d.  
149 FLEET STREET, LONDON, E.C.

## THE SYREN & SHIPPING

is a WEEKLY JOURNAL treating on all Questions connected with Shipping and Contingent Interests. Printed on Art Paper and Profusely Illustrated. The information as conveyed is CRISP, UP-TO-DATE and above all WELL-INFORMED. It is an absolutely Independent Organ, devoted to No Special Clique, going its own way in the direction it judges best for the Interests of the Shipping Trade. In consequence, it is universally regarded with favour, it has a Large Circulation, and its aim is the greatest benefit of the class for which it caters.

IT INVITES INSPECTION AND CRITICISM

SUBSCRIPTION:

**Weekly, 6d.; 28s per annum post paid; Foreign, 32s. 6d.**

HEAD OFFICE:

**91 and 93 LEADENHALL STREET, LONDON, E.C.**

BRANCH OFFICES:

LIVERPOOL: 3 Redcross Street. GLASGOW: 166 Buchanan Street.  
NEWCASTLE-ON-TYNE: Baltic Chambers.

# THE ZODIAC

THE MAGAZINE OF THE FOREIGN  
SERVICE TELEGRAPH CLERK

SOCIAL, SPORTING, TRAVELS, ETC.

Monthly, 6d. ; or 6s. per annum,  
post free to any part of the world.  
Illustrated with many interesting  
photographs and drawings.

THE ZODIAC PUBLISHING COMPANY, LTD.  
Electra House, Finsbury Pavement, London, E.C.

# TOWNLY & RADTKE TAILORS

Sole Proprietors of  
*Townette*  
*Rainproof*  
*Overcoating*  
Regd. No. 267487

*on the Cash System.*

Telephone:  
**6 1 9 3**  
Avenue

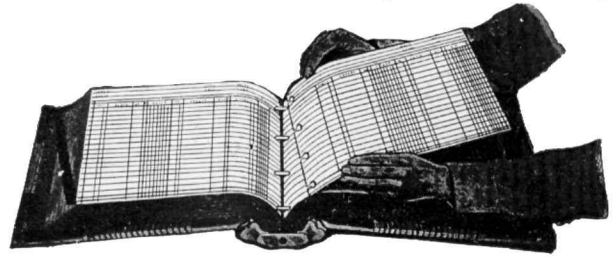
Jacket Suits from	...	...	£4	4	0
Trousers	..	...	£1	1	0
Overcoats	..	...	£3	10	0
Dress Suits	..	...	£5	5	0

10% Discount for Cash.

Address: 10 GRACECHURCH STREET, LONDON, E.C.  
(Late of 38 Cornhill, E.C.)

## EDEN FISHER & CO., LTD.,

FOR LOOSE LEAF  
ACCOUNT BOOKS,  
VERTICAL FILING,  
AND CARD INDEX  
SYSTEMS.



Please write for Catalogues—

95, 96, 97 FENCHURCH STREET, LONDON, E.C.

## H. ROLLET & CO. 36 Rosebery Avenue,

Telephone: 4674 HOLBORN  
Telegraphic Address: "ANTERIOR, LONDON"

and 12 & 13 Coldbath Square,  
LONDON, E.C.

### METALS

BRASS, COPPER, PHOSPHOR BRONZE, GERMAN SILVER, ALUMINIUM, in Rolls, Sheets, Strips, Tubes, Wires, &c., in all sizes and gauges; TOOL STEEL, MILD STEEL, in all sections; CHARCOAL IRON RODS.

BRASS TURNING RODS. Round, Hexagon, Square. GUN METAL RODS.

— Special Fine Tubes for Scientific Work. —

## NICHOLLS & CLARKE, Ltd., Shoreditch, London

EXPORTERS OF { GLASS { PLATE GLASS, CLEAR & SILVERED  
& { SHEET GLASS { FOR WINDOW GLAZING  
{ COLORS { WHITELEAD, PUTTY, OILS  
{ DRIERS, ENAMELS, ETC.

ASBESTIN COVERED  
COPPER WIRE  
STOCKED IN  
ALL SIZES

READY WOUND COILS  
FLEXIBLE CORDS  
CABLES  
&c.

THE  
**CONCORDIA ELECTRIC WIRE CO. Ltd.**  
SPECIALITY

Tel. Address:  
"POLJANITE,"  
LONDON

SILK COVERED COPPER AND  
HIGH RESISTANCE WIRES '001' AND THICKER

Telephone No.  
P.O. HAMPSTEAD  
5360

Please mention "The Marconigraph" when writing to Advertisers.

# THE MARCONIGRAPH

No. 8.

November, 1911.

Subscription,  
3/- per annum,  
post free.

Price 2d.  
Post Free 3d.

## Wireless Telegraphy in Russia

**D**URING last month a very important step has been taken in Russia by Marconi's Wireless Telegraph Co., Ltd. A few years back quite a considerable business was done by the company with the Russian Government, but in recent years they declined to enter into any contracts with any firm unless it was established in Russia, and everything that should be provided to the Russian Government under contract had to be manufactured in Russia.

This course prevented the Marconi Company from tendering to the Russian Government and receiving the substantial share of the contracts for which it had been in the habit of contracting in the past. It opened the door for the formation of a company promoted by some of the most influential persons in Russia, under the style of the Russian Company of Wireless Telegraphy and Telephony. A very fine factory was constructed, and a considerable proportion of the Russian Government contracts fell to the lot of this company.

The system of wireless telegraphy known as the Eisenstein was adopted, and the company is to-day doing a considerable business.

Marconi's Wireless Telegraph Co., Ltd., have now secured the controlling interest in this company, and have granted to it a licence for the Marconi patents. Mr. Guglielmo Marconi,

L.L.D., D.Sc., and Mr. Godfrey Charles Isaacs join the board of the Russian company, and Mr. Adrian Simpson, a member of the staff of the Marconi Company, is about to proceed to St. Petersburg to act as managing director in Russia.

The Marconi Company have alleged that the Eisenstein system of wireless telegraphy was an infringement of their patents. It was, however, considered to be more satisfactory to come to the arrangement referred to above than to enter into difficult and probably protracted technical patent actions in Russia.

This arrangement disposes of the necessity of the construction of another big wireless factory in Russia, and enables the Marconi Company to take advantage of the very big business both present and future of the Russian Government, besides eliminating much of the competition which it would have had to encounter otherwise.

The Russian Government is expending considerable sums of money in erecting wireless telegraphic stations for the use of both the army and the navy, besides having a very considerable scheme for the erection of post-office wireless telegraph stations throughout Russia. The vast territory which the Russian Empire controls lends exceptional opportunity and advantages for wireless telegraphy.



*Photo]*

*[Elliott & Fry.*

GODFREY C. ISAACS



## Godfrey C. Isaacs

Managing Director, Marconi's Wireless Telegraph Co., Ltd.

OUR portrait for this month is a true, faithful, and admirable likeness of Mr. Godfrey C. Isaacs, the Managing Director of Marconi's Wireless Telegraph Co., Ltd.

He was educated in England, in France, and Germany, in addition to which he travelled not a little, the result of his early training and travel being that he is perfect in French and Spanish, and knows thoroughly German and Italian. He began life when very young in his father's business, and his father made him commence at the very bottom of the ladder, and he was kept for some months at directing and stamping envelopes.

He was soon promoted, and, having made the best use of his unique opportunities and exhibited remarkable linguistic power, he passed rapidly through the various departments of his father's vast business, and at eighteen years of age he was the manager of the great concern which he had entered as a lad, and, young as he was, he not only mastered all the difficult questions connected with the foreign trade with which his father was chiefly concerned, but as manager he was able to carry on the important correspondence of the business of the firm in the various languages of the leading customers. But added to this, he at an early age, in the course of his extensive travel in all parts of Europe, exhibited great ability in dealing with leading business men of nearly all nationalities, at an age when most young men have not started on a business career. He showed exceptional powers in weighing the characters of the various business men with whom he had to deal, which helped him very much in the difficulties of the various branches, the chief management of which was left almost entirely in his capable hands.

His cosmopolitan education, his exceptional study of the languages which he speaks, his great courage and resource in dealing with positions of delicacy and difficulty, which

continually arise in the conduct of all large businesses carried on in well nigh every country in Europe—the result of all this valuable opportunity used to the full have left him a most able and exceptionally well-equipped man of business.

A charming manner, a most honourable character, invincible industry, a deep sense of duty, and great sense of fairness alike to those with whom he deals in business and those who are under his business control, with a fine bold courage, added to which his firmness, his appreciation of his opponent's point of view in matters of difference, his transparent honesty, and his ever-present interest in the success of his company and the well being of his shareholders, constitute him a model managing director of any large, honourable, and progressive enterprise.

The Marconi Wireless Telegraph Co. at the present time shows, perhaps, the greatest and most important and progressive modern application of science to industry, and probably there is no man in London who is better equipped than Mr. Godfrey C. Isaacs (a brother of the Attorney-General, Sir Rufus Isaacs) to carry on its business in its natural developments throughout the world which seems to be waiting for Marconi everywhere.

With Mr. Marconi, the genius of wireless, at its head, and Mr. Godfrey C. Isaacs in charge of its business, complete confidence existing between them, it seems certain, that with a united Board, as far as anything human can be certain, that with the active support of its shareholders as exhibited at the recent meeting of the shareholders, together with the active work of the loyal and competent staff with which he is surrounded, the Marconi company will increase its most useful, practical, beneficent work, in saving life, in improving and cheapening communication all the world over, and, though last not least, so working as to pay a just recompense to those who support it.

## Experiences of the First Marconi Airship Officer

By JACK IRWIN, Operator of the late Airship "America"

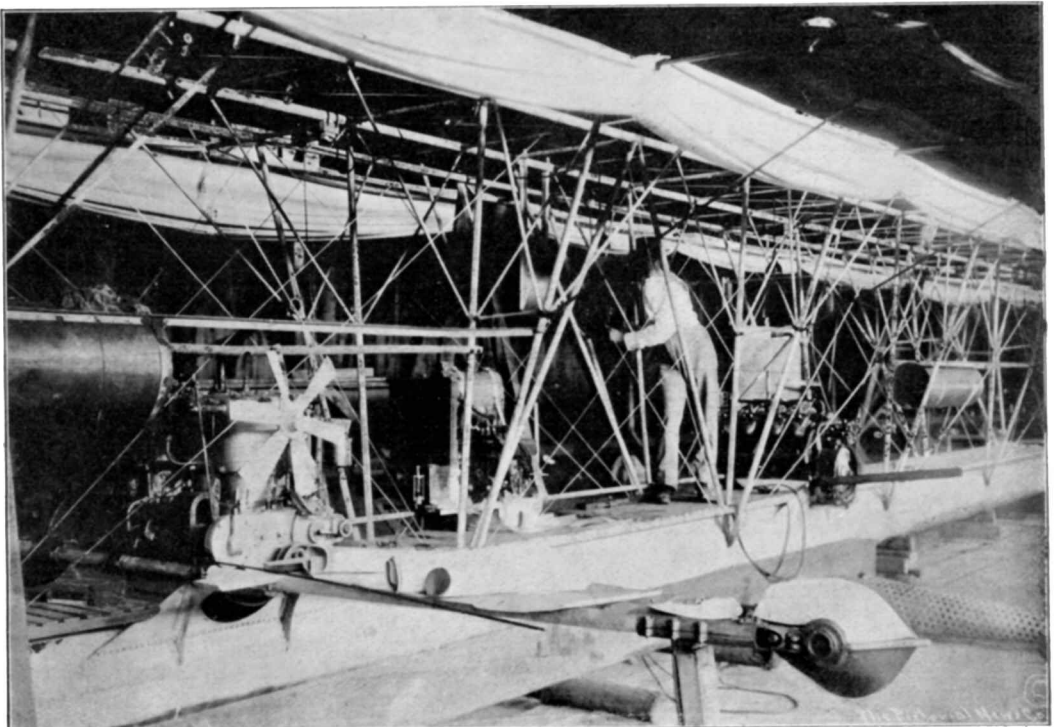
IN recording the story of my unusual experience as the first Marconi officer to obtain service on an airship, I am confronted with the difficulty of deciding whether readers of THE MARCONIGRAPH would prefer to have it from the standpoint of the wireless operator, or from that of the passenger. It was my privilege to accompany Mr. Wellman in that duplex capacity, and as I know that my audience in this magazine will be of a widely divergent character, I will endeavour to tell my story from the two aspects.

In August of last year I was assigned to duty on the airship "America," then in course of construction at Atlantic City, N.J. On October 15th, at 8 a.m., the airship left Atlantic

City, and by 10 a.m. on the same day I had joined my earth to the equilibrator and opened communication with the station on one of the Atlantic City piers.

The quarters allotted to the wireless apparatus on the vessel were certainly the strangest an operator ever found himself in. Under the main car of the huge dirigible was suspended a lifeboat 27 ft. long, with a 6-ft. beam and 4½ ft. in depth. At each end was a 9-ft. watertight compartment, and the forward one was divided off into a 2-ft. compartment, opening into the cockpit. This was the Marconi cabin. In this space my small set was placed while I worked from the open cockpit.

The Marconi Company had guaranteed Mr



The "America's" Driving Plant.

Vaniman only a 30-mile radius with the set installed, which consisted of a 10-in. coil (worked from 25-volt accumulators) with a specially constructed loose-coupled jigger, field type of magnetic detector, and a small variable condenser. To recharge our batteries we carried a small 25-volt dynamo, which was belted to one of the main engines. As an antenna we used the main car of the airship, consisting of hundreds of feet of steel tubing, tanks and wire, with a capacity unknown. The celebrated equilibrator, consisting of 40 steel tanks filled with gasoline, threaded on a 1/2-in. steel cable, which, trailing in the sea, was used as a "ground."

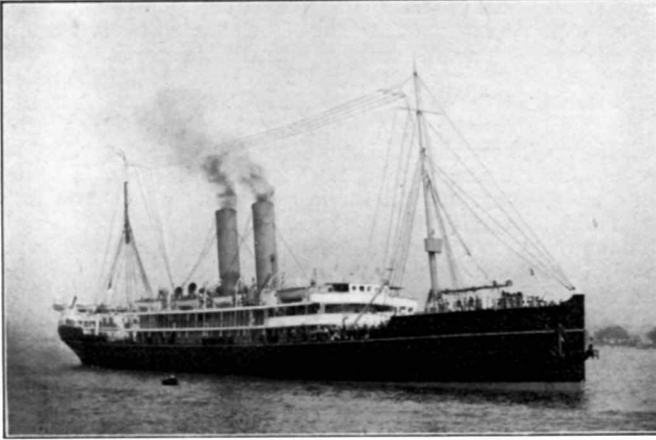
I never experienced such a feeling of joy and relief as I did when "Ax" reported signals good and strong. All the members of the crew had their eyes on me, and all realised what an important part wireless would play in the expedition. Until 4 p.m. on the day of the start I maintained constant communication with Atlantic City, sending bulletins of our progress and receiving encouraging messages

and weather reports from the shore. An hour later, although able to read every station along the coast, I was unable to reach any of them. I estimated that we were fully 100 miles off shore, and was particularly pleased with the success of the apparatus so far, and trusted to communicate with incoming liners from Europe during the night. We had departed in a dense fog, and on leaving the hangar, we were lost to view in less than a minute. This fog lasted for two days and nights, and everything was saturated with water. It also added great weight to the lifting capacity of the airship, and resulted in the car flying very low to the water. During the first night we passed three vessels, and almost collided with a big, four-masted schooner, which we missed by less than a ship's length. This was our first "thriller." During the night I repeatedly tried to communicate with vessels, but without success. With the immense aerial I had, the signals came in like hammers, and gave me the impression they were nearer than they actually were.

At 9 a.m. I communicated with Siasconset



The Lifeboat carried by the "America."



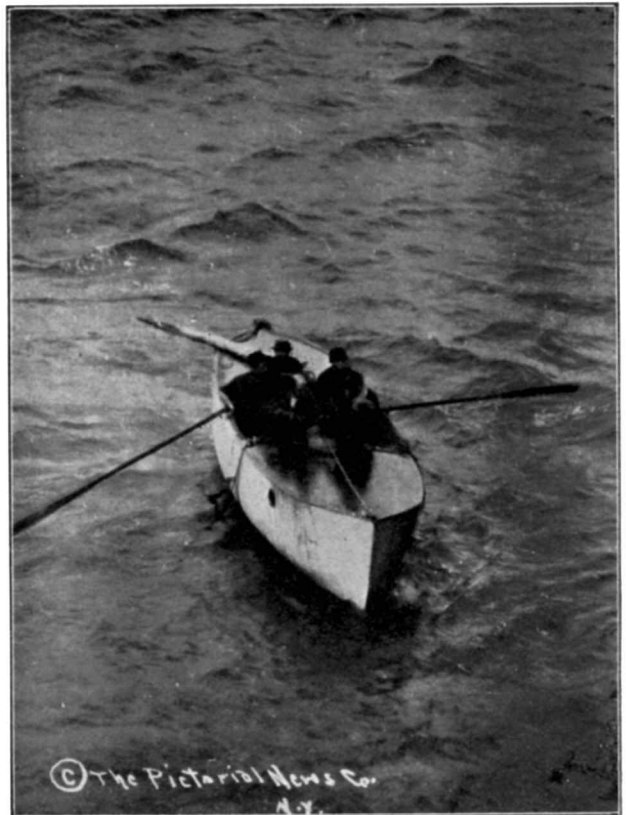
*The Royal Mail S.S. "Trent" which answered the call sent out by the "America."*

(my old station), remaining in touch with it until 1 p.m. During the previous night a mishap occurred to the engine to which the dynamo was attached, the ball bearings in the shaft being defective, and we were obliged to shut down. I was then unable to recharge my batteries and began to economise on my electric energy. On Sunday afternoon the wind developed into a gale with a very rough sea, and it was then that our troubles began. The constant condensation of fog on our immense gas-bag was still keeping us too close to the water; some of the gasoline was therefore jettisoned, and when night fell the contraction of the hydrogen gas again brought us perilously near the sea. We were forced to throw overboard the now useless engine and dynamo. This relieved the strain of the jerking equilibrators, and the night passed without further danger.

All Sunday night I could hear the steamer "Main," and called at intervals. The vessel appeared tantalisingly close. No one can realise my disappointment when I failed to get in touch with it. At this time we were driving along with a 45-mile wind taking us in a south-easterly direction and out of our course. On Monday, the third day out, the wind slackened somewhat, and took us due south. All prospects of reaching Europe had gone, and we began to think seriously of some way to get back home. Monday turned out to be a beautiful, warm day, and the expanding gas caused

the airship to soar thousands of feet skyward, the highest altitude we attained being 11,900 ft. I felt nothing unusual at this high altitude, but had a peculiar ringing sensation in my ears when ascending and descending. Monday night was to prove an eventful one. We had a glorious moon, and all hands stood watch, keeping a sharp lookout for a ship. I heard a Royal Mail boat working during the earlier hours of the night, and realised that she might be bound our way from the West Indies.

At 3 a.m. Tuesday Mr. Wellman called all hands with the glad tidings of "ship in sight." I immediately called C.Q.D. and S.O.S., but received no response. So, seizing an electric torch, I commenced calling in Morse lamp fashion. After some little delay I was answered by the steamer. I



*Rowing to Rescue.*



conveyed to them by lamp the fact that we were equipped with wireless, and in a few minutes the most welcome signals I ever heard came hammering in my 'phones.

The steamer proved to be the Royal Mail S.S. "Trent." From this time, until we launched our lifeboat at 8 a.m., we were in constant communication, receiving and sending orders, advice, and suggestions. We were then drifting at the rate of 12 miles an hour, and asked Captain Downs to follow us till daybreak, when we would be better able to see how we could free ourselves from the airship.

The "Trent" was then from 10 to 15 miles distant, and by 7.30 a.m. was alongside. We then informed them by wireless that we would descend and launch our boat. The gas valve was opened, and gradually we descended to the water. When within 6 ft. the boat releases were opened, and she fell beam on into the sea, which was fairly rough at the time. She lurched gunwale under several times, shipping several inches of water. She then righted, and the heavy steel equilibrator struck us as the gasbag shot skywards. It knocked a hole in the air compartment of the boat containing the wireless apparatus. This, however, did not impair the stability of the boat. I also got a stunning blow in the forehead. Before we could recover from this excitement, perhaps the most anxious moment of the three eventful days occurred. The "Trent," about 100 yards away, bore right down on us, making 17 knots. It looked as if nothing could save us from being run down. She missed us, however, and, after a narrow escape from swamping, we fell astern about two miles. The steamer came about and ranged alongside us. Once more ropes were thrown, but she was making too much headway for us to hold them. They next came to us stern on, and in a few minutes we were aboard, boat and all.

The passengers and crew treated us like princes. Two days later we were put ashore in New York. There, to my utter surprise, I found that the modest part wireless had played in the expedition had placed my

services in demand in vaudeville, and I was quickly surrounded by competing booking agents. After consideration I signed a ten-weeks' contract at a satisfactory salary. I afterward signed with the Sullivan and Considine circuit to tour the west. I remained on the stage eight months, enjoying a tour of the United States and part of Canada, which seldom comes the way of a "lightning jerker."

In July of this year I returned east, and was offered the position of Marconi operator with Vaniman's new airship "Akron," in which he will again tempt the fates in an attempt to reach Europe by dirigible balloon. I promptly accepted, and am now assisting in its construction. The new airship will be 258 ft. long; it will contain 400,000 cubic feet of hydrogen, and will have a lifting capacity of 13 tons. It will have a total maximum engine capacity of 317 horse-power, and will carry a 3-kw. Marconi set of special construction.



Taking Mr. Wellman off the Lifeboat.

## Mechanical Analogies Applied to Radio-Telegraphy\*

By F. W. DAVEY  
(of the Post Office Engineer's Department)

IN one's early studies of electrical phenomena, mechanical analogies were frequently of use in giving a material conception of the principles involved. An attempt is made in this article to illustrate by means of mechanical analogies the processes involved in the generation, transmission, and reception of high frequency electrical oscillations, by which means radio-telegraphy is effected. There are two kinds of energy—potential and kinetic. Matter may possess potential energy (energy at rest) on account of its position, and possess kinetic energy (energy in motion) when it is in motion. A charged condenser is the seat of a certain amount of energy, depending in amount upon the capacity of the condenser and the difference of potential to which its plates are charged. If it were possible to completely isolate the condenser, and thus preclude the possibility of slow dissipation losses, the energy of discharge would be the same in amount were the discharge to occur at one hour or one million hours after it had been charged. Although the condenser is a seat of energy, the energy is at rest, ready to do work.

### Potential and Kinetic Energy.

It is, therefore, of the potential kind—of the same kind as that of the pile-driver elevated above zero level and kept there until released. When the condenser is discharged it is no longer a seat of energy; the potential energy it possessed has been dissipated, and during the process of discharge a certain amount of work has been performed. Electro-magnetic, lighting, heating, or chemical effects will have been produced in the discharging contrivance. Now, kinetic energy is the necessary concomitant in the process of the performance of work of any kind. The potential energy of the charged condenser has, therefore, been converted into kinetic during the process of discharge. The discharge of the condenser, whether by the piercing of a dielectric or by a current flowing in a conductor connected to the two plates, gives rise to phenomena associated with electro-magnetics. It will

therefore be seen that potential energy is associated with electrostatic, and kinetic energy with electro-magnetic phenomena.

Both kinds of phenomena are evidenced across a vacuum without any tangible intervening medium; repulsion occurs between two like charged bodies; the presence of matter between two plates of a condenser is not essential for the mutual action between the two plates. Again, the presence of matter is not essential for the mutual electro-magnetic action between two conductors carrying currents. If, however, matter be introduced between the plates of the condenser, or between the two conductors, the phenomena will vary in amount with the kind of matter introduced. We have therefore to admit that the intervening medium in both cases enters into the action between the two bodies. The dielectric constant of the intervening medium in the former and the permeability of the medium in the latter express the amount by which the action is modified as compared with some arbitrary standard. It is therefore only logical to conclude that in the case of action across vacuum there is some medium intervening by means of which the energy necessary to produce the action is stored or transmitted, as the case may be, and that during such storage or transmission the structure of the medium is modified in some peculiar manner corresponding to the particular form of energy, potential or kinetic, which is present. We have only to turn to the phenomenon of light for a forcible illustration of action between bodies at immense distances and the transmission of energy through space. The light of stars at distances far beyond the limits of the finest instruments of precision and of mathematical calculation is transmitted to this earth. There is action between the matter of the star and the matter of the eye, and a corresponding transmission of the necessary energy, to which phenomenon we give the name of light, and to the medium by which the energy is transmitted through space we give the name of ether. This medium may be defined by its characteristics; that it is the medium whereby certain forms of energy, which are evidenced to us in some particular manner, are transmitted from one place to another, and to that which transmits these forms we give the name of the ether.

\* In the July number of the *Post Office Electrical Engineers' Journal* Mr. Davey contributed an interesting article under this heading. The above abstract is made through the courtesy of the editors of our contemporary and the author of this article, to whom we express our gratitude for the facilities offered.—Ed. MARCONIGRAPH.

We will now consider the kinematics of the method of transmission in the ether by considering the analogous transmission of energy in something more tangible than the ether.

### Waves in Water.

The waves in water are known as transverse waves. During the progress of such waves there is no lateral translation of the mass of the water. The wave, consisting of an elevated portion of water and a corresponding depression, travels. Although no lateral translation of the medium in which the wave is propagated occurs, yet energy is transmitted laterally from one part to another by means of the wave. Taking the level of smooth water as an arbitrary level to which to refer the kind and amount of energy in the particles, and neglecting the intrinsic amount of energy which the particles possess at different periods of wave propagation owing to rotation of the particles at these periods, at any instant the mass of water forming the crest of a wave can be said to possess positive, and that forming the base negative, potential energy. These masses, however, are not in a stable condition; that at the crest falls and that at the base rises, and in so doing the potential energy of the mass is converted into kinetic, reaching maximum velocity, and hence maximum kinetic and zero potential energy at the zero level. The kinetic is then converted into potential energy, which reaches a maximum at the crest and base of a new wave. All these actions are produced by parts of the mass transmitting stresses to adjacent parts with consequent strains. It does not require much observation to see that, whatever action is taking place in a particular part of the mass, the tendency of this action in contiguous parts is to increase the kind of energy in which that part is increasing. For instance, the part which is approaching the formation of a crest in the process of its elevation causes the further depression of that part approaching the formation of a base by elevating the intervening parts between crest and base. This elevation in the case of that part below zero level increases, and in the case of that part above zero level decreases the kinetic energy, with the corresponding decrease or increase of the potential energy. A word of warning should perhaps here be added, inasmuch as the principles of wave motion outlined above do not express the whole of the processes involved in wave propagation. The potential and kinetic energies in a particular particle are co-existent, and reach maximum and minimum values at the same times; in fact, this condition is essential for wave propagation. The consideration, however, of the rotation of the particles

themselves, and the consideration of the energy of the particles without reference to the arbitrary zero level which we have premised, both of which are involved in the actual processes, are too complicated to admit of treatment from the simple point of view of analogy.

### What is Wave Motion.

It is herein that the analogy cited, in common with all analogies, fails. With this reservation, therefore, we can say, from our point of view, that the principle of wave motion consists of an alternation of the kind of energy in the mass, and also that energy is transmitted from one place to another by means of these peculiar alternations in the form of energy in the medium, and the consequent stress and resulting strains.

If alternations of the energy associated with a charged condenser and electro-magnetic energy can be produced at a certain point, energy will be transmitted in the ether to a distance in somewhat the same manner that energy imparted to a mass of water is transmitted from one place to another. Let us consider the manner of producing the necessary alternations by considering another mechanical analogy. Imagine a weight attached to the lower end of a spiral spring which at its upper is attached to a rigid support. Stress is exerted upon the system by pulling the weight down and extending the spring, or pushing it up and compressing it, and then releasing it. The weight will then perform a certain number of oscillations per second; or, referring again to our water analogy, the energy of the system will alternate in kind between potential and kinetic, in the same manner as the particles of water in their up-and-down motion did in the propagation of a wave. Now the number of oscillations per second which the system will make, or the number of alternations in the kind of energy that will occur, is dependent upon two factors—the resilience of the spring and the inertia of the weight; by varying one or both of these the number of vibrations per second, and hence the time period of oscillations, will vary correspondingly and according to some definite law. The time period of oscillation can be varied in another manner.

### The Effect of Friction.

Hitherto we have neglected friction. Suppose the weight to be immersed in a viscous fluid—treacle, for instance—the time period will not only be longer, but the number of oscillations performed per second will consequently be much less than formerly. Moreover, the ratio of amplitude of the second to the amplitude of the first oscillation under these conditions will be much less than was the case when the weight oscillated in air. The resistance of the fluid to

change of shape, resulting in friction upon the mechanical system, has damped the oscillations; it will readily be seen that when the friction exceeds a certain amount, the weight will not oscillate at all, but will slowly return to its position of equilibrium. The motion is completely damped, and is now aperiodic. With damped oscillation some function of ratio of the amplitude of the first to that of the second oscillation will express the amount of damping that occurs. This function is known as the decrement factor. Suppose an electrical system to be composed of a condenser in series with a conductor which, from its geometrical form, possesses induction, and, from its nature as a conductor, resistance. We have here the electrical counterpart of our mechanical system in which damped oscillations result from a force impressed upon it.

#### **Alternations of Energy.**

In spark radio-telegraphy the electrical force is impressed by means of a spark-gap, across which an electro-motive force is built up before the dielectric gives way to provide an electric oscillating current—that is, an electrical force is impressed, and then the system is released and left to oscillate. The system then consists of the spark-gap (whose resistance during oscillation is not more than a few ohms), a condenser and a conductor having inductance and resistance all in series. Along the conductor the medium, which we will call the ether, will have impressed upon it energy alternating between the kinetic and the potential. The condenser is charged (potential energy) then discharges (kinetic energy), but—because of the electrical inertia in the system—overshoots the zero position, and the kinetic energy of discharge is converted, in part, into potential energy, opposite in sign to the original form of potential energy. Another discharge occurs, and the processes are repeated until the electrical oscillations are damped out by the resistance. How, then, are these alternations between potential and kinetic energy impressed upon the ether in such a manner as to give rise to wave propagation? It is purely a matter of time occupied in the process. When a circuit carrying a current is broken the whole energy surrounding the conductor, that is, the electromagnetic field, collapses into the system, and, if sufficient in amount, will be evidenced at the break by a spark. This collapse of energy from the ether into the conductor is due to the slowness with which the electrical change takes place on account of the damping character of the resistance, which, in ordinary circuits, greatly exceeds the critical value at which electrical oscillation ceases. When, however, the time occupied is small, part of the energy, instead of collapsing into the system, will

radiate into the ether in the form of waves. Let us turn again to our water analogy. Suppose a pointed stick to be slowly immersed in a mass of water, and then to be slowly withdrawn; no wave motion is brought about; the whole energy expended in the process is frittered out into heat which is dissipated in the mass of the stick and the water; this is the mechanical analogy of the ordinary modification of the structure of the ether produced by a conductor in which the electrical changes are slow, and therefore non-oscillatory in character.

#### **Wave Length.**

It may be opportune to deal with the question of wave length in connection with a radio-telegraphic installation. It has already been stated that the velocity of propagation of wave motion in the ether is 3 metres by  $10^8$  metres, or 186,000 miles per second, and we have also seen how the velocity of propagation is equal to the product of frequency of oscillation and wave length. The frequency of electrical oscillation has been shown to be, neglecting friction, a function of the capacity and inductance of the system. Therefore, as wave length is the ratio of velocity of propagation to frequency of oscillation, the adjustments of a radio-telegraphic installation may be expressed as a wave length in units arbitrarily chosen. For instance, when a radio-telegraphic station is said to work on a 600-metre wave, we mean that the capacity and inductance of the oscillating system are so arranged as to produce a frequency of oscillation that the ratio 3 by  $10^8$  to that frequency is 600.

It may be of advantage, in conclusion, to summarise the processes involved in radio-telegraphy.

At the sending station electrical oscillations are generated by means of an electrical system of certain capacity and inductance; the frequency of the oscillations will depend upon the value of these factors. Energy, alternating in kind between potential and kinetic, in the form of waves, is radiated into the ether from an electrical appliance known as the aerial linked to the system. These alternations of energy deliver a succession of electrical blows to a similar electrical appliance in the path of the waves; an electrical system of capacity and inductance is attached to this appliance having the same electrical frequency as that of the originating system. Electrical oscillations are thus generated, transmitted across space, and reproduced at a distance. A form of apparatus, known as a detector, in which the electric oscillations produce certain magnetic, chemical, or heating effects, is all that is then required to effect communication between two points without the intervention of a material conductor.



## Wireless Telegraphy in Spain

**A** VERY important and interesting development in wireless telegraphy is effected by the completion of installations at Cadiz, Las Palmas and Teneriffe.

Official trials on behalf of the Spanish Government were carried out recently by a Royal Commission.

During the trials the following message was sent by Marconi's Wireless Telegraph Co., Ltd., to the Commission from the station at Poldhu :

" To the president and members of the Royal Spanish Commission for Wireless Telegraphy, Cadiz.

" The Marconi Co., in sending to you this message commemorating the occasion of the first exchange of wireless telegrams between Spain and England, offers to you its respectful salutations, and ventures to express the hope that the new means of communication thus afforded between the two countries may have the happy result of furthering their common interests."

And the following reply was received :

" La comision española estima en cuanto vale su cariñoso saludo al que corresponde con el afecto y respeto que le merece quien en bien de la humanidad trabaja con tal ahinco y le satisface muchísimo que la telegrafia sin hilos motive nuevos lazos de union con pais tan progresivo, reiteramos nuestro respetuoso saludo." Which may be translated as follows :

" The Spanish Commission appreciates fully your cordial greeting, and responds with the affection and respect that one who works so earnestly for the welfare of humanity deserves. The Commission is much gratified that wireless telegraphy should form a new bond of union with such a progressive country. Reiterating our respectful greetings."

Much interest has been excited in Spain, and the Spanish newspapers publish enthusiastic articles upon the highly satisfactory result of the tests.

Space will not permit of the publication of more than the following translation of an extract from *El Liberal* of October 8th, which, however, can be taken as characteristic of the articles in the Spanish Press generally :

" WIRELESS TELEGRAPHY.

" Cadiz, 7th (1.28 a.m.).

" An official Commission has arrived in the s.s. 'Hesperides' in order to test the communication with the wireless stations of the Marconi system at Las Palmas and Teneriffe. It is composed of D. Jose Camino, D. Jose Sandoval (first officer), and is accompanied by

D. Guillermo Ortega (first engineer of the Company).

" Mr. Vyvyan, of the Marconi Co., who was to have accompanied the Commission, had to remain in the Canary Islands owing to illness.

" Excellent results were obtained from the trials in the Canary Islands at Las Palmas and Teneriffe.

" Communications were exchanged with the stations at Cadiz, Barcelona, Poldhu (England), and with ships at sea, at a distance of 600 k.m.; the steamers were 'Routhine,' 'Amazonas' and 'Oropesa'; the former transmitted a message to a Cadiz merchant.

" The trials at the Cadiz station consisted of communication with Barcelona, with the military station at Carabanchel, Palma and Teneriffe, and with ships passing through the straits (Gibraltar) on their way to America. The range of the station is 1,600 k.m.

" The Commission will report that it trusts the Government will speedily authorise the opening of the Public Service, for it will be of great convenience to Spain, as rapid communication with the whole world will thus be attained.

" It is proposed to establish a world-wide Press Service for the Spanish newspapers, and the rates are under consideration. The station at Cadiz will be utilised for such Press service."

The installation at Barcelona has been completed, and the trial by the Royal Commission has proved equally successful.

## Wireless Telegraphy in India

**A** DVICES from Simla report that good progress is now being made with the new wireless telegraphy system, which will be worked from Calcutta, Allahabad, Delhi and Jutogh (Simla) stations. The apparatus at Jutogh will be practically ready within a month, and the other stations should have completed their arrangements by December. It is hoped, indeed, that the system will be brought to such a state of perfection that messages will be exchanged between His Majesty's cruiser squadron after it leaves Aden at the end of November and the wireless station at Delhi.

In our December issue we propose to deal fully with the Indian stations, which are being erected by Marconi's Wireless Telegraph Co.

A cable has been received from Chili advising the acceptance of the tenders of Marconi's Wireless Telegraph Co., Ltd., for the erection of a number of important stations for the Chilean Government.

---

**Wireless on Land and Sea :  
The Post Office Record.**

---

**T**HERE is a singular dilatoriness about the appearance of official publications which exasperates the layman. It is true that the publications of the monthly overseas trade returns of Great Britain by the Board of Trade, on the seventh day following the close of the month to which the returns relate, is a wonderful exception. Indeed, we doubt whether this record for promptitude is equalled in any other country. We only wish that other Government departments (and, let us add, the Board of Trade, too) would emulate this brilliant example, and so render more modern the valuable and interesting reports that flow in an incessant stream from His Majesty's Stationery Office. Having indulged in this little grumble, we may now turn to that fertile source of information—the fifty-seventh report of the Postmaster-General on the Post Office, for the year ended March 31, 1911—which first saw light in the middle of October. The public have already been made acquainted with the developments intended to facilitate and cheapen internal communications, and we need only add that these developments indicate a praiseworthy alertness on the part of the chiefs of the Post Office to adapt the great organisation of which they have charge to the ever-changing needs of our complex social and commercial order.

The report reflects to some extent the great advances made within recent times in wireless telegraphy. The benefit which these developments have conferred upon the Post Office is seen in the increased number of messages passing through the coast stations, the improved facilities, reduced charges, and the long-distance service made possible through the efforts of the Marconi Company. The number of radio-telegrams dealt with at the Post Office coast stations during the year shows a satisfactory increase, the outward radio-telegrams to ships reaching a total of 5,640, as compared with 3,266 in 1909-10, and inward radio-telegrams from ships 34,161, as compared with 27,727 in 1909-10; the total increase being 8,808, or 28.4 per cent. This increase is mainly attributable to the larger number of ships communicating with wireless coast stations. In addition to the Atlantic and other liners, most of the cross-channel passenger vessels and many cargo ships now carry wireless telegraph apparatus; and in view of the advantages to the shipping community afforded by the wireless service, there appears to be every probability that the number of ship installations will continue to increase at a rapid rate. Reference need only

be made to the Maritime Section of THE MARCONIGRAPH to see how this prediction is being fulfilled.

The Post Office stations at present open for general correspondence with ships at sea are as follows: Caister (Norfolk), North Foreland (Kent), Niton (Isle of Wight), Bolt Head (Devonshire), Lizard (Cornwall), Seaforth (Lancashire), Rosslare (Wexford), Crookhaven (Cork), and Malin Head (Donegal). The expanding service has shown that in order to meet adequately the requirements of shipping, especially in the North Sea and at the western entrance to the English Channel, a reorganisation of the coast stations is necessary, and the expenditure of £16,000 for this purpose has been authorised. Two additional stations are to be provided; one of medium range (about 250 miles) will be situated at or near Newcastle-on-Tyne. The other station, which will have a range of about 500 miles, will be erected in the neighbourhood of the Island of Valentia to serve the rapidly increasing traffic to and from ships passing the south-west of Ireland. A new station will also be erected at Land's End, with an approximate range of 250 miles, to replace the existing station at the Lizard. The existing stations at Malin Head and Niton will be removed to more convenient positions in the neighbourhood, while that at Rosslare will be transferred to a position on the Welsh coast in the neighbourhood of Fishguard. In each case the efficiency of the stations will be increased by the introduction of improved apparatus.

To encourage the exchange of radio-telegrams with ships making short voyages, a new scale of coast station charges has been introduced, and there is every reason to think that the reductions will be appreciated by passengers making short sea voyages. Of great importance is the fact that arrangements were recently made for accepting radio-telegrams at Post Offices for transmission at the rate of 3s. a word by way of the Marconi Company's long-range station at Poldhu, in Cornwall, when the ships for which they are intended are beyond the range of the Post Office coast stations. The effect of this is that it is now possible to communicate from any Post Office in the United Kingdom with the large Atlantic liners fitted with Marconi long-distance apparatus, at any time during their voyage between this country and Canada or the United States. All this is leading to the time when a person will walk into a Post Office and be able to send off a radio-telegram to his friends on board a steamer in mid-ocean, and receive a prompt reply by the same means. The ocean waves may separate a man from his friends at home, but the electric waves over which Mr. Marconi has gained the mastery will form a bridge over which uninterrupted communications will flow.

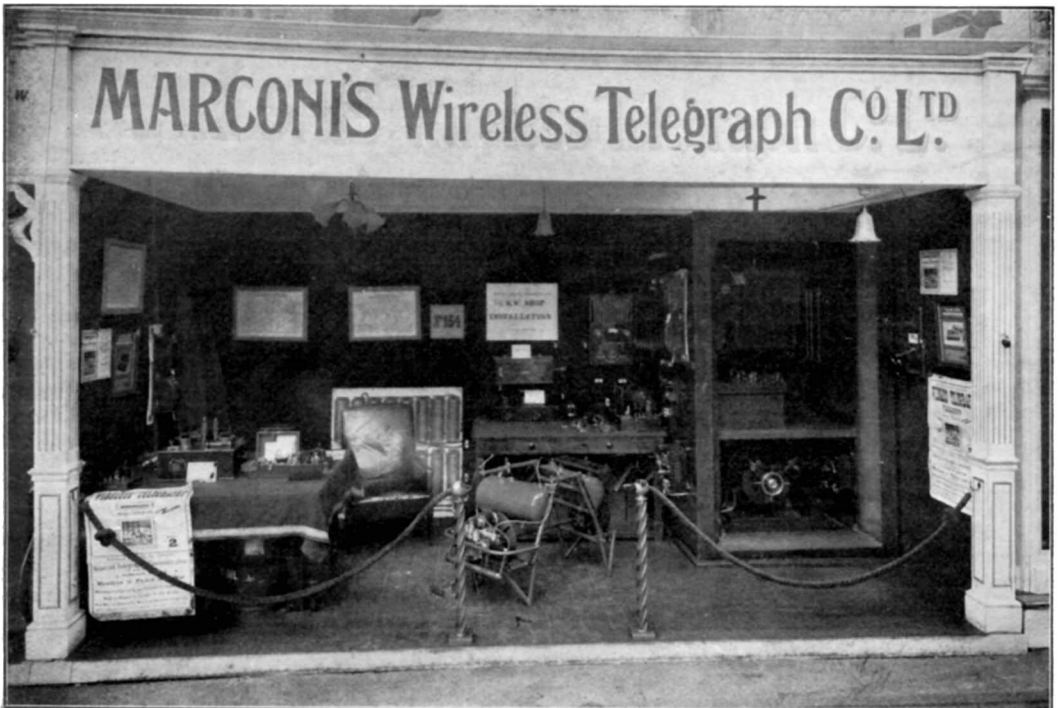
## Wireless in Warfare

THE past month has been a notable one in the history of the world, and is likely to leave an important impress upon the future. No sooner had the dark clouds of war cleared away from Morocco than a storm suddenly occurred off the coast of Tripoli, to give way in turn to an even greater tempest in China. Policies that make or avert wars, or stratagems that carry them through are no concern of ours. What we are concerned with is the rapidity and reliability of communications, which is of the greatest possible importance alike to those engaged in war and to the great public outside the arena. We have an illustration of the unreliability of ordinary telegraphic communication in China, where much time elapses before long-expected news can be communicated owing to the cutting of cables. In Tripoli there has so far been no decisive engagement to confirm the great value of wireless telegraphy in warfare. The Italian troops are well equipped in this respect, and some of the newspaper correspondents in

Tripoli refer to the ease with which communications were maintained between the attacking fleet and the army inland. It is of interest to recall here the successful trials made in Turkey with Marconi field apparatus, and described in the October number of THE MARCONIGRAPH.

During the bombardment of Derna by the Italian fleet a wireless telegraph station at that place was destroyed. This raises a question as to the location of such stations which should be faced now, and that is, whether in view of the ease with which an attacking fleet might be able to demolish coast stations, it might not be advisable to erect these further inland. With the long range of communication now possible with the Marconi system this should not be an insuperable difficulty.

It is understood that three stations will be erected for the French Government along the coast of France from which Hertzian wave fog-signals will be transmitted. Each station will emit a distinctive telephone note every thirty seconds, and repeat during ten seconds a letter of the Morse telegraph code. The telephone notes selected for the three stations correspond to given wave-lengths or frequencies.



*A view of one of the Marconi's Wireless Telegraph Company's Stands at the Olympia Exhibition.*

---

---

## Reviews of Books

---

---

"THE POST OFFICE AND ITS STORY," by Edward Bennett. (London: Seeley, Service & Co., 5s. net.)

The Post Office is one of the great Government departments which affects us all intimately. We notice evidences of the existence of other departments around us, and at times we are brought into relation with them, but the efficiency of the Post Office is a matter which touches us nearly every day of our lives. Consequently, the history of this most familiar of departments is of general interest. A full history of the Post Office, however, Mr. Bennett is not concerned to give, as it is his object rather to give a description of the all-embracing work of the department to-day. The book confirms the impression which is now widely held that the Post Office is in close touch with the needs of the nation, and is in less danger of being strangled with red-tape methods than at any time of its existence. Nevertheless, Mr. Bennett devotes chapters to the early days, when letters were carried by mail coaches, to the inauguration of the penny post, and the extension of the service while it emanated from St. Martin's-le-Grand. This arrangement, if it suffers in purely historical value, is from the point of view of general interest a wise one. In the sixteenth and seventeenth centuries the mails were carried by runners or post boys on horseback. The maximum speed for the post-boys allowed by the Master of the Posts was seven miles an hour, but the speed rarely exceeded four miles per hour. The temptations of the wayside inn often also explained the long delays, and an official in the early part of the eighteenth century complained that "the gentry doe give much money to the riders whereby they be very subject to get in liquor which stops the males." What we wonder, would the modern postman think of the attempt to frighten him into the performance of his duty which the Government of earlier days had to do to his predecessor. Mr. Bennett recalls some of the devices adopted to make the lazy postboy hurry. "Ride, villain, ride—for thy life—for thy life—for thy life" appeared often on letters, with sketches of a skull and cross-bones, or of a man hanging from a cross-bar. Some of the personal touches in Mr. Bennett's book are delightful. It is well known that the Post Office has had in its service men of great literary eminence—men of letters in the double sense. Anthony Trollope began his career here, and a difficult official he was to deal with. Edmund Yates also worked

at St. Martin's-le-Grand, and Mr. Bennett tells a good story of Yates himself. The Post Office Library was founded in 1858. There were many unredressed grievances among the clerical staff in those days, and when Rowland Hill undertook to give a lecture on astronomy to the library subscribers, a practical, if somewhat unfair, opportunity seemed given to the clerks to bring their necessities before the chief. Hill asked for a shilling from his audience in order to illustrate an eclipse. He wished to pass it between the eye and a lamp. Busy fingers went diving into pockets and purses for moons. After two or three minutes' waiting, the lecturer beheld an array of blank faces and shaking heads, and he naturally looked puzzled. Then Edmund Yates arose. "I beg to explain, sir, that we are all very anxious to try the experiment which you suggest, but unfortunately we cannot find a shilling among us." On the whole, we may wonder what type of man Sir Rowland Hill found most trying to deal with at the Post Office, the man of genius or the hidebound official.

In the description of the new King Edward's building, Mr. Bennett explains the up-to-date methods of transmission, the parcel post, and the telegraph and telephone systems with sufficient detail to convey a fairly complete idea of the influence of the postal service on the social life of the community. With regard to wireless telegraphy, Mr. Bennett remarks that not many years ago the statement that it might be possible to transmit and receive telegrams to and from ships at sea would have been received with incredulity. That this is not now merely a wonder, but a wonderful fact, is shown by Mr. Bennett, and even in a more striking manner by the Postmaster-General in his annual report, which, by a curious coincidence we deal with in this issue. The book is illustrated with excellent photographs, and is interspersed with amusing anecdotes of occurrences which must have left the officials rather doubtful of the intelligence of some of their customers. Mr. Bennett is to be congratulated on having written a book which is full of interest and varied humour, and which the publishers have produced in a manner worthy of the text.

"HINTS FOR WIRELESS DESIGNS FOR AMATEURS," by Alfred. (London: The Electrician Printing and Publishing Co., Ltd., 1s. 6d. net.)

This little book is intended solely for the use of amateurs, and is therefore off the beaten track of such books. The author introduces any type of design or circuit that in his opinion is easy and practical, and the resultant sets, both sending and receiving, are rather different from the usual types. The amateur who desires to undertake the manufacture of a wireless installation will be able to gather much useful information from this simple handbook.

**Long-Distance Communications**

**A** PAPER by Mr. L. W. Austin, entitled "Some Quantitative Experiments in Long-Distance Radio-telegraphy," has recently been published in the Bulletin of the Bureau of Standards in the United States. Mr. Austin has investigated the relationship between the current in the receiving aerial and the distance between the transmitter and the receiver, the observations being made mainly by the shunted telephone method. Mr. Austin puts forward the proposition that the current in the receiving aerial varies inversely with the distance, except that in long distances it is necessary to take into account the absorption. He puts forward the following formula, which contains an exponential term to allow for this. The complete formula giving the received current  $I_R$  in terms of the transmitted current  $I_s$ , the heights of the two antennæ  $h_1, h_2$ , the wave-length  $\lambda$  and the distance  $d$ , is

$$I_R = 4 \cdot 25 \frac{I_s h_1 h_2}{\lambda d} e^{-\frac{0 \cdot 0015 d}{v \lambda}}$$

There are many obscure points in the long-distance transmission which Mr. Austin's formula does not account for; for instance, Mr. Marconi pointed out at the Royal Institution recently that there were two minima near sunset and sunrise in the curve representing the strength of the received signals across the Atlantic, and also two maxima. Can this be accounted for purely by variation in the absorption coefficient, and, if so, does the absorption coefficient during the minima bear the same relationship to the wave-length as that given in Mr. Austin's formula? Do the two maxima correspond to practically no absorption, or are they higher values than would be obtained if no absorption existed as if waves were concentrated, as Mr. Austin seems to consider possible?

**Control of Submarines**

**E** XPERIMENTS are reported to have taken place at Portsmouth in connection with a device for controlling submarines and torpedoes by means of Hertzian waves. It was fitted to one of the old submarines of the "Holland" type, and tests were carried out by officers of H.M.S. "Vernon," torpedo school, at Portsmouth. The experiments were strictly confidential, but the results are said to have proved satisfactory, as the submarine was under the control of the wireless instrument operators while on the surface. Further tests are to be carried out with a submarine fitted with this device while submerged. No one was on board the vessel at the time, and the movements of the submarine were controlled at some distance from it. It has always been recognised that the officers and crews of the vessels would run enormous risks in time of war, but these will be minimised if submarines can be operated and their torpedoes discharged from the mother ship, lying several miles away, or from a station on shore.

A notable development of the uses of wireless telegraphy is announced in France, where, according to reports in the Press, the Ministry of Marine have decided to equip submarine vessels with apparatus for wireless telegraphy. It is the vessels which will be used for the purposes of attack that are likely to derive the greatest benefit from this development. It is regarded as being of the utmost importance that these vessels should be able to communicate regularly with the remainder of the fleet, and thus record the success or otherwise of their operations.

Readers of **THE MARCONIGRAPH** are interested in all matters relating to Telegraphy and Telephony, whether Submarine (or Subaqueous), Land or Wave. They will therefore appreciate

**THE ELECTRICIAN**, A Weekly Journal, Price 6d., wherein appears everything of interest on these subjects

2s. 6d. net, in envelope; post free 2s. 9d.  
**THE PRACTICAL WIRELESS SLIDE RULE.** By Dr. H. R. BELCHER HICKMAN.  
An Indispensable companion to all who have calculations to make in connection with Wireless Telegraphy and Telephony. Full directions are provided for using the rule.

**HINTS ON WIRELESS TELEGRAPH DESIGNS FOR AMATEURS.** By ALFREC.

Very fully illustrated. Cloth, 1/6 net. By post, 1/9.

"THE ELECTRICIAN" PRINTING & PUBLISHING Co., Ltd., 1, 2 & 3, SALISBURY COURT, FLEET STREET, LONDON, ENGLAND.

**Manual of Wireless Telegraphy**

FOR THE USE OF NAVAL ELECTRICIANS

By COMMANDER S. S. ROBISON, U.S. Navy

An Excellent Textbook for Marconi Students. Recommended by the leading teachers. Cloth 8vo. New Edit. 212 pp. Illustrated. 7s. 6d. net.

Post free from  
**S. RENTELL & CO., Ltd.**  
36 Maiden Lane, Strand,  
LONDON.





An Illustrated Magazine for all interested in WIRELESS TELEGRAPHY, published monthly by MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED. Watergate House, York Buildings, Adelphi, London, W.C.

Telegraphic Address ..... "Expance, London."  
Telephone No. .... Central 14340 (Three Lines).  
Codes used ..... Marconi, A.B.C. (4th edition),  
Western Union.

Subscription rate ..... 3s. per annum, post free.  
Single Copies ..... 2d. each, by post 3d.

All communications relating to Subscriptions, Advertisements, and other business matters, to be addressed to "The Publisher, 'The Marconigraph,' Watergate House, York Buildings, Adelphi, London, W.C."

All Editorial communications to be addressed to "The Editor, 'The Marconigraph,' Watergate House, York Buildings, Adelphi, London, W.C."

The Editor will be pleased to receive contributions; and Illustrated Articles will be particularly welcomed. All such as are accepted will be paid for.

CONTENTS

Wireless Telegraphy in Russia	1
Biography—Godfrey C. Isaacs	2, 3
Experiences of the First Marconi Airship Officer	4, 7
Mechanical Analogies applied to Radio-Telegraphy	8-10
Wireless Telegraphy in Spain	11
Wireless Telegraphy in India	11
Wireless on Land and Sea: The Post Office Record	12
Wireless in Warfare	13
Reviews of Books	14
Long Distance Communications	15
Control of Submarines	15
Editorial Notes	16
Marconi's Wireless Telegraph Co., Ltd., Extraordinary	
General Meeting	17, 18
Benevolence	18
Report of Marconi Wireless Co. of Canada	19
A Word to the Unwary	19
Marconi Field Stations in Siam	20-24
Wireless Facilities for Liverpool	25
Wireless and Aeronautics	25
A Veteran's Travels	25
Australasian News	26
Duke of Connaught Welcomed by Wireless	27
Maritime Wireless Telegraphy	28-29
Diary of Events	30
Personal	30
Operators in London	30
Movements of Telegraphists	32
Movements of Engineers	32

The Share Market.

Since our last number the activity in Marconi wireless shares has continued.

The closing prices on October 26th (the date we went to press), which show considerable improvement, were as under:

Ordinary ..... 49s. 6d.    50s. 6d.  
Preference ..... 38s. 9d.    40s. 0d.

Marconi's Wireless Telegraph Co., Ltd., have commenced an action against Messrs. Siemens Brothers & Co., Ltd., for the alleged infringement of their patents Nos. 11,575 of 1897 and 7,777 of 1900.

Messrs. Siemens Brothers & Co. are offering to instal the system known as the "Telefunken System," which Marconi's Wireless Telegraph Co., Ltd., allege to be an infringement of the above-mentioned patents.

Similar proceedings are about to be instituted in other countries.

The Marconi Company take over the Lodge-Muirhead Patents

The action commenced some little time back against the Lodge-Muirhead Syndicate for alleged infringement of Marconi's 7,777 patent, and the proceedings commenced by the Lodge-Muirhead Syndicate against the Marconi International Marine Communication Co., Ltd., for alleged infringement of the Lodge-Muirhead patent have been withdrawn, a friendly arrangement having been arrived at between the companies by which all the Lodge-Muirhead patents become the property of Marconi's Wireless Telegraph Co., Ltd., and Sir Oliver Lodge becomes associated with the Marconi companies as a scientific adviser.

The most important, perhaps, of the Lodge-Muirhead patents is No. 11,575 of 1897, which has just been extended by Mr. Justice Parker for a period of seven years.

Visit to the Marconi Works.

About sixty members of the Association of Engineers-in-Charge recently made an inspection of the works of Marconi's Wireless Telegraph Co., Ltd., at Chelmsford. They were accompanied by the president, Captain H. Riall Sankey, R.E., M.Inst.C.E., and a director of the company, through whose instrumentality the visit had been arranged. Mr. C. Mitchell (works manager), Mr. H. M. Dowsett (chief of the testing department), Mr. A. Eddington (assistant works manager), and Mr. H. J. Worrall (of the testing staff) acted as guides, and the engineers were conducted around the works in four parties.

Mr. A. E. Penn, on behalf of the Association, in proposing a hearty vote of thanks to Captain Sankey and to the directors of Marconi's Wireless Telegraph Co., remarked that they had all spent a most instructive afternoon. What they had seen had opened their eyes as regards the wonders of wireless telegraphy.

Captain Sankey, Mr. Mitchell, and Mr. Dowsett responded.

## Extraordinary General Meeting of Marconi's Wireless Telegraph Co., Ltd.

(Reprinted from *The Times*.)

**A**N extraordinary general meeting was held on Wednesday, 25th October, at the offices, Watergate House, York Buildings, Adelphi, W.C., for the purpose of considering a resolution to increase the capital by the creation of 250,000 new Ordinary shares of £1 each. Mr. Godfrey C. Isaacs presided.

The Secretary (Mr. Henry W. Allen) read the notice convening the meeting.

The Chairman said: "I am taking the chair to-day in consequence of the fact that our chairman, Mr. Marconi, is abroad transacting some important business on behalf of the company. The notice which you have received informs you that this is an extraordinary general meeting called for the purpose of considering, and, if thought fit, passing, a resolution to increase the company's capital by 250,000 Ordinary shares of £1 each, ranking *pari passu* with the Ordinary shares of the company previously authorised and issued. It is owing to the considerable development of wireless telegraphy throughout the world, and the immense business which this company is, and will be, called upon to conduct, that your directors are determined that they shall not be handicapped by insufficient capital in turning to the fullest account the fresh opportunities offering in this great scientific industry. Of this, perhaps, no better illustration can be cited than that of Russia. In that country, and in the East generally, there is a big field for development, and in order to be thoroughly equipped to cope with the work in that vast territory we have secured the controlling interest in the Russian Company of Wireless Telegraphy and Telephony. This is a company which has been in existence for some two or three years, and is carrying out large contracts for the Russian Government, and are negotiating for further contracts of considerable magnitude with the Russian War Office, with the Marine, and with the Post Office. Captain Adrian Simpson, a member of our staff, in whose ability and integrity we have implicit confidence, has been appointed managing director of the Russian company, and Mr. Marconi and I are joining the board. Under Captain Simpson's direction we are confident that a handsome revenue will accrue to us from this new field of action. In other parts of the world we are conducting negotiations which should mature in the early future, and will require considerable financial resources.

"The general development of commerce throughout the world is producing, as a natural corollary, a considerable increase in telegraphic communications. In this direction, also, there is a field of great magnitude of which this company will secure its share.

### "THE COMPANY'S EARNING POWER.

"We are satisfied that the additional resources for which we ask the authority will be productive of such increased profits to the company that both the Preference and Ordinary shareholders will be substantially benefited. The Preference shares, which have a first claim upon both capital and interest, add materially to the value of their security, and inasmuch as they participate also in the dividends over and above their cumulative 7 per cent. so soon as the Ordinary shares have received 10 per cent., they have everything to gain by increasing the earning power of the company, and inasmuch as the additional capital should be the means of our earning considerably more than sufficient to provide reasonable dividends upon the shares which it will represent, the existing Ordinary shares must equally reap considerable advantage. We are on the eve of world-wide recognition of the utility of Mr. Marconi's great invention, which is rapidly building for us a business of vast proportions of a sound industrial nature. When our chairman addressed you at our general meeting in July of this year he was able to tell you that we had made great strides since the preceding meeting, and that our work was rapidly increasing. So far as we could then gauge we had at our disposal all the financial resources which our prospective work demanded, and although fully anticipating a big increase in our business, we were scarcely prepared for the rapid expansion which is now promising in all parts of the globe.

### "AN IMPERIAL WIRELESS SCHEME.

"You will be pleased to learn that we are in active negotiation with our Government in connection with the great scheme of Imperial wireless stations, and we hope that the near future will enable us to announce to you that the construction of these stations is about to be commenced. It will also interest you to know that we have just received a cable from Chili informing us that our offer for the construction of a number of stations for the Chilean Government has been accepted. It will, no doubt, be a matter of satisfaction to

all our shareholders, as it has been to Mr. Marconi and to the other members of the board, that we have been able to arrive at a settlement of all our differences with the Lodge-Muirhead Syndicate, and that we shall henceforth have the advantage of Sir Oliver Lodge being associated with our company as a scientific adviser. By this arrangement we have broken the back of the litigation through which it was necessary for us to pass. There remains little more to be done in this direction in this country. If this meeting approves the resolution which I shall shortly formally submit, and if this resolution be confirmed at the meeting summoned for November 9th next, your directors will quickly proceed to make the necessary arrangements for the issue, fixing the premium at which the new capital will be issued. Shareholders may, however, rely that these terms will provide for a reasonably substantial bonus to both Preference and Ordinary shareholders alike. We have received a very large number of proxies and expressions of approval from a great many of our shareholders, and I am glad to say we have not had a single dissenting voice. I now formally propose the following resolution: 'That the capital of the company be increased by the creation of 250,000 new Ordinary shares of £1 each, to be issued on such terms and conditions as the directors think fit, such shares to rank *pari passu* in all respects with the existing 500,000 Ordinary shares of £1 each.'

Major S. Flood-Page seconded the resolution.

Mr. Goodbody asked whether it was the intention of the directors to issue the whole of the proposed new capital at once.

The Chairman, in reply, said that he could hardly answer the question at the moment. He thought the matter had better be left to the directors to deal with after the confirmatory meeting.

Mr. F. M. David inquired whether any part of the proposed new issue would be devoted to relieving the practical isolation of the Poldhu and Glace Bay stations.

The Chairman stated that a portion of the proposed new capital would undoubtedly be used for the purpose of creating a telegraphic service with a number of stations which they would be erecting, and were erecting, elsewhere. He did not think that he could give further particulars in regard to that matter.

Mr. Horace Smith asked what proportion the Preference shareholders and the Ordinary shareholders would be entitled to subscribe.

Mr. Goodbody stated that he had tested the station that had been opened at Galway, and had found it to be exceedingly satisfactory. (Hear, hear.) There had been times when the messages had been delayed, but his experience was that when he sent a message by wireless

fairly early in the morning he usually got a reply by 6 o'clock at night.

The Chairman stated that he had no doubt they would be able to even improve upon that.

The Hon. D. O'Brien said that, speaking as a stockbroker in London, the wireless system, although not so very largely used, had worked satisfactorily.

The Chairman, in reply to Mr. Horace Smith, said that the Preference and Ordinary shareholders would be treated on an equal basis in regard to the new issue of shares. Each would have the right to subscribe in the same proportion.

A Shareholder: At what price will the shares be issued?

The Chairman said that that matter had not yet been settled, but when the shareholders authorised the issue the directors would then determine at what price the issue would be made.

Mr. W. J. Purdy said that, with regard to the despatch of messages by the wireless system to America, he had been in communication with quite a number of users, all of whom had expressed their satisfaction with the system. (Hear, hear.) At times there had been some little delay, but it was not sufficient to prevent them using the system.

The resolution was then put to the meeting and carried unanimously, and a vote of thanks to the Chairman concluded the proceedings.

Marconi's Wireless Telegraph Co., Ltd., was awarded the Diploma of Grand Prix for its exhibit in Class 31 of the Turin International Exhibition held this year.

The company's exhibit included a 5 k.w. ship installation and sundry wireless testing instruments.

---

## Benevolence

---

WE are grateful to our readers for the ready response which they have made to our appeal for funds for Mrs. McIntyre and Mrs. W. J. Croxon. The sum of £10 11s. has already been handed over to Mrs. McIntyre. For Mrs. Croxon we received the following sums during the past month: Anonymous, £1; Messrs. Heybourn & Croft, 10s. 6d.; Mr. J. Cave, 2s. 6d.; total, £11 13s.

Elsewhere we note that Mr. Marconi will preside at the annual dinner of the News-vendors' Benevolent and Provident Institution, on Monday, November 27th. We hope to refer to this most deserving institution in a later issue. Meanwhile we trust that our readers will help to further the success of the appeal which is being made by Mr. Marconi on behalf of distressed news-vendors.

---

## The Marconi Wireless Telegraph Company of Canada, Ltd.

---

THE annual meeting of the shareholders of the above company was held at Montreal on October 5th, and we give below some extracts from the directors' report which was presented to the meeting :

Twenty-nine stations are now owned or controlled by the Company in the Dominion of Canada and Newfoundland, situated at the following places: Indian Harbour, Domino, American Tickle, Venison Island, Battle Harbour, Belle Isle, Point Amour, Point Rich, Harrington, Heath Point, Fame Point, Clarke City, Father Point, Grosse Isle, Quebec, Three Rivers, Montreal, Magdalen Islands, Cape Bear, Pictou, North Sydney, Cape Ray, Cape Race, Sable Island, Cape Sable, Halifax, St. John, Port Arthur (Ontario), Glace Bay (C.B.) For the stations controlled for the Canadian and Newfoundland Governments the Company receives a subsidy, and, in addition, the total receipts from telegraph business. These traffic receipts have continued to increase. For the year ending January, 1909, the receipts amounted to \$19,200; for the year ending January, 1910, \$36,100; for the year ending January, 1911, \$42,630, and a proportionate increase is expected for the current year.

The number of vessels now equipped with the Marconi system is five hundred and thirty-six; of these two hundred and twenty-three large passenger steamers ply regularly on the North Atlantic route, and communicate with the magnificent system of stations established in Eastern Canada. Many of these steamers are in communication with the Company's system for three days before arriving at and after leaving port.

Negotiations with the Canadian Government regarding the terms of a new contract have recently been concluded. Under this contract the Government have purchased three of the stations, and a substantial increase in the subsidy for the control of all stations owned by them has been made.

The development of the Marconi system through the Great Lakes has been commenced by the establishment of a station at Port Arthur, Ontario, and the equipment of three vessels owned by a Port Arthur company, and further extensive developments it is expected will be carried out at an early date, and your directors will make every effort to secure the contract for the controlling of the Canadian Government stations now being erected on the Great Lakes; and they have also every reason to believe that these stations will be entirely equipped with Marconi apparatus.

The Newfoundland Government desire to further extend their system on the Labrador by three stations. These stations are now being erected under the terms of the existing agreements, but other terms beneficial to both the Newfoundland Government and this Company have been suggested, and we hope these terms will be finally accepted by the Newfoundland Government in lieu of the terms of the existing contracts.

### A Word to the Unwary.

Exaggeration bears a close resemblance to misstatement, and it is therefore necessary to utter a warning against the ready acceptance of the wonderful tales of phenomenal achievements in modern telegraphy or telephony which are served up for public delectation. One of the latest of such alleged "achievements" emanates from San Francisco, where, according to inspired newspaper accounts, "the wireless operators there [San Francisco] exchanged for the first time messages with Japan over 6,000 miles of ocean." The inference to be drawn from a statement of this kind is clearly that the difficulties in establishing such long-distance communication have been overcome, and that the thing is a *fait accompli*. We will not attribute to the originators of the report to which we have drawn attention the desire to mislead, for no one who understands anything about radio-telegraphy can be deceived by such a statement. But the effect upon the public mind is certainly mischievous, inasmuch as it tends to spread erroneous information concerning wireless telegraphy. Or it might happen that a message could be transmitted over such a long distance, by communicating from shore to ship that happened to be in the way, from ship to ship, then from ship to shore again. Even that would depend upon atmospheric and other fortuitous conditions. Such an achievement is therefore a "freak," and could not be repeated until some entirely unforeseen or chance circumstances occurred to help it. What the intelligent public desire to know is what reliable results have been obtained from scientific investigation, and how these results are applied to practical ends. Any other information should be taken with an abundant supply of salt.

➤  
Apropos the statement in a recent issue of THE MARCONIGRAPH that a prosecution was recently entered in America against an amateur wireless operator for intercepting a message destined for the *Los Angeles Herald*, the court has now held that no offence had been committed by the amateur or by the paper which published the message. This decision, if allowed to stand, creates a dangerous precedent against which the wireless companies will probably appeal.

## Marconi Field Stations in Siam

*[The Rome agency of the Marconi's Wireless Telegraph Co. recently obtained an order from the Siamese Government for the supply of four wireless field stations, which were delivered in good time, and put in working order by Marconi operators and engineers. Results were obtained which met with the entire satisfaction of the Siamese Government. The work was in charge of Mr. Cantoni, one of the engineers of the Rome agency, and what follows are some impressions of the country which occurred to Mr. Cantoni whilst the work was in progress. We present the account in the picturesque style in which it was written, and which, perhaps, can convey better than any other account the peculiar difficulties under which the work was carried out.]*

ABOUT the end of the rainy season, in October, 1910, one of the 100 km. Marconi field stations was erected in the "Promenade Ground," a large, oval manoeuvring place before the walls of the "White City." The three masts, set in a line from north to south, and the thin net of wires and stays of the aerial, showed off against the distant golden obelisks, the beautiful pagodas, and the Royal Palace with its shining roofs. The earths are spread one across the other on the grass, and the long cable which unfolds among the green like a thin, black snake, connects the apparatus

with the cart containing the motor generator. The motor throbs regularly and rapidly; a little blue cloud of smoke is emitted from the silent chamber at every new vibration; the switchboard lamps burn with a reddish, almost mysterious light. Some soldiers lie on the grass, singing their national songs; others inspect the working of the apparatus and discuss in their way the mysteries of wireless telegraphy. The spark is very good; the motor runs well; all is in order, and we shall thus be able to erect the other station on the following day.



Fig. 1.—Installing a 100 km. Station at Bangkok.

It is 5 a.m. The Menam River (the great mother of waters) runs quietly between its green banks. Large Chinese junks and small Siamese "sanpans" slowly glide along the waters. On the banks, amidst the palms and the secular tamarind trees, rise the white pagodas. Hawks, crows, and vultures darken the clear sky. The boats which are to convey the wireless material and the soldiers in charge of the stations are ready to proceed on their way.

"All in order?"

"Ko-rap" ("Yes, sir"), is the answer.

The steam launch, on leaving the military pier, gives a warning whistle and the ropes of the tug are stretched, the boats moving slowly against the current. Passing the barracks of the "Transport Department" are to be seen soldiers scattered along the banks, who salute their comrades in the boats. Bangkok slowly disappears in a sea of green; the shining ribbon of the river narrows, then gradually vanishes in soft curves in the distance.

The cases and bundles have just been put in order. Water-bottles, saucepans, frying-pans, plates, forks, etc., are stacked in a corner, and near by the "boy" is boiling water for tea. Two soldiers in primitive costumes lie dozing on mats on the stern of my boat. I wake them up, and allow my boat to approach the one in



front on which is the officer in charge of the station, who is busy arranging his provisions.

"We shall have tea later," I inform him; "meanwhile let us see that all is in order."

We pass on to the boat ahead of us, the two carts being well secured and covered by waterproof blankets. On the river everything is still; the sun is high; on both sides large fields of rice spread away out of sight.

Our progress continues slow and even for long weary hours, the monotony being momentarily broken by huts, villages, and pagodas which we pass on our way.

Out of the evening twilight a distant light shines at the top of a white tower; it is the lighthouse of Ban-pa-jin. In the reddish evening dusk appear clearly the white walls of the Royal summer palace. We halt for a few minutes, consult our maps, and make purchases from the natives who have approached us in their sampans with sugar reeds, bananas, rice tarts, and other specialties of the place. We continue then our journey; at 9 p.m. we are at Ayuthia. This is the old capital of Siam, a town of cyclopean ruins, the principal part of which are situated on a large hilly island, where once rose the walls, the temples, and the palaces of the ancient Siamese dynasties. We moor our boats just below the soldiers' barracks. In the yellowish light of the few lamps scattered here and there we see the trunks of the high palm trees rising along the banks. Before us is the mass of an immense floating house finely outlined, and which is destined to lodge princes and military authorities. A large verandah which is paced to and fro by a sentry runs all around the building, and from an open blind we see a large drawing room illuminated by a myriad of electric lamps fed by the dynamo of the barracks.

I land with the engineering officer, and together we visit the commander of the place, in order to inform him of our arrival and to obtain information from him as to the most convenient spot on which to erect our station. I am received with great politeness, and our conversation turns to wireless telegraphy—the wonders of which interest the commander very much. While talking we are sipping tea in small cups of Siamese porcelain. After some time I take leave and withdraw to the floating house, which has been kindly put at my disposal during my stay at Ayuthia.

At the river banks early on the following morning the soldiers are taking their first ablutions of the day. The boat, on which is the station, is drawn as near as possible to the banks, and is securely fastened by means of ropes to the palm trees. We first disembark

benzine and oil, then we pile up the remaining firewood, which was scattered at the bottom of the boat against her sides, thus making a gangway for landing the carts. The soldiers at our disposal numbered only thirty, which was insufficient for our purpose, but we had no difficulty in obtaining a larger number.

"Cheer up, men. Some to the wheels, some to the shafts, some to the ropes." Everybody is pulling, and the cart slowly moves along the creaking planks. "Sallapa." Sal . . . la . . . Paaaa (hoist, hoist.) One last effort, the cart has left the planks; it is on land, still dragged on by our men up a slope, leaving deep ruts in the ground

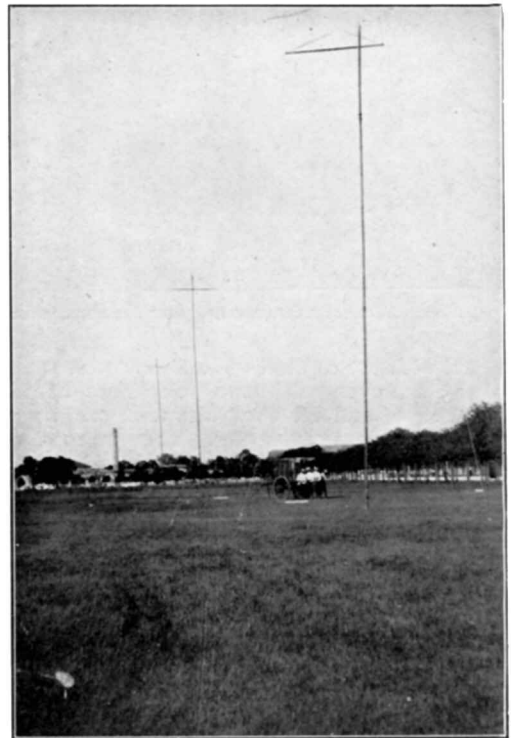


Fig. 2.—General View of the Station.

till at last it is safe on the plain. Our objective was a large manœuvring ground, a well-kept meadow enclosed on three sides by barracks and thick green vegetation, while the fourth side was sheltered by a well-grown palm plantation, in the midst of which, on a little hill, appears the beautifully-shaped dome and the obelisk of a very old pagoda. The ground is very good for our purpose, and we could not hope for anything better at 72 km. north of Bangkok.

The station was put up on that day, and on the following morning we exchanged the first



Fig. 3.—First messages transmitted from the Promenade Ground.

signal with the capital. We could receive very distinctly, even with two telephones at the same time, and for three days we exchanged communications constantly. Then we received the order to proceed farther north along the banks of the Mesack, a tributary of the Menam.

At sunrise the next morning we left Ayuthia, and steamed down the river until we reached the point where the two branches of the Menam, after encircling the island, meet again, forming at that point a great expanse of water similar to a large lake. On the left bank, crowded with houses, the great overtopping Wat, wherein is worshipped one of the largest statues of Buddha existing in Siam; on the right of this shrine can be seen a bridge connecting the railway between Bangkok and northwards towards the Chinese frontier.

We pass before the pier of the royal palace at Ayuthia, and then arrive in view of a picturesque island, where one of the king's brothers resides. The Mesack is treacherous at the point where it joins the Menam, and one of our boats was upset in a whirlpool, the occupants having narrow escapes. The banks of the Mesack are very high, but the ground on both sides is marshy and covered with rich vegetation.

Ta-Rua was reached in the afternoon. This village is touched by the Bangkok-Korat railway, which at this point crosses the river on an iron bridge, constructed by German engineers in 1886. Another small station of a branch railway between Ta-Rua to Pra Bat (the first mountain to be seen on the way from Bangkok to the north-east) lies a little further away. This makes a very fine excursion, something like a trip in Switzerland. On the Pra Bat are to be seen the footprints of Buddha.

In company with the Siamese officer I went for a trip up the river in search of a convenient place where to erect our station. My companion favours the village of Ha Phya Tot Dicca. "There is very little to choose," I say, "let it be Ha Phya Tot Dicca."

We return to Ta-Rua, and with our four boats go up the river again, while the sun sets in a sea of fire. The siren of our tug begins to whistle; we have reached Ha Phya Tot Dicca, but owing to the lateness of the hour there is nothing for us to do but to wait till morning of the next day for our work. The day has been hot and sultry; we are very weary, and fall asleep under our mosquito nets.

"How shall we get our carts across so much mud?" was my first thought at the dawn of the next day.

"Nai Ott," I said to the officer, "we shall have great difficulty in landing the station;" we therefore decided to leave the generator cart on board and carry the parts ashore. The firewood scattered across the bottom of the boat was again heaped against the sides; the hollow dividing the boat from the bank was filled up with trunks of trees, and by means of planks we made a road leading from the landing to the top of the hill, where after many



Fig. 4.—Siamese Officers and Soldiers working the Stations.

efforts we succeeded in carrying our cart. It was a great event for the inhabitants of the village.

"Tu ra leck mai mi sai" (wireless telegraphy) they shouted to each other; "tu ra leck mai mi sai," but they did not know the full meaning of their words.

At sunset the first waves were propagated from our aerial; for the first time the sound of the spark echoed in that distant land, and the genius of Marconi had gained a further victory. In the boat below the motor throbbed with rhythmical noises; at the top of the hill the vivid light of the spark broke the first shades of the night.

At the dawn of the following day we estab-

the afternoon. This is a place of some importance on the railway line of Korat at 113 km. in a straight line from Bangkok. There is a governor, police, good roads, well-built houses, and some Indian and Chinese shops. About 2 km. down stream on the left bank of the Mesack are the barracks of the artillery, with a garrison of about 400 soldiers and several field batteries. From east to west, a little distance from the village, stretch the first chains of mountains, covered with thick and impenetrable forests. Near the village the river becomes impassable for our boats. Shallows and reefs emerge upon the surface of the water, and render the passage even of native flat boats difficult. The water here runs deep between



*Fig. 5.—At Ayuthia. Receiving messages from Bangkok.*

lished communications with Bangkok over a distance of 95 km. We remained at Ha Phya Tot Dicca for some days, but were obliged to hasten our departure on account of the rising of the river, caused by the heavy rains which had fallen in the east. Indeed, some of our pickets were already standing in water, and the masts and stays began to be submerged in an alarming way. Standing waist deep in water we rapidly lowered the masts, and swam about in order to recover the anchorage. Happily we succeeded in recovering all the material without mishap.

We left Ha Phya Tot Dicca on the following morning, proceeding along the river in a northeasterly direction, and reaching Sara Buri in

the banks, which rise upward of 15 metres from the water line. Commencing at the barracks a large road leads to the river; it had been constructed about fifteen months before our arrival in order to facilitate the landing and transportation of the artillery material. Unhappily this road, made by hundreds of Chinese coolies, had been partially spoiled. The two sides of the road had been neither protected by masonry nor by any other means, and the road itself had been left as it had been dug, without a stone being laid on it, so that the floods had caused great land-slides, and the waters coming down from the surrounding heights had found in the road an excellent outlet.

In spite of all, this was a fair means of



Fig. 6.—Disembarking under difficulties at Sara Buri.

transporting our carts. The commander placed a number of soldiers at our disposal, as well as the material necessary for the landing of the stations. On the following morning the boat carrying the station was pushed as far as possible into the mud, and was secured to the land by ropes. More than two hundred soldiers were required to carry our carts from the river to the top of the hill. Reeling, bouncing up a muddy slope, the cart advanced by slow stages, dragged on by those men half naked and bespattered with mud from head to foot, and shouting "Sallapa" (Sal-la-pa). At sunset all the material had been carried to the upland, where we had to erect the station. On the following morning we put up the masts in a large rice field, wading in the mud up to our knees.

For a whole week we communicated with



Fig. 7.—Transporting a Station up the Menam.

Bangkok, exchanging several service telegrams and messages of greetings to many princes. Then we received the order to return to Bangkok. The embarking of the material was still more difficult than the landing owing to the muddiness which stuck to the wheels; one of the carts slipped out of the wooden rails we had made and fell into a pool; we had to work for two days and two nights by the light of the torches to recover it.

From the high banks the artillery soldiers shouted their farewell to us, and the boats floated rapidly down the river. In a few moments we lost sight of our former companions, and could



Fig. 8.—A 25 km. Station Operated at Dong Muan during the Manœuvres.

hear faintly in the distance the songs of the soldiers, the hoarse whistle of the bamboo flutes and the deep rumble of odd drums, which play such an important part in Eastern music.

The British Consul at Naples reports that during December, 1910, the wireless telegraph station erected on the heights above Naples by the Marconi Company was made available to the public in connection with the ordinary telegraph system. Naples is now in communication with Palermo and Cagliari. The Naples station has been given the name of Castel S. Elmo, and its signal is M.N.S.; Palermo is M.P.P., and is called Sferracavallo; whilst Cagliari, called Castiadas, has the letters M.P.O. as its signal.

## Wireless Facilities for Liverpool

**A**N arrangement of considerable importance has been made by the Marconi International Marine Communication Co. with the Postmaster-General, whereby ships lying in the Mersey will be allowed to communicate with ships lying in the Liverpool docks or river, provided that such communications are strictly on service matters, and that the messages are transmitted strictly in accordance with the following regulations:

1. That the communicating ships are inside the line joining Seaforth Barracks and the New Brighton Tower.
2. That the messages transmitted between the officers of the ships and the company's representative relate only to the affairs of the ships.
3. That communications shall cease immediately on receipt of the signal "S.T.P." from Seaforth wireless station, and shall not be recommenced without permission from the Seaforth wireless station, which will be communicated by the signal "Cancel S.T.P."
4. That if at any time it is desired to pass a message between ships in the river as defined in paragraph 1, and another ship outside this limit, the message must be passed through Seaforth wireless station as an ordinary radio-telegram.
5. Operators must take every precaution not to interfere with the legitimate business of the Seaforth wireless station.

It would appear that prior to this arrangement being arrived at no messages might be sent from a ship in the river to a ship in the dock, although belonging to the same line. All messages were supposed to pass through the hands of the postal telegraph authorities, which, not only might mean delay, but expense. The Postmaster-General has now made the concession that direct communication may be made from ships in the river to ships in dock, always providing both ships are inside a line from New Brighton Tower to Seaforth Barracks.

There is, however, a restriction placed on this concession, as the above regulations show, for any messages sent in this form must be exclusively messages transmitted from the officers in charge of the ship to the company's representative, and having reference only to business in connection with the ship. All messages between ships in the river and those outside the specified line must pass through the Seaforth wireless station, to which reference was made in the October number of *THE MARCONIGRAPH*, and will be dealt with by the postal authorities as an ordinary marconigram. There is no doubt that this arrangement will be greatly appreciated by the large shipping companies whose vessels may have to lay sometimes in the river, as it is almost equivalent to connecting them by telephone.

### Wireless and Aeronautics.

In a letter to *The Times*, Mr. L. Blin Desbleds (lecturer in Aeronautical Engineering at the Polytechnic, Regent Street, London, W.) enters a strong plea in favour of having at one or more of our principal universities and colleges complete courses in aeronautics and the subjects relating thereto. Such a course, Mr. Desbleds suggests, should comprise (a) Summary of the world's most important aeronautical researches, methods and results; (b) methods of dealing with aeronautical problems; (c) the strength and elasticity of materials used in air-craft construction, comprising calculations of the chassis, fuselage, wing-framework, etc.; (d) all available experimental data concerning aerial propellers; (e) the petrol motor, with special reference to light motors for aerial work; (f) the testing of petrol motors; (g) the design of aeroplanes; (h) meteorology; (i) wireless telegraphy; (j) aerial map-drawing and map-reading. We are glad to see that wireless telegraphy is included in the above scheme, for obviously the aeroplane would lose half its value from the military standpoint if this subject were neglected.

### A Veteran's Travels.

Lord Strathcona, the High Commissioner for Canada in London, who is over ninety years of age, left England for Canada on September 23rd on the "Mauretania." He arrived in England on October 10th on board the same vessel, and took train immediately for London, reaching the metropolis about mid-day. His lordship then proceeded direct to Scotland, where Lady Strathcona is in residence. During the interval Mr. Griffith, the official secretary in London to the Canadian Government, has been in frequent communication with Lord Strathcona by means of wireless telegraphy. Thus in seventeen days Lord Strathcona covered 10,000 miles—a record which many a younger man would be proud of. When the "Mauretania" was at sea Lord Strathcona sent the following message to the *Daily Mirror* by wireless telegraphy, via Rosslare, Ireland:

Landing at Fishguard at three to-day. Every thing most comfortable in this fine steamer, which is making a passage of five days, as against that of forty-two days made by sailing vessels, the only means available, forty-seven years ago. I am most hopeful that, as a fitting inauguration of the new Viceroyalty, we shall have within two years equally speedy steamers running direct to Canada, bringing London within four and a half days of Montreal and Ottawa and within eight days of the Pacific coast. Since the above was written it has been announced that it is impossible to proceed to Fishguard owing to the stormy weather. We will land Liverpool, eight, Tuesday morning.

Surely the means employed for transmitting the above message are as notable as the great achievement to which the message refers.



## Australasian News

(FROM OUR CORRESPONDENT)

SYDNEY, N.S.W., August 29th.

THE installation of one of the 1½-kw. Marconi ship sets was completed on board the s.s. "Karoola" on June 17th last, and a similar installation has just been completed on the s.s. "Koombana." The "Karoola" is the largest ship at present engaged in the Australian inter-State trade. She is a fine twin-screw steamer of 7,391 tons gross, and has accommodation for first, second, and third class passengers equal in every respect to that of a transatlantic liner. She has spacious decks, deck cabins, *cabins-de-luxe*, and a gymnasium. The "Karoola" was built in 1909 by Messrs. Harland & Woolf, at Belfast, to the order of Messrs. McIlwraith, McEacharn & Co., Ltd., of Melbourne, and, since her arrival in Australia in September, 1909, has been employed by Messrs. McIlwraith, McEacharn & Co. for their inter-State trade between Sydney, Melbourne, Adelaide, Albany, and Fremantle.

The wireless installation on board has achieved splendid results, and great use is made of it by the captain and passengers. Communication with other ships equipped with Marconi apparatus is frequently obtained over distances ranging from one to two thousand miles, and on two recent occasions the "Karoola" has succeeded in establishing communication and exchanging messages with the Marconi station at Cocos Island, from Cape Naturaliste on the West Australian coast, a distance direct of 2,250 miles, thus establishing the record long-distance

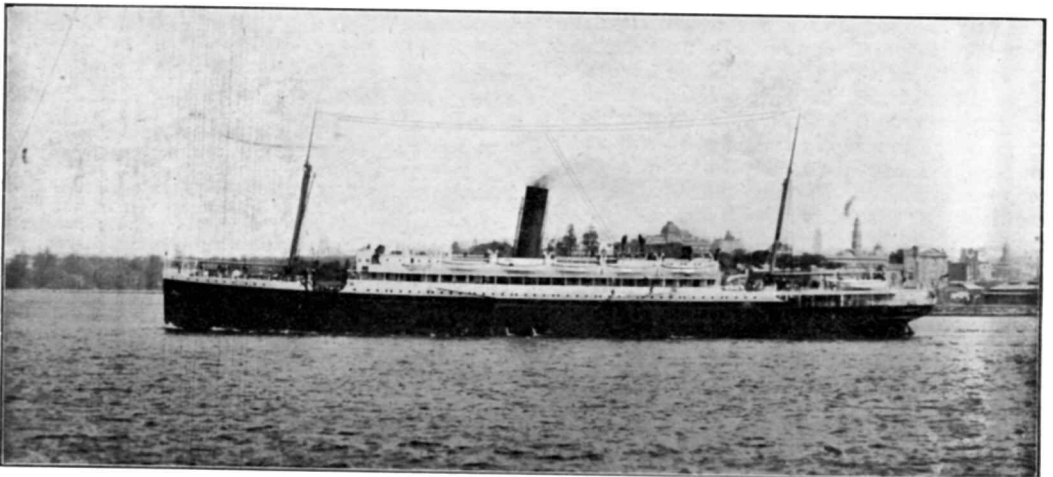
communication for ships on the Australian coast.

The s.s. "Koombana," owned by the Adelaide Steamship Company, has been in Sydney undergoing her annual overhaul, and at the same time has been equipped with a Marconi installation. She left Sydney on August 28th for Melbourne and Fremantle. The "Koombana" carries on a Royal Mail and passenger service between Fremantle and ports on the north-western coast of Australia, going as far north as Port Darwin and Wyndham. The "Koombana's" gross tonnage is 4,200. This is the second ship on which Marconi apparatus has been installed for the Adelaide Steamship Co.

The installation on board s.s. "Grantala" has given splendid results; communications over distances ranging from one to two thousand miles are frequently obtained. The ships of the P. & O., Orient, Blue Funnel, White Star, and Aberdeen lines, arriving here from England equipped with the Marconi system, all report having maintained communications over very long distances.

The Orient liner "Osterley," which arrived at Sydney on August 17th, had wireless communications every day during the voyage from London to Sydney. Among the passengers from London by the "Osterley" were the Hon. Andrew Fisher, Federal Prime Minister, returning from the Coronation and Imperial Conference, and Madame Melba, the famous *prima donna*. These celebrities and their fellow-passengers made great use of the Marconi installation during the voyage.

The necessity for the adoption of Marconi telegraphy on all passenger ships has been brought forcibly before the Australian people by the loss of the s.s. "Fifeshire" near Cape Guardafui, while on a voyage from Sydney to



The S.S. "Karoola"

London. One of the "Fifeshire's" lifeboats, with a number of passengers and members of the crew on board, is still missing, and their fate remains unknown, while the crew of another lifeboat suffered terrible privations before they were rescued. Had the "Fifeshire" been equipped with Marconi apparatus, she would have been able to communicate with one of the numerous ships passing that way which carry Marconi installations, and would have obtained immediate assistance.

According to the *Telegraph and Telephone Age* the Postmaster-General of Australia has issued regulations in which provision is made for the issue of general licences at 5s. each for ships registered in Australia and for experimental licences at £1 1s. each. The appliances on board ship are to be worked in such a way as not to interrupt or interfere with the naval or military signalling or the transmission of messages between other wireless telegraph stations. Except by permission of the Postmaster-General, the wireless aboard any ship (other than a ship of war) is not to be worked while the ship is in any harbour or any territory of the Commonwealth. Power is given to the Governor-General to prohibit the use of wireless telegraphy on board foreign ships in territorial waters in case of emergency.

---

## Welcome by Wireless for the Duke of Connaught

---

THE arrival of the Duke of Connaught in Canada to undertake the office of Governor-General was awaited in the Dominion with great interest. Shortly after the departure of His Royal Highness from this country, Earl Grey, the late Governor-General, sailed from Canada. The journey was notable for two incidents: first, that the final arrangements for the reception of the Duke were made by wireless; and second, the wireless communications that passed between the Duke of Connaught and Earl Grey on the high seas, an incident which is said to mark a departure from precedent. The Duke and Duchess of Connaught sailed on the "Empress of Ireland," which carried a Marconi wireless equipment. In the ordinary way he would have been entirely out of touch with his friends and well-wishers in both continents, and the Canadian public would have been without news of their new Governor-General until his arrival. Thanks, however, to the use of wireless, the Royal party were never entirely cut off from land, and towards the end of the voyage some interesting communications were sent from the "Empress of Ireland," of which the Montreal correspondent of the *Daily Telegraph* has succeeded

in obtaining the text. One message intimated that the Duke of Connaught was making a pleasant voyage. It was sent from the ss. "Empress of Ireland" (via Point Riche and Cape Ray, Newfoundland), October 11th, and ran as follows:

Glorious weather greeted the arrival of the Duke of Connaught in Canadian waters this morning. The misty drizzle of last night had cleared away, and to-day broke fine but cold. We entered the Straits of Belle Isle in the early hours of the morning, but the Duke was on deck at seven a.m., admiring the coast scenery through the latter part of the Straits.

The next message received from the "Empress of Ireland" contained some interesting and historic news, and at the same time it showed that the Duke of Connaught was making plentiful use of the wireless apparatus. It ran:

Their Royal Highnesses are receiving messages of welcome from every passing station and every passing vessel. Among them was a greeting from Earl Grey stating that the new Ministry had been sworn in, and welcoming his Royal Highness to Canada. The Duke has already "Marconied" about twenty replies. Through the courtesy of his Royal Highness, the names of the members of the new Cabinet were published on board, the news arousing the keenest interest. The general feeling among prominent Canadians on board the "Empress of Ireland" seems to be one of satisfaction at Mr. Borden's selection. The Duke and Duchess are evidently both greatly pleased at the greetings they have received. The Duchess is making a tour of the ship this afternoon, visiting all the classes on board. The Duke has already made a similar tour, and met with a most cordial reception everywhere.

The "Empress of Ireland" is assuming a festive air, gay decorations of bunting, bannerettes, flags, flowers, and drapings appearing everywhere. Everybody on board seems infected with the general gaiety, and none more so than the Royal passengers.

Next we come across a long message sent via Cape Ray, Newfoundland, on October 11th:

After a few hours of splendid weather approaching the Straits of Belle Isle keen winds began to blow, bringing in their train a heavy drizzle and wet mists, while the sea became choppy. Their Royal Highnesses, however, persisted in promenading the deck together, afterwards taking tea in the cage. The Duke subsequently remained on deck chatting with various passengers, who, following his example, stayed to walk until dinner-time.

In deference to his Royal Highness's expressed desire, there is a continuance of the absolute lack of formality which marked his first appearance on board. He mixes freely with the passengers every day, and enjoys nothing more than a chat about Canada or something Canadian. As we approach our journey's end the Duke's enthusiasm and keenness to be at work in the Dominion become increasingly apparent. So far the trip has been singularly uneventful—one wholly devoid of any untoward incident.

Owing to general inclement weather, even the usual sports on deck have not been organised. Both the Duke and the Duchess, however, have apparently benefited by their few days at sea. The Duke's activity in promenading decks is surprising everybody on board. The officers declare it would be creditable even in a much younger man. His Royal Highness easily out-walks the members of his staff. Indeed, he is hardly below at all during the daytime, except when driven down by the heavy seas which have from time to time broken over the vessel and made many of the passengers most unhappy.

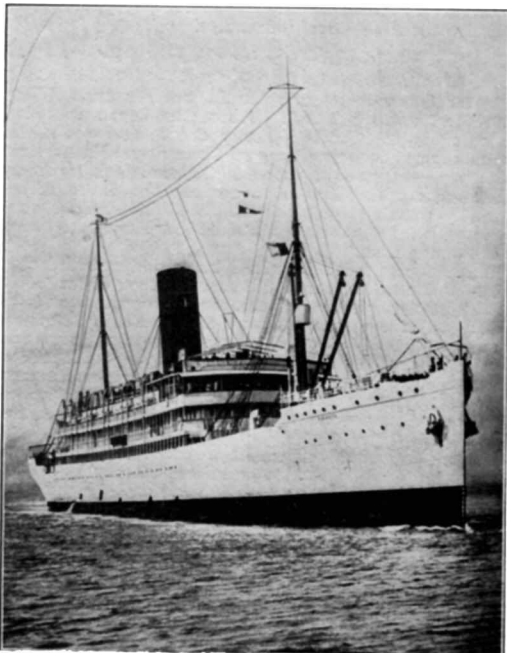
## Maritime Wireless Telegraphy

Since our last number the Marconi International Marine Communication Co., Ltd., has fitted the following ships with its 1½-k.w. and emergency plant: s.s. "Galway Castle" and "Guildford Castle" for the Union Castle Line, s.s. "Elysia" for the Anchor Line, s.s. "Plassy" for the Peninsular & Oriental Co., s.s. "Tahiti" for the Union Steamship Company of New Zealand, s.s. "Rohilla" for the British India Steam Navigation Co., s.s. "Manco" and "Aidan" for the Booth Steamship Co., s.s. "Rawson" for the Argentine Navigation Co., and s.s. "Zealandic" for the White Star Line.

The private steam yacht "Iolanda" and the Peninsular & Oriental Co.'s s.s. "Ballarat" are now being equipped with Marconi apparatus.

The Marconi International Marine Communication Co., Ltd., has also received instructions to equip the following vessels: s.s. "Montoro" for Messrs. Burns, Philp & Co., and s.s. "Armenian" and "Victorian" for Messrs. Frederick Leyland & Co.

La Cie de Télégraphie sans Fil has received an



S.S. "Tahiti" of the Union Steamship Co. of New Zealand.

order from Messrs. Fredriksen, of Staback, near Christiania, for the equipment of their whaling vessel, the s.s. "Falkland," with a 1½-k.w. set. This ship is intended to sail from Toensberg on November 1st for the Antarctic.

The above company has also received instructions to equip the "Absalon," of the Royal Danish Navy.

La Cie Francaise Maritime et Coloniale de Télégraphie sans Fil have received instructions from the Compagnie Générale Transatlantique to equip the s.s. "Timgad."

## International Radio-Telegraphic Conference in London

The Bureau International de l'Union Télégraphique notifies that the next Radio-telegraphic Conference will meet in London on June 4th, 1912, and that the latest date for the submission of proposals to the Conference is postponed until December 1st next. It is proposed to grant the right to vote at this Conference to each of the following British Possessions—namely, the Australian Commonwealth, Canada, British India, New Zealand, and the Union of South Africa.

Intimation has been received from the Bureau International de L'Union Télégraphique (Convention Radiotélégraphique Internationale) at Berne, that the following call letters have been reserved for vessels which are about to be equipped with Marconi apparatus, irrespective of the countries in which these vessels are owned:

MFM, MFR, MGQ, MGZ, MIO, MIV, MIY, MJR, MJW, MJY, MJZ, MKT, MKU, MKV, MKW, MTB, MTG, MTT, MTV, MTW, MTY, MTZ, MUK, MUM, MUQ, MUT, MUV, MUY, MUZ, MVJ, MVV, MVW, MUY, MWB, MWD, MWG, MWH, MWK, MWM, MWP, MWQ, MWY, MWZ, MYA, MYB, MYE, MYF, MYI, MYJ, MYK, MYP, MYQ, MYR, MYW, MYY, MZE, MZF, MZG, MZH, MZO, MZP, MZQ, MZZ.

The annual report of *Lloyd's Register of Shipping* issued last month shows that no fewer than 1,013 vessels are now fitted with wireless telegraphic installations.

At a fancy dress ball held on board the R.M.S. "Asturias," Miss Betty Beresford, niece of Admiral Lord Charles Beresford, M.P., and Mrs. Bartlett, a daughter of Sir Philip Rose, were attired in Marconi uniforms, as shown in the accompanying illustration.



At a fancy dress ball, held recently at Odda, a lady went as "Wireless Telegraphy," and succeeded in carrying off the first prize for the most original lady's fancy dress.

Two wireless masts have recently been erected on the roof of the building known as G.P.O. West, London. These masts, which are 50 feet high, and stand about 240 apart, support a system of bare copper wires forming the aerial of a wireless station in connection with the laboratory of the General Post Office Engineering Department. The main purpose of this installation is experimental.

The Bristol biplane No. 19 recently carried out some wireless experiments at Hayling Island for the Government.

**P & O** *Under Contract with H.M. Government,*  
**Passenger Services.**

EGYPT, INDIA, CEYLON, STRAITS,  
CHINA, JAPAN, AUSTRALASIA, and  
**ALL EASTERN PORTS.** Frequent and Regular Sailings  
from and to LONDON, MARSEILLES and BRINDISI.

**P & O** **Pleasure Cruises**

*Throughout the Year, according to Season,*  
AROUND THE COASTS OF EUROPE,  
NORWAY and the MEDITERRANEAN.  
Programme on Application.

For Passage, Freight and all information apply to:  
**PENINSULAR & ORIENTAL STEAM NAVIGATION CO.,**  
122, Leadenhall St., E.C., or Northumberland Av., W.C., LONDON.

**P & O** **World-Tours.**  
Handbook on application as above.

**WHITE STAR LINE**

Triple-screw "OLYMPIC," 45,000 tons; and Triple-screw  
"TITANIC," 45,000 tons, are the largest vessels in the world.

**ROYAL & UNITED STATES MAIL SERVICE**  
SOUTHAMPTON, CHERBOURG, QUEENSTOWN, NEW  
YORK (via QUEENSTOWN, West-bound; and PLYMOUTH,  
East-bound), Wednesdays.

**REGULAR PASSENGER SERVICES FROM**  
LIVERPOOL TO NEW YORK, BOSTON, QUEBEC,  
MONTREAL, HALIFAX, PORTLAND, CAPETOWN, AND  
AUSTRALIA.

LONDON TO CAPETOWN AND NEW ZEALAND.  
NEW YORK AND BOSTON TO MEDITERRANEAN (via  
AZORES).

Apply to WHITE STAR LINE, 9 Broadway, New York; 84 State  
Street, Boston; and Southampton; ISMAY, IMRIE & Co.,  
1 Cockspar Street, S.W., and 38 Leadenhall Street, E.C.,  
London; and 30 James Street, Liverpool.

**SHAW, SAVILL & ALBION**  
CO., LIMITED.

**New Zealand, Tasmania & Australia**

The Magnificent Royal Mail Steamers of this line are despatched every four weeks from LONDON to NEW ZEALAND, calling on the outward voyage at Plymouth, Teneriffe, Cape Town and Hobart (to tranship Australian passengers), and on the homeward voyage at Monte Video and/or Rio de Janeiro, Teneriffe and Plymouth.

Passengers booked to Teneriffe, Cape, and all Australian and New Zealand Ports.

**CHEAP RETURN TICKETS AND ROUND THE WORLD TOURS.**

Largest Twin-screw Passenger Steamers to New Zealand.  
Fitted with Wireless Telegraphy.

Apply to—ISMAY, IMRIE & CO., Liverpool; or to  
**SHAW, SAVILL & ALBION CO., Limited,**  
34, Leadenhall Street, E.C., or 51, Pall Mall, London, S.W.

**ORIENT LINE to AUSTRALIA**

The Mail Service of the Commonwealth Government

**PALATIAL 12,000 TON STEAMERS**

With Cabines de Luxe, having Private Sitting  
Rooms and Bathrooms attached. Single-Berth  
Cabins, Elevators, Laundries, Wireless Telegraphy.

**TRAVEL IN LUXURY**  
GIBRALTAR, SOUTH OF FRANCE, ITALY,  
EGYPT, COLOMBO, AUSTRALIA.

Managers: F. Green & Co.; Anderson, Anderson & Co.  
**FENCHURCH AVENUE, LONDON.**  
West End Office: 28 Cockspar Street, S.W.

---



---

## Diary of Events.

---



---

*[Under this heading we give a monthly record of the progress of Marconi wireless telegraphy. Apart from the general and historical interest which attaches to such a compilation, we have reason to believe, from the number of inquiries that constantly reach us, that it will be of much service to lecturers, tutors and others who may be professionally interested in the subject. Appended are some notable events that have occurred in November of preceding years.]*

1897.

*November.*—The first Marconi station was erected at The Needles, Alum Bay, Isle of Wight. Experiments were conducted between that station and Madeira House, South Cliff, Bournemouth, where Mr. Marconi was residing at the time, a distance of 14½ miles.

1900.

*November.*—The Belgian Royal Mail Steam Packet "Princess Clementine," plying between Ostend and Dover, was fitted, and a Marconi wireless telegraph station installed at La Panne, on the Belgian coast, near Ostend.

The Marconi system was adopted by the Metropolitan Fire Brigade, and apparatus fitted at Mitcham Lane station box and Streatham fire station.

1901.

*November 2nd.*—The Compagnie Generale Transatlantique s.s. "La Savoie" left Havre on first voyage fitted with Marconi apparatus.

*November 7th.*—An agreement was made with the Government of Newfoundland for the installation of wireless telegraph stations in Newfoundland and Labrador.

1902.

*November 1st.*—The Marconi Wireless Telegraph Company of Canada was incorporated.

---



---

## Personal

---



---

Mr. Jack Irwin, the operator selected by Mr. Melvin Vaniman to take charge of the wireless apparatus on the airship "Akron" in the attempt to reach Europe, has had an interesting and adventurous career. In 1900-1902 he served in the Boer war as a soldier, and also military telegraphist and signaller, receiving decorations from both Queen Victoria and King Edward for his services. In 1906 he served on the headquarters staff of the Commander-in-Chief in the Zulu campaign of that year, as a signaller and operator, and was again decorated for his services. Returning to America, he joined the staff of the Marconi Company. In 1910 he accompanied Vaniman and Wellman in the airship "America" in their vain attempt to cross the Atlantic, and did excellent work with the wireless and signal lamp when the crew were in distress. He is the only wireless operator

who has the unique record of both sending and receiving the "CQD" signal, a distinction which has earned for him the name of "CQD" Jack Irwin.



The Honourable Mrs. Marconi has been appointed a Lady-in-Waiting to the Queen of Italy. This is another mark of the high regard the King of Italy has for Chevalier Marconi.

---



---

## Operators in London

---



---

THE keen interest which is taken in THE MARCONIGRAPH by the large and increasing army of operators both on land and afloat is well manifested by the numerous communications of goodwill that reach us from engineers and operators. As one of our correspondents put it in a letter:

"Owing to the manner in which operators are at present transferred from ship to ship, now being sent on a voyage to Australia, then to America, and afterwards, say, to South Africa, it has hitherto been practically impossible for an operator to follow the movements of his colleagues, or even the brilliant achievements recorded under the aegis of the Marconi Company in the wireless world."

Another correspondent accompanies his praises of this journal with a suggestion to which we are pleased to give publicity. He points out that hundreds of operators whose homes are in the provinces have occasionally to spend some time in London without having any central place (apart from the Marconi Company's offices) where they can meet their colleagues or extend their acquaintance among operators. Moreover, many a man, he thinks, would like to spend his nights in London in the same house or hotel as other operators, instead of having to make shift on his own. What he suggests, therefore, is that arrangements should be made by a committee of operators at some hotel in the neighbourhood of the Marconi offices, where those who have to pay a brief visit to London will be accommodated and which they can make a common meeting ground for social intercourse and recreation in their leisure hours. The suggestion is one which we can heartily commend. We should be pleased to render what assistance we can in bringing a scheme on the lines suggested to a successful issue. But before doing so we should like to hear from others interested in the matter, and if a sufficient response is forthcoming steps will be taken to convene a meeting of operators, and to formulate plans for consideration from the suggestions which we receive in the meantime. Obviously the idea is one which is capable of





## THE DUPONT POWDER CO.

the most prominent manufacturers of explosives in the world, purchased on a single order

521

# L. C. Smith and Bros. Typewriters

to standardize their equipment, acting on unanimous recommendation of a board of five of their mechanical engineers, to whom all competing makes were submitted.

It will pay you to standardize your typewriter equipment with the L. C. SMITH & BROS. TYPEWRITER, for the same reason that decided this shrewd, hard-headed business corporation—superior merit of the machine! And the reason holds good whether you use one typewriter or five hundred.

*Write To-day for the Free Book*

**L. C. SMITH & BROS.  
TYPEWRITER CO. Ltd.  
19 QUEEN VICTORIA STREET  
LONDON, E.C.**

Telephone . . . . . 1629 London Wall

## TO BE SUCCESSFUL

in Wireless Telegraphy one must know a) about electricity and be well-trained in electrical engineering. Aspirants should adopt the following I.C.S. student's advice.

Mr. W. G. Owen, whose vast experience of wireless and visits to most principal countries of the world entitles him to speak, says:—

*"Let me recommend the*

### INTERNATIONAL CORRESPONDENCE SCHOOLS'

*excellent Electrical Engineering Course. I regard this as one of the finest investments I have ever made. A man of ambition does not intend to be an "operator" all his life, so that it behoves him to take advantage of the excellent opportunities the life affords for study, and thus qualify himself for a higher branch of the science that has such enormous potentialities. An operator who shows promise can easily find his way into the laboratories, and thence on to the technical staff, but he must be well-equipped. I consider that any student who has 'got his own back' out of the I.C.S.*

### ELECTRICAL ENGINEERING COURSE

*would have little difficulty in passing the technical part of the Government examination for the wireless-telegraph operator's licence. Once possessed of the Government diploma, one can drop right into a Milit—such is the demand for qualified men."*

The I.C.S. system of tuition is the most adaptable for wireless-telegraph operators, because wherever the operator goes there the postal tuition will follow him, and I.C.S. lessons can be taken up any time. Mr. Owen found our method of tuition most practical for his purpose, and has enabled him to take complete charge of Wireless Telegraph Stations.

The knowledge of a Foreign Language is most valuable to those who take up Wireless-Telegraphy, and the I.C.S. system of teaching French, German, Italian, or Spanish through the post with the unique system of I.C.S. phonograph records enables them to become accomplished readers and linguists in any of these four languages. Spare time study only needed.

Free and full information (mention which Course) on application to

**International Correspondence Schools, Ltd.,**  
C45 International Buildings, Kingsway, London, W.C.



## Perfect Tailoring

CHAS. BAKER & Co. are masters of the art of Tailoring. Whether ready-to-wear or Tailored-to-measure, clothes by Chas. Baker & Co. will give full satisfaction in every detail of fit, cut, style and long-wearing qualities. Chas. Baker & Co. are complete outfitters and their immense stock enables them to meet every requirement at a moment's notice. A typical example of Chas. Baker's value is illustrated.

### TWEED SUITS

To measure, 39/6 to 67/6  
Ready-to-Wear, 29/6 to 59/6  
Also in Serges and Flannels.

## CHAS. BAKER

HEAD DEPOT: & CO.'S STORES, LIMITED  
271 & 274 HIGH HOLBORN, LONDON  
41 & 43 Ludgate Hill; 137 to 140 Tottenham Court Rd., &c.

wide and beneficial application, for, in addition to the recommending of a suitable place or places at which to stay, such a centre or club—call it what you will—can afford excellent opportunities for the passing of the long winter evenings by those who are only temporarily resident in London in pleasant conversation, or perhaps occasionally social gatherings. And why should there not sometimes be set apart an evening when wireless operators can meet, without convention, to recount experiences and adventures which have occurred in the course of their careers? Communications bearing on this subject should be addressed to the Editor of THE MARCONIGRAPH, Watergate House, York Buildings, Adelphi, London, W.C.

---

### Movements of Telegraphists

---

The following transfers have taken place during the past month:

- Mr. C. H. Sharpe, from the "Sarnia" to the "Caledonia."  
 Mr. E. W. Sharpe, from the "Caesarea" to the "Rohilla."  
 Mr. F. V. Kinder, from the "Minneapolis" to the "Gothic."  
 Mr. J. Murphy, from the "Laurentic" to the "Minneapolis."  
 Mr. C. J. Chandler, from the "Omrah" to the "Cameronia."  
 Mr. R. Harding, from the "Montezuma" to the "Ascania."  
 Mr. H. J. James, from the "Carmania" to the "British Sun."  
 Mr. A. W. Wyett, from the "Antony" to the "Himalaya."  
 Mr. W. H. Silvester, from the "Haverford" to the "Inanda."  
 Mr. W. M. Sweeney, from Clifden to the "Mantua."  
 Mr. O. Jones, from the "Otranto" to the "Moldavia."  
 Mr. W. Crabb, from the "Inanda" to the "Montrose."  
 Mr. A. J. Reynolds, from the "Galician" to the "Morea."  
 Mr. C. A. Weller, from the "Ruahine" to the "Otranto."  
 Mr. L. T. Sanderson, from the "Ausonia" to the "Ruahine."  
 Mr. A. J. Chesterfield, from the "Galway Castle" to the "Guildford Castle."  
 Mr. A. D. Giles, from the "Campania" to the "Celtic."  
 Mr. R. Atkinson, from the "Baltic" to the "Antillian."  
 Mr. H. Hayes, from the "Empress of Ireland" to the "Corsican."

Mr. W. Groves, from the "Oropesa" to the "Plassy."

Mr. T. Knox, from the School to the "Teutonic."

Mr. C. Matheu, from the "Lusitania" to the "Oropesa."

Mr. C. Peters, from the "Cymric" to the "Ivernia."

Mr. F. White, from the "Ambrose" to the "Antony."

Mr. P. B. Maltby, from the "Canadian" to the "Elysia."

Mr. S. H. Abbott, from the "Teutonic" to the "Vandyck."

Mr. W. H. Knapman, from the "Arabic" to the "Merion."

Mr. H. K. Gibsone, from the "Merion" to the "Hubert."

Mr. W. Banbery, from the School to the "Arabic."

Mr. C. F. Evans, from the School to the "Cedric."

Mr. J. Craigie, from the School to the "Afric."  
 Mr. F. A. Bradley, from the "Adriatic" to the "Canadian."

Mr. F. Collier, from the School to the "Adriatic."

Mr. T. Evans, from the "Caronia" to the "Lake Champlain."

Mr. R. Lee, from the "Virginian" to the "Celtic."

Mr. W. Craven, from the School to the "Virginian."

---

### Movements of Engineers

---

Mr. R. H. White has left Clifden to take up duties on the Field Station Staff.

Mr. H. J. Round has returned from Glace Bay, and is now doing special experimental work at Chelmsford.

Mr. C. E. Prince has returned to Chelmsford from Athens.

Mr. E. J. Watts, having successfully completed his work at Capetown, sailed for England on October 18th.

Mr. S. R. Groser sailed for India on October 14th.

Mr. H. Dobell has returned to Spain, where he is temporarily in charge of the Spanish contract in place of Mr. R. N. Vyvyan, who has returned to London on sick leave.

**Northampton Polytechnic Institute**  
 ST. JOHN STREET, CLERKENWELL :: E.C.

## Radio-Telegraphy

**Dr. Erskine Murray's Lectures**

are given on Mondays, at 7.10 p.m.

LABORATORY CLASS

Thursdays, 7.30 to 9.45 p.m.

LECTURES ON ELECTRO-MAGNETIC THEORY

Fridays, 8.30 to 9.45 p.m.

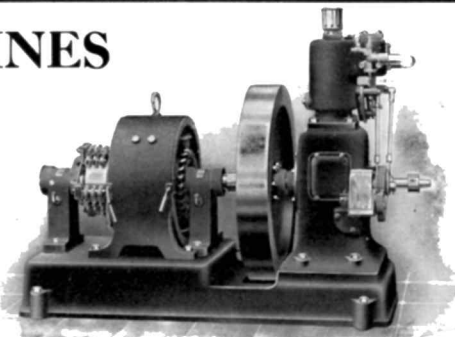
Fees - - - Members, 10s. ; Non-Members, 15s. for the Complete Course.

# "GARDNER" ENGINES

OIL, GAS,  
OR SPIRIT

Supplied to British Government and 18 other Governments

NORRIS & HENTY  
87 Queen Victoria St., E.C.



DIRECT COUPLED TO A DYNAMO

## WE UNDERTAKE SUPPLY OF ALL REQUISITES



*Our Specially Refined Lubricants are in use on every class of Machinery.*

for  
**ENGINE ROOMS,  
POWER PLANT,  
MACHINE SHOPS,  
&c.**

SEND US INQUIRIES.

**W. H. WILCOX & CO., LTD.,**  
Southwark St., LONDON, S.E.

## NORMAN, SMEE & DODWELL

MANUFACTURERS OF HIGH-CLASS VARNISHES for Coach Builders and Decorators, Railway Carriage and Locomotive Builders, and Ship Builders Special Insulating Varnishes for Electrical Purposes

Factory : Miles Lane, Mitcham, Surrey. Warehouse : 7 NEW UNION ST., LONDON, E.C.

## WM OLIVER & SONS, Ltd.,

120 BUNHILL ROW,  
LONDON, E.C.

Spanish Mahogany.  
Tobasco Mahogany.  
Honduras Mahogany.  
African Mahogany.  
Spanish Mahogany Veneers.

**Seasoned Timber.**

Austrian Wainscot.  
Russian Wainscot.  
American Walnut.  
Moulmein Teak.  
East Indian Teak.  
Satinwood & other Veneers.

## WIRELESS AND CABLE TELEGRAPHY.

### THE LONDON TELEGRAPH TRAINING COLLEGE, LTD.,

TELEPHONE :  
2696 WESTERN.

Morse House, Earl's Court, S.W

ESTABLISHED  
18 YEARS.

Excellent positions are constantly being obtained by students in the above branches of the Telegraph Service after a comparatively short period of tuition. Commencing salaries from £100 to £200 per annum. At the present time more than **40 GOOD APPOINTMENTS** are being reserved by Telegraph Companies exclusively for students of this Institution.

The College possesses **TWO WIRELESS TELEGRAPH STATIONS** fitted with the latest type of apparatus supplied by **Marconi's Wireless Telegraph Company, Ltd.**, and has been recognised during the past eight years by the Company as a recruiting source for operators desirous of entering its service.

**DAY AND EVENING CLASSES.**

Apply for Prospectus to SECRETARY (Dept. H), MORSE HOUSE, EARL'S COURT, S.W.

THE  
**WIDNES  
FOUNDRY**

COMPANY, LIMITED. ESTABLISHED 1841

---

---

**B**UILDERS of STEEL BRIDGES,  
PIERS, ROOFS, GIRDERS, and  
ALL KINDS of CONSTRUCTIONAL  
STEEL AND IRON WORK

---

**Electrical Transmission Masts**

---

CHEMICAL PLANT Manufacturers  
SEGMENT AND PIPE FOUNDERS  
CASTINGS of EVERY DESCRIPTION

Contractors to the Admiralty, War Office,  
India Office, and Crown Colonies. The  
leading British, Foreign and Indian Railways

---

---

*Works :*

WIDNES, LANCS.

*Telegrams :* "Foundry, Widnes."

*Telephone :* No. 9 Widnes.

*London Agents :*

GEORGE F. WEST & CO.,  
CAXTON HOUSE,  
WESTMINSTER.

*Telegrams :* "Westelite, London."

*Telephone :* 4340 Victoria.

