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DECEMBER 1911

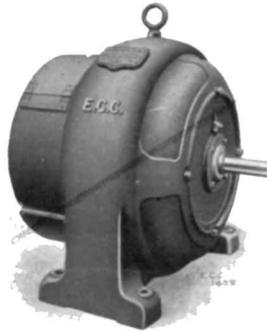
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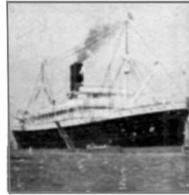
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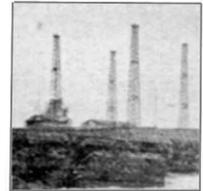
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Principal Contents of Vol. IV., Part 3, October, 1911.

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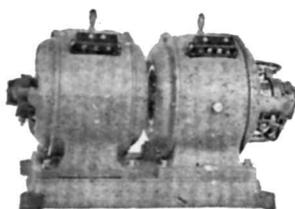
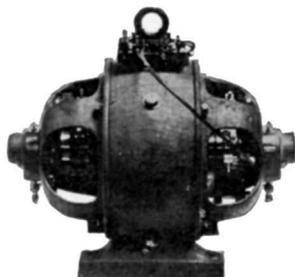
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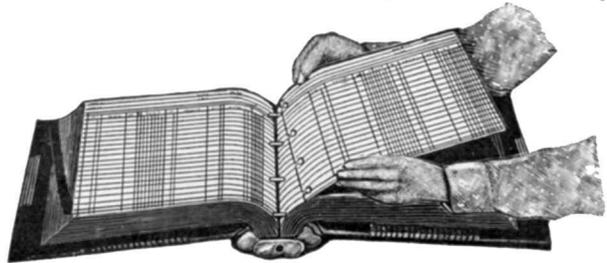
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# THE MARCONIGRAPH

No. 9.

December, 1911.

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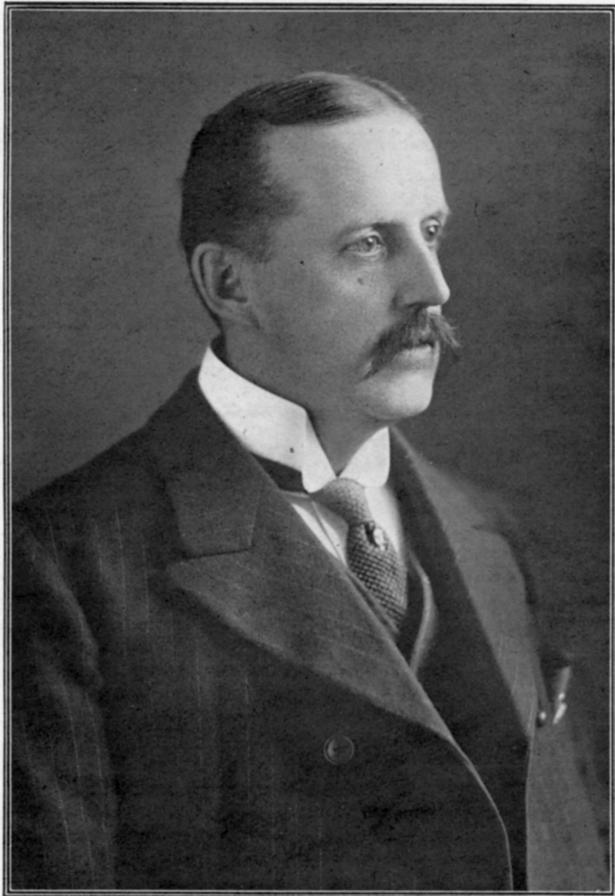
## Wireless in Chili

THE Chilean Government have entered into a contract with Marconi's Wireless Telegraph Co., Ltd., for the erection of two large and two smaller stations in Chili. The first two will be situated at Punta Arenas and Talcahuano. The installations are designed to afford regular communication at all times during the day or night between these towns, taking into account the existence of severe atmospheres in that region at certain times, and also the presence of very high mountainous country between the two stations. The transmitting plant is arranged to tune normally to a wave length of 16,000 ft. for communication over the maximum distance, but provision is also made for transmission on a wave length of 8,000 ft. when desired for other communication.

The mast system is designed for the safe support of a multiple wire aerial of the directional type. The masts are nine in number, seven of which are of the sectional steel type with wooden top-masts, 250 ft. in height, and the remaining two are single-spar wooden masts 50 ft. in height. The earth system consists of a circle of galvanised plates buried in a symmetrical position relative to the power house, and connected to it by a system of radial conducting wires leading to the house approximately at the centre of the circle. The arrangement is capable of an extension in the form of a number of copper wires connected to the above-mentioned earth circle, but carried out in the same direction as and parallel to the earth wires and buried in the ground below, thus forming a rough reproduction of the form of the suspended aerial system in the ground beneath. The generating plant at the Punta Arenas and Talcahuano stations will comprise a direct current generator driven direct-coupled with

an oil engine to charge an accumulator battery or to feed the motor alternator set direct. The combination of the plant in conjunction with the accumulator battery affords great flexibility of running, and has been found in practice to be adapted to meet the varying needs of wireless telegraph working in the most convenient manner. The accumulator battery will comprise 240 cells in lead-lined wooden boxes, having a capacity of approximately 864 ampere hours at the three hour rate of discharge. The switchboard calls for no special notice. Four single-phase oil-cooled transformers will be provided. The disc discharger is designed for producing a musical note in transmission, and consists of a steel disc with transverse copper studs rotating between adjustable revolving electrodes. The transmitting jigger is of the independent primary and secondary circuit type, having a multiple turn primary consisting of independently insulated copper laid up so as to provide for equal distribution of current throughout the section, and a multiple turn secondary of similar cable of smaller section. The secondary is to be adjustable laterally with respect to the primary for the purpose of varying the coupling between the circuits.

The aerial tuning inductance will consist of a solenoid winding of cable similar to that of the jigger secondary, having a total inductance sufficient for tuning the aerial to the various wave lengths required; the inductance to be provided with insulating plug sockets for connection to the jigger secondary and to the aerial respectively. Two receivers will be provided—one of these to have a range of adjustment between 15,000 and 30,000 ft. The receivers will be calibrated to permit the instruments to be set to any pre-arranged wave lengths.



ANDREW A. ALLAN

## Andrew A. Allan

President of the Marconi Wireless Telegraph Co. of Canada, Ltd.

THE well-known, homely saying that a man may be known by the company he keeps may be applied to a great industry, of which the outside world may glean some knowledge from those who are prominently associated with it. In previous issues of this journal there have appeared sketches of men who have helped to develop the practical utility of the great invention which the world owes to the genius of Mr. Marconi. The feature which distinguishes the subjects of these brief sketches is the great knowledge of affairs common to all. Business acumen, shrewd foresight, and indomitable energy, developed in varying spheres of activity and in countries scattered over the face of the globe, are only some of the traits of those who are captaining the Marconi teams in their arduous battles to bring within reach of all classes the beneficent advantages of wireless telegraphy. Mr. A. A. Allan, who fills the niche in our gallery this month, is a worthy successor to the celebrities who have preceded him, and right worthily does he maintain the high traditions which are associated with those who are prominently identified with the Marconi interests.

Andrew Alexander Allan is well equipped both by parentage and by training for the position which he holds in the commercial world to-day. He was born on June 16th, 1860, at Montreal, Canada. His parents were of Scottish descent, and in the early training of their son they showed that love of education which is such a fine characteristic of their race. From Rugby, the youthful Allan returned to his native city for a course of study at the High School, Montreal, preparatory to being sent to France, where he was taken in hand by private tutors. We next find him entering upon a commercial career, commencing at the lowest rung. He joined the Allan line of steamships as an office boy in 1877, and there is a touch of the romance so dear to the heart of Samuel Smiles in the subsequent career of the young man, who worked his way up from that lowly position to that of manager of the great company whose destinies

he still controls. The Allan Line have been the pioneers of Canadian shipping and navigation since the year 1882, and were the first regular mail carriers between Canada and the United Kingdom. Among other positions which Mr. Allan now occupies in the commercial world is that of president of the Shipping Federation of Canada, president of the Dominion Dry Dock Co., and director of the Merchants' Bank of Canada.

There is nothing more natural than that one so closely connected with shipping as is Mr. Allan should be interested in wireless telegraphy. The late Lord Salisbury, no less a philosopher than a statesman, once said: "We live in a small, bright oasis of knowledge, surrounded on all sides by a vast, unexplored region of impenetrable mystery, and from age to age the strenuous labour of successive generations wins a small strip from the desert, and pushes forward the boundary of knowledge." Mr. Allan was not slow to perceive what an important part wireless telegraphy would play as an aid to navigation through the waterways of Eastern Canada and around the Canadian coast, and it is no surprise, therefore, to find him taking part in the movement towards extending the boundaries of the great scientific discovery which Mr. Marconi wrested from Nature. Mr. Allan succeeded Colonel F. C. Henshaw as president of the Marconi Wireless Telegraph Company of Canada, Ltd., in November, 1907, and the success of the company, which is well exemplified in the report which appeared on page 19 of the November issue of THE MARCONIGRAPH, is in no small measure due to the great ability of Mr. Allan.

Although deeply absorbed in the various undertakings with which he is connected, Mr. Allan still finds a little time for club life, being a member of the following clubs: The Montreal Jockey, Montreal Hunt, Mount Royal, St. James's, and the Forest and Stream, all of Montreal; the Garrison Club, of Quebec, and the Rideau and Country Club, of Ottawa. Mr. Allan was married to Charlotte Elizabeth Torre on June 3rd, 1886.

## Wireless and Aeroplanes

### Some Recent Experiments

THE feasibility of telegraphing by wireless from aeroplanes has already been amply demonstrated. Are we in this country preparing to reap the fullest practical benefit from this combination of two of the most remarkable developments in applied science that the past decade has witnessed? About four years ago the late Lord Kelvin, after attending a meeting of the British Association and listening to innumerable papers, declared his delight in having been "personally conducted on a magic tour through the universe, carried, not on aeroplanes that would not fly, but on the stronger and surer wings of scientific imagination." Were that great *savant* with us to-day he would no doubt see fit to modify his views with regard to aeroplanes, although he could scarcely have shown greater prescience than when he pinned his faith to "scientific imagination"—

particularly from the standpoint of naval and military efficiency.

The development of the use of wireless telegraphy on aeroplanes involves a number of technical problems, the solution of which help to perfect the practice. In an article on the subject which appeared in the August issue of THE MARCONIGRAPH, the writer stated that in recent experiments carried out with Mr. McCurdy's aeroplane in the United States one long wire was used for an aerial antenna, the steel wires of the machine itself being used as counter-capacity. This article has brought us an interesting letter from Mr. Percy G. B. Morris, of Atlanta, U.S.A., who states that in the experiments referred to, the long "hanging antenna" was entirely dispensed with, and in its place several wires—aggregating in length about 150 ft.—were tightly stretched on the stern of the aeroplane, as shown in the accompanying illustrations. Fig. 1 relates to the Curtiss type biplane, and shows how the aerial

*B. 6 6 6 6. HARD RUBBER INSULATION.*

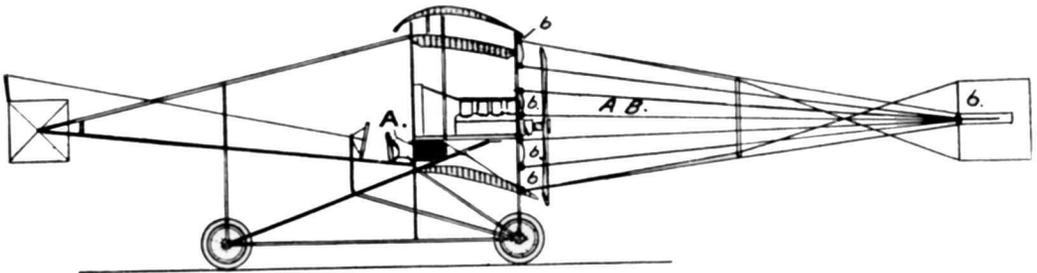


Fig. 1

a phenomenon which has not alone given greater stability and reliability to the aeroplane, but which has brought us even farther by making it possible for the aviator in the course of his flight to communicate with those on the earth beneath him. The feat of Lieut. Conneau in encircling the United Kingdom in an aeroplane is still fresh in the memory of the public. But how many remember the gallant aviator's subsequent appeal (referred to at the time in this journal) to the French nation to take advantage of the possibility of employing wireless telegraphy in conjunction with aeroplanes? No response to this appeal is yet apparent in England; and without in any way disparaging the few experiments that have been made, there is reason for disappointment that experiments of this kind have not yet been conducted on a large, comprehensive scale,

antenna was disposed of, thus eliminating any possible danger from hanging antennæ, and utilising the metalwork and wire of the machine for counter-capacity. A is the Marconi wireless set placed on the bottom plane, A B being the antenna tightly stretched from the outside struts of the machine to the stern rudder; b is hard-rubber insulation. Mr. Morris informs us that the receiving experiments, which were conducted by himself, were highly successful, and that the instruments were carried in his lap. Fig. 2 presents a bird's-eye view of the Curtiss biplane equipped with Marconi wireless apparatus, showing the disposal of the aerial antenna; in this illustration A a represents the aerial antenna, and B b b hard-rubber insulation.

With regard to the opinion that "the idea of employing the network of wires on the aéro-

plane (as counter-capacity) is impracticable, as the wires become 'alive,' and might give serious shocks to the pilot or passenger," Mr. Morris declares that if a Marconi wireless set is installed in the manner referred to by

part of the receiving circuit in such a way that while they do not interfere with the receipt of signals, yet under the action of powerful atmospheric they become good conductors, and offer a shunt-path to the currents which would otherwise affect the detector. These variable conductors consist of practically any form of so-called valves, such as mercury vapour valves, Fleming valves or crystal detectors, and usually two of them are connected in parallel and in opposition.

In the figure reproduced herewith, which shows one of the many forms of apparatus described, two Fleming valves are employed, one of which acts as the detector and the other as the variable conductor. The aerial, A, is connected to the earth, E, through the condenser, C1, inductance, L, and primary, P. The secondary, S, is connected to the condenser, C2, and across this condenser are the valve receiver, D, and telephone, T. The variable conductor, V, is connected in parallel with the receiver, D. The filaments of the valves, D and V, are rendered incandescent by the current from the batteries, B1 and B2, passing through the adjustable resistances, r1 and r2, respectively. R1 and R2 are potentiometers for varying the voltages across the valves, and thus adjusting their sensitiveness so that the detector, D, is affected by the received signals, while the valve, V, is affected by powerful atmospheric. When the circuits are in tune, signals can be received in the telephone, T, if they are not sufficiently strong to affect the variable conductor, V, but if a powerful atmospheric discharge occurs, the valves, D and V, become almost equally operative, and being in opposition no rectification takes place, and no sound is produced in the telephone, T.

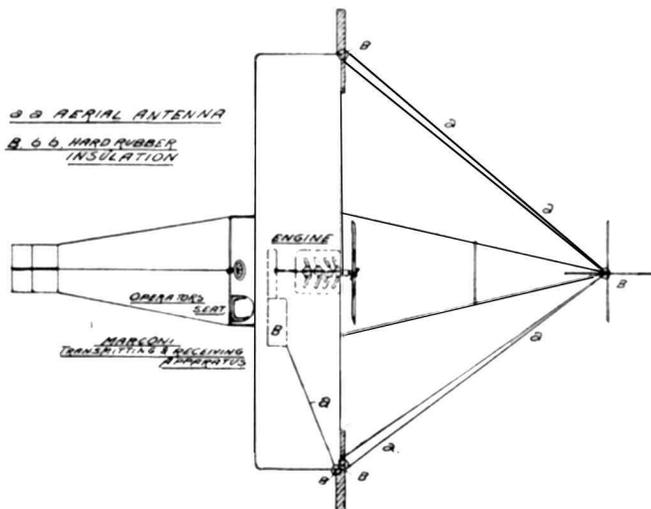
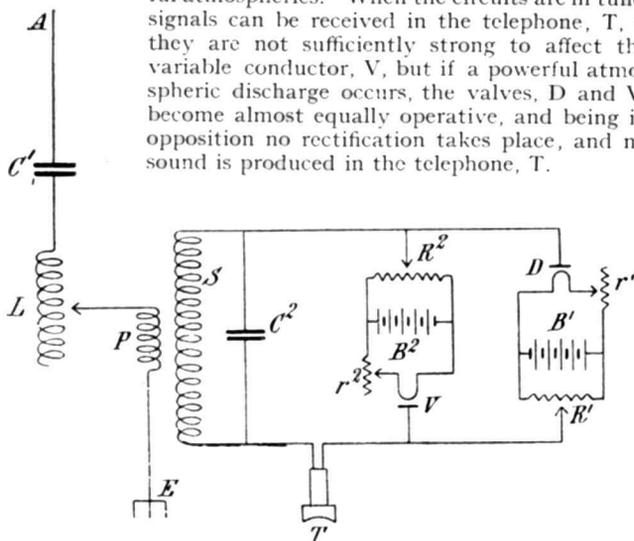


Fig. 2

him, using ordinary care in insulating both sides, the danger of shock to either pilot or passenger is minimised to a great degree, particularly in fine-weather work. In rainy weather it is possible that short circuits might at times occur between the counter-capacity employed (no matter of what type it might be) and the aerial circuit. As a result of exhaustive experiments, however, Mr. Morris claims to have obtained his best results and safest work with the "hook-up" described above.

### Improvements in Receiving Apparatus

**A** PATENT in the names of Marconi's Wireless Telegraph Co., Ltd., and Mr. H. J. Round, and numbered 20441 of 1900, has recently been published. The specification describes means for reducing or eliminating the effects of atmospheric discharges on wireless telegraph receivers. For this purpose variable conductors are connected across a

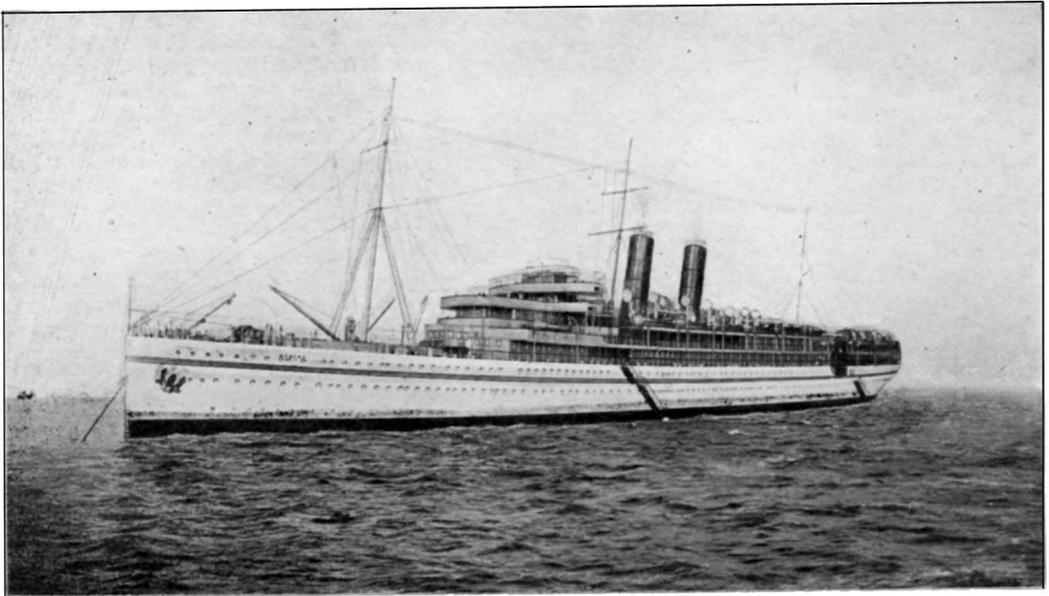


## Voyage of King George to India Historic Services of Wireless

ON November 11th, for the first time in the country's history, a British Sovereign left the Motherland to visit an Empire across the seas. This, in itself, is an episode of sufficient importance to fill an imperishable chapter in the history of Great Britain. But we wonder whether the student of the next generation, or even of the next decade, will regard the Royal visit to India, or the circumstances attending that visit, as of greater significance. Throughout practically the whole of the long journey to India, King George is

mand at Aldershot for the good wishes expressed on behalf of the troops. On November 13th, Senhor Arriga, the President of the Portuguese Republic, sent the following wireless message to King George and Queen Mary on board the "Medina": "Knowing of the passage of your Majesties in the vicinity of Portuguese waters, I send your Majesties greetings in my name and in that of an allied nation, at the same time wishing your Majesties a pleasant voyage and all prosperity."

The "Medina" and the detached squadron



*H.M.S. "Medina," on which King George and Party sailed to India for the Durbar*

enabled to be kept in as close touch with all that is transpiring at home, by means of wireless telegraphy, as if he had retired to Balmoral, while a loyal public are kept informed daily of the Royal progress in the direction of the great Dependency. The "Medina," on which the Royal party are making the voyage, is equipped for Marconi wireless telegraphy, which has already been described in these columns. One of the first messages sent by wireless from the "Medina" conveyed the King's thanks to the General Officer in Com-

were then making steady progress on their way down to Gibraltar. Wireless reports from the squadron to the Meteorological Office, published in *Daily Weather Report* of November 13th, showed that the ships passed from the Channel to the Bay of Biscay well to the westward of Ushant, about breakfast-time on Sunday, having run out of the rainstorm of the night into fair weather. It was ascertained, also by wireless, that the south-westerly gale had veered to a point or two northward of west, and maintained its strength of about forty

miles an hour to the accompaniment of a rough sea and a temperature of 50 deg., or 4 deg. colder than London. By eleven o'clock the ships were on the Bay, in latitude 48 deg. N., longitude 6 deg. 18 min. W., and making the usual south-westerly course down the face of the Bay. Later wireless reports showed that at six o'clock on Sunday evening they had reached 46 deg. 30 min. N., 7 deg. 19 min. W., the gale had moderated to a high wind from between west and south, the sea still rough, but the weather continued fair and cold, the barometer rising.

The next event is of special importance, and would alone serve to make wireless for ever famous, inasmuch as for the first time in history the *Court Circular* was despatched by wireless telegraphy. Below is an exact copy of this historic despatch :

### Court Circular.

H.M.S. "MEDINA," GIBRALTAR,  
Nov. 15.

(By Wireless.)

The King and Queen arrived at Gibraltar last night. This morning their Majesties received the Governor-General, Sir Archibald Hunter, the Governor of Algeciras, the Governor of Cadiz, the captain of the Spanish cruiser "Reina Regente," the captain of the Portuguese cruiser "Adamaster," Vice-Admiral Sir John Jellicoe, Vice-Admiral commanding the Atlantic Fleet, the captains of the ships of the Atlantic Fleet, Rear-Admiral Frederick Pelham, Admiral Superintendent and in charge of all naval establishments at Gibraltar. H.M.S. "Medina" sailed at 10.30 a.m. for Port Said.

Thackeray, whose dislike of the *Court Circular* was almost an obsession, would have been especially interested in its issue for the first time on November 15th "by wireless," as it is carefully described in the heading, from Gibraltar. It is, in any case, a wondrous development from "the good old days," when the *London Gazette* of January 10th, 1695, could calmly announce from Edinburgh, under date eight days before, that "We received last night late by a flying Packet from Mr. Secretary Johnstowne, the sad and surprising News of the Queen's Death," Mary II. having passed away on the previous December 28th.

The P. and O. steamer "Mantua," which

arrived at Plymouth on November 16th, reported that just before midnight on the previous Sunday communication by wireless telegraphy was established with the "Medina," and the following message was despatched :

"The captain, officers, and passengers beg to be allowed to convey their humble duty to their Majesties, and to wish them a very prosperous voyage and a happy return home."

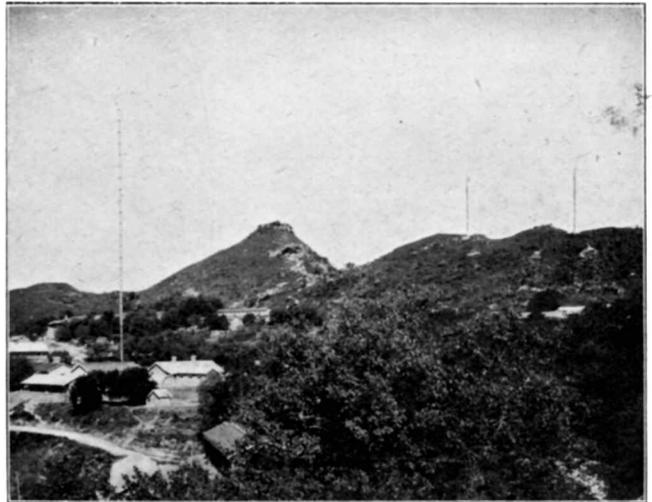
A reply expressing their Majesties' thanks was received.

The King and Queen of Spain received from the King and Queen of England a wireless message sent from the "Medina" to Gibraltar on November 14th, and retransmitted thence at 11.35. Their Majesties stated that on arriving off the Spanish coast they saluted with all affection the Spanish Sovereigns, and wished them every happiness. The Spanish Sovereigns despatched the following reply :

Profoundly moved by the affectionate message which Ena and I have just received. We send you our affectionate greetings, and fervently trust that you may have a most happy voyage, and that your stay in India may be a most pleasant one.

(Signed) ALFONSO.

Thus has Mr. Marconi's great invention given an immortal example of its utility. The many daily incidents concerning wireless, which prove the same thing, are liable to be over-



View of the Jutogh Station

looked because of their great number ; but for King George to take a lengthy sea voyage and remain in regular communication with the Mother Country by means of wireless telegraphy is a feat which will stand out as one of the most remarkable of the age.

## Marconi Stations in India

By Lieut. R. R. COOKE

AT the moment when the great Indian Durbar has made the Dependency the cynosure of all eyes, and when the imagination is fired by the occurrence of so historically significant an event, it is opportune to place on record the approach of the completion of an undertaking which is destined to play an important part in the future development of India. Needless to say, the under-

to keep in touch with events in the outer world while on the overseas journey to India.

The four stations now in course of erection represent only the beginning of a more ambitious scheme, and it is safe to predict that succeeding years will witness a gradual increase in this number, particularly inland.

It is a significant fact that the four stations now in course of erection are in strongly fortified



*View of Jutogh before the Wireless Masts were Erected*

taking alluded to is the four stations now being erected by Marconi's Wireless Telegraph Co., Ltd., to the order of the Indian Government, at Calcutta, Allahabad, Delhi and Jutogh. There is a touch almost of magic in the coincidence which places in juxtaposition a ceremony symbolic of ancient custom with one representing so remarkable an advance in a vast region of unexplored science as does wireless telegraphy, and the effect is heightened when it is borne in mind that through the instrumentality of Mr. Marconi's brilliant achievements King George and his gracious Consort are able

positions; three are in forts which cannot be overcome except by heavy artillery, while the fourth, that at Jutogh, is situated about six miles from Simla, where native risings are unknown. Other stations which are contemplated are also to be placed in fortified positions, which shows that the Indian Government will suffer no interference in wireless communication in the event of any native risings.

The stations are fitted with three main waves—namely, 300-600 metres, 600-1,200 metres and 1,200-2,500 metres. The reason for

the above arrangement, which complicates the interior of the stations considerably, is obvious. The shorter wave length is for direct communication with field and portable sets on active service. The next is presumably for use with a large number of fixed stations of small power which will probably be built in the future at, say, 100-150 mile intervals, and which will in turn communicate with sets in the field. The longest wave is for communication between the large stations themselves.

With regard to traffic, the idea at present is that all the stations shall act as adjuncts to the line telegraph service. In course of time it is possible that the Army will take over the management, care and maintenance of these stations, and if that is the case, I venture to predict that military business will grow to such huge dimensions that the stations will be inadequate to cope with the great amount of commercial work.

The three stations at Calcutta, Allahabad and Delhi contain 30-kw. installations, which are in each case self-contained within the walls of a fort. A 60-B.H.P. modern oil engine drives a 40-kw. generator for charging a large battery of 120 cells, the capacity of the battery being 613 ampère hours at a three-hour rate. A motor run from this battery and direct-coupled to a 1,000-volt 200-cycle alternator supplies current through suitable switchboards and instruments to a 30-kw. transformer.

The transformer is connected across a 24-inch disc through a high-tension signalling key and suitable high-frequency choking coils. The 1,200-2,500 wave length is obtained from a battery of 64 Poldhu cells in series with the primary of a jigger, whose secondary is in the base of a large transmitting aerial; in fact, it is the ordinary coupled jigger and disc discharger. The other two waves are obtained in a different manner. The large condenser and disc are charged from the transformer, but the secondary of the jigger is connected across the fixed spark-gap of the primary of a smaller set, 4 and 16 Poldhu cells respectively. This smaller set has a secondary which is connected in the usual way to aerial and earth. The object of the above arrangement is to enable the station to send out widely differing waves, using only one motor-alternator, one transformer and one disc. It will be noticed that

the musical note of the disc is emitted whatever wave one is using.

At Delhi two old sets of oil engines and dynamos, for which no other work could be found, have been requisitioned in the wireless house for the supply of current through a booster to the accumulators. Jutogh is a 5-kw. station.

At all stations a receiving aerial is fitted, and messages are received either by magnetic or by the newest pattern of valve detector. The aerials at the large stations are 9-wire for sending and 2-wire for receiving double L's. The total span is 1,200 ft., and the total breadth 200 ft. In addition, a small aerial, 320 ft. long, is fitted for short-wave transmission. These aerial systems are supported by six masts each 260 ft. high, and the whole



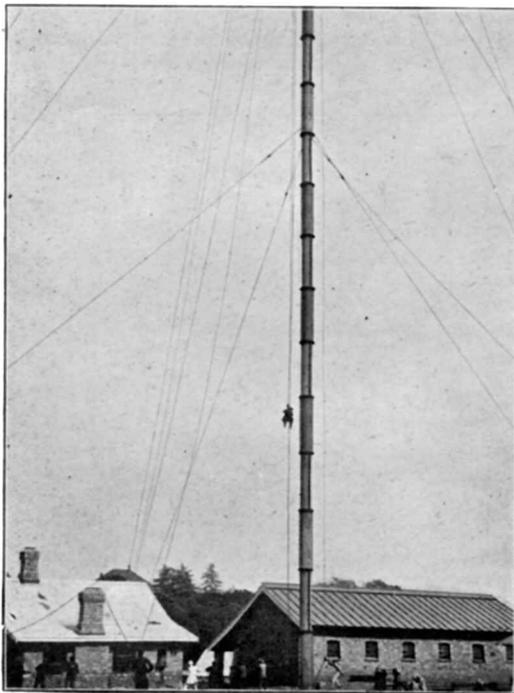
*The Road Leading to the Wireless Station at Jutogh*

aerial and mast system is well up to the capacity of the stations. The masts themselves are made of steel half-cylinders bolted together, and I have nothing but praise for the ease and speed with which the masts may be erected, and for their graceful appearance.

At Jutogh, of course, the aerial system is smaller. It consists of an L with a span of about 730 ft.; receiving aerials and short-wave aerials are fitted as in the other stations.

The great undertaking was commenced with the Jutogh station, when a number of unforeseen difficulties, chiefly transport, marred the smooth progress of operations. Simla is served by a metre gauge railway. The road from the railway station to the wireless station would put to shame the troubles which I understand

confront the Road Board in England. It is a quaint, crumbling path, over which the generating machinery was drawn on native trolleys by a heterogeneous crowd of natives, representing about half a score of tribes. The native labourers accompany the performance of their duties with a monotonous music. "Lah-illah," cries out the soloist; who is answered *fortissimo* by a chorus of "Hillallah" (which may be rendered as "God, my God"). In every gang there is one person whose business it seems to be to intone the solo, without which no work would be done. This person is evidently of some importance,



Main Mast at Jutogh, 260 ft. high

for if he should be made to forsake his muse for mundane work the whole gang are thereby insulted, and work suffers through their sulkiness.

On one occasion it took a gang of men a whole day to bring an engine from the station; several of the men had narrow escapes from being crushed under the wheels of the trolley, while it was almost a miracle that the engine reached its destination. At the end of the day's work the head man, followed in the rear by the whole gang, came to me to beg a favour. He bewailed the fact that the roads were bad and steep, that the engine was heavy, that the men were

tired, and so forth, without, however, stating the object of his petition. Visions of a demand for double pay began to float before me. I therefore cut short his petition with the demand to know what he wanted. Back came the immediate answer, "Sweets!" and a rupee divided among some forty men made them all happy. Several times later, after an extra hard day's work, sweets were distributed, until at last this became the recognised means of rewarding good labour. But one day a serious mishap occurred—no sweets were distributed! Then something actually did go wrong, and the explanation vouchsafed by the natives was that in the first place there were no sweets, and in the second place the work was so tiring that the workers were unable to pray for the success of the undertaking.

Jutogh has so far been the most interesting station from the engineering point of view; in other ways it is a very delightful spot. A vast length of snow-clad Himalayas can be seen about sixty miles to the northward, and when these glittering peaks are seen topping the nearer hills, whose sides are blood-red with rhododendron trees, or when the setting sun illumines the huge piles of snow-clad rock and tints it with all the colours of the opal, the sight is one to be remembered. The natives who dwell on the hills are as a rule very dull and lazy, but if they are judiciously controlled a considerable amount of work can be got out of them.

Delhi, the next station, presented no engineering difficulties. The labour problem caused anxious moments, however. There was such a great demand for labour in connection with the Durbar that the coolies were very independent, and not only worked badly, but betrayed their indifference by studied insolence. We bore up under this for several days, but had eventually to resort to stern measures, with magical effect. Delhi itself is a wonderful place. The fort in which the wireless station is erected is a huge frowning pile overlooking the city. Its walls are of a brilliant red stone, and rise 50 ft. or more from the surrounding ground level. The gates, of which there are two, are massive piles of stone crowned with rows of graceful turrets, and these give a perfect finish to the frowning entrances without in any way detracting from the grandeur of the pile.

Within the fort are a number of palaces, each more beautiful than the other. These comprise a gateway leading to the Dewan-i, or hall of public audience, which in turn leads to a handsome building in snow-white marble, where the ancient rulers were wont to give audience to their leading nobles. It is in this building that George V. will give audience at

the forthcoming Durbar. Adjoining this building are beautiful marble halls, baths and living chambers; to a modern eye they appear tawdry with their tarnished gold leaf and their chipped and faded inlay, but what must they have been even seventy years ago, when their baths were inlaid with solid silver and their walls with gold?

Akbar (*i.e.*, the Great), who lived between the years 1542 and 1605, built this fort and part of the palace. He was one of the wisest of the Mogul emperors of Hindustan, and the greatest Asiatic monarch of modern times. His reign is almost contemporary with that of Queen Elizabeth in England. He waged wars and extended his borders—for no Oriental monarchy could then be imagined which did not aim at conquest; and as a soldier and a conqueror he showed the highest qualities, but in the virtues of peace he was supreme among all Oriental monarchs. Near the fort at Delhi are a succession of huge crumbling ruins. This stretch of silent ruins sheds a glimmer of light upon the life of the ancient emperors. It recalls that tragic ending of Hamayun, the father of the Great Akbar, who fell and broke his neck while gazing at his fate in the stars; half a mile away he sleeps in a little tomb covered with a blue and gold dome, with his court jeweller close beside him. In the midst of these ruins, eleven miles from Delhi, stands the Tower of Victory, a massive granite pillar proclaiming to the world how the Mogul emperors were lords of India and omnipotent.

One would suppose that with such romantic surroundings the native of Delhi would see in wireless telegraphy some indications of the workings of Allah or of one of the numerous Hindoo deities. Not a bit of it. All the native wants is food and money; clothes do not trouble him, and he looks on wireless masts as so many large factory chimneys, with which the country is already thickly studded.

Allahabad station has just been started at the time of writing. It is quite straightforward, and presents no engineering difficulties whatever. The native there is such a poor specimen that one dare not reprove him lest he should break in twain. The fort itself is a holy spot from the Hindoo point of view. In an underground temple in the fort, through which millions of pilgrims stream in the course of the

year, three rivers meet—the Ganges, the Jumna, and a third river which is said to run uphill from Benares through an 18-in. pipe.

Akbar, being a Mahommedan, when he conquered these people built a fort round their Hindoo temple, which was then above ground. After a time he permitted the temple to be used, but it has gradually sunk, until now the roof is well underground. Great difficulty was experienced in arranging the stays for one set of end masts so that they did not come through this roof.

Except for its holiness, Allahabad is uninteresting. Every other man one meets is a fakir, and every house a temple. There is a fairly large European population living well outside the town, and anyone with money to



*Fort at Delhi. Wireless Quarters Shown on the Left*

spend, and unlimited time to spare, can have quite an enjoyable time. The climate in the winter is bracing and dry, frosts occurring nearly every night, but in the summer it is a furnace—I have experienced a temperature of 116° F. there, and never want to try it again.

Calcutta is simply a busy city where the majority of the inhabitants are black and wear flowing clothes. The wireless station here is in the fort, built this time by the English, and is chiefly remarkable on account of the steeplechase which the masts hold over barracks, guns, magazines, messes and all the other paraphernalia that one finds in a fort. Unless any unforeseen circumstances arise, all four stations should be finished early next March.

## The Imperial Durbar at Delhi

By E. E. LONG

**F**EW can realise, certainly none but those who have dwelt in India and who have come into close contact with her people, what the Imperial Durbar at Delhi means to India and to Indians. Pomp and pageantry have still their attraction for multitudes in the West; in the East, and particularly in India, they form the salt which flavours existence for the toiling masses; they provide almost the only excitement which breaks the dull monotony of their

the Mughals, to become the first English Delhi-ke-Bahshah, the first real English Lord and Emperor of India, crowned at Delhi, that Indians rejoice. King-Emperor of India, Kaiser-i-Hind, these have meant nothing to the Indian mind compared with what Delhi-ke-Bahshah will stand for. Now India will have its own King-Emperor, crowned in India's capital, amidst the plaudits of his faithful and loyal Indian subjects; and the tie uniting



*Native Ereciors at the Delhi Wireless Station*

lives. But the Durbar which is to be held at Delhi is not a thing of pomp and pageantry alone; it stands for something far greater. Deep down in the heart of every Indian dwells reverence for kingship. In India to-day the divinity of kingship is the most popular and widely-held article of belief; and it is because for the first time in the history of British rule in India their King is coming to his Indian people, to be crowned in the ancient capital of

India with the Empire will be strengthened as nought else could strengthen it.

Let us take a brief glance at the ground to be covered by His Majesty in his Indian Empire, for the honour of his presence is not to be claimed by Delhi alone. The barren rocks of Aden—India's gaunt sentinel—will flash him his first welcome. From the "wireless" masts of the "Medina" the news will speed to Aden's "wireless" station that the King is coming,

and Indian and English troops on Arabian soil will greet the Empire's ruler. Four days of calm, unruffled seas and gentle breezes—the angry south-west monsoon having vanished—wonderful sunsets and dreamland moonlit nights, and then, low-lying at the feet almost of the blue Ghauts, the roofs and spires of the city of Bombay will gladden the eyes of Their Majesties after their long voyage. Into the beautiful harbour, sand-fringed and bordered in places with graceful waving palms—an exquisite setting—the "Medina" will pass to the accompaniment of thunderous applause from the forts, low-lying, just above the water's edge, and King George will pass in state through Bombay, gift of the Braganzas, together with Princess Katharine, to Charles II. of England, and held for years as a royal possession overseas before it passed under the *régime* of the Honourable East India Co. Fitting, indeed, that the King of England should land here—in the city of his ancestor!

From Bombay His Majesty will journey to Delhi, over a noble railroad—marvel of engineering skill, ascending, winding and twisting, and descending its tortuous path through the Ghauts—and on through the Deccan—abiding place of the once fierce Mahrattas, who, from their strong hill fortresses (the ruins alone are there to-day), issued forth to plunder, to ravage and to kill, laying waste the rich plains beneath them, and succeeded eventually, under the dreaded Sivaji, in striking terror into Mughal hearts in far-away Delhi—to the North. Waving fields of cotton and of corn now greet the eye here, and the peasant sleeps securely, his mind at rest, under the rule of the British Raj. On through the picturesque, independent State of Bhopal, whose wonderful woman ruler greeted King George in his own English capital last summer; on to the Punjab—to the city of cities, and among cities, to a city whose splendours were the glory of a past age—whose splendours are to be revived to-day.

What shall one say of Delhi? It means so much—to an Englishman. It awakens such memories. All around lie mighty memorials of a great past. But the memories awakened first and foremost in the English mind are those of a period which has passed, never to return, but which can never be forgotten; a period when before the walls of Delhi some of the noblest of England's sons fell engaged in the heroic and successful task of maintaining Britain's

name and reputation and British rule in India against countless odds. Just north a mile from the walls of Delhi, encamped on a low range of the hills known as the ridge, for many long weeks in '57 the fate of British rule hung in the balance. Led by the hero, John Nicholson, who fell in the hour of victory, those walls were breached—the breaches are visible to-day—and through the Kashmir gate, blown down by a gallant band of heroes, who perished in their task, Englishmen and Indians advanced to restore peace and order to Delhi. Englishmen and Indians laid down their lives together in those weeks of blood; to-day Englishmen and Indians, in the presence of their King, beside that red ridge of Delhi, will rejoice together, and pledge themselves anew to the great task



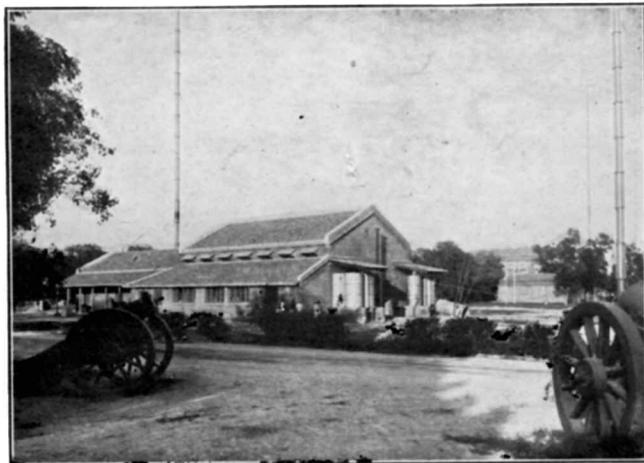
View of Delhi, Wireless Station in Centre

of shaping aright the destiny of a mighty nation.

Delhi, the modern Delhi, has marble palaces whose glories still thrill the soul and fire the imagination. The Dewan-i-A'am and the Dewan-i-Khas still are worthy of sheltering an emperor; but Delhi is becoming rapidly an industrial city: it has electric trams, mills, and—wireless telegraphy. Here, indeed, East meets West, with Mr. Marconi as the latest mercurial messenger to have bridged the great gulf which once lay between. And at present Delhi is more modern than ancient, for out beyond the ridge for miles lies the most modern camp that ever was, with all the latest appliances of a civilised age; and, in the midst of a wide plain, in some of its aspects not at all unlike an English rural scene, with no tropical richness of flora, and in a climate bright and

bracing at morn and night, sometimes frosty, but genially warm at mid-day, reminding one of a clear December day in England, King George and his Royal Consort will assume the symbol of kingship in the presence of a huge multitude, the splendour and rich variety of whose costumes alone will give to the ceremony that touch of Oriental magnificence with which all associate it.

After a round of ceremonies and festivities in Delhi, shared in by everyone of note in the Indian Empire and the great British Dependencies in Asia, King George goes to the far-stretching jungles of what is known as the Nepaul terai—the thickly-wooded territory which runs along at the base of the giant Himalayas, where hordes of animals of prey, large and small, and in particular the tiger,



Another View of the Delhi Station

lurk in malarious fastnesses, from which to dislodge and kill them it is the sportsman's delight. His Majesty is known to appreciate the opportunity of *shikar*, as game hunting, large and small, in India is termed, as much as anything his Indian visit offers, and accordingly, whilst he is away in the Terai, Her Majesty will rest in Agra—the holy city of Islam in India—the site of the world's fairest and noblest building, the Taj Mahal. A dream in marble when seen, as it should be, by moonlight, it is as though it were suspended from heaven by cords invisible, and one trembles as one gazes on its beauty, so far above the work of mortal hands it seems to be.

Then Their Majesties meet and proceed to Calcutta, that great metropolis—lasting tribute to British pluck, endurance, energy and fore-

sight. Second largest city in the British Empire, its foundation was the outcome of the determination of one single stout British heart to overcome adversity, to ensure success. Worthy Job Charnock created Calcutta and laid his countrymen and the people of India under an everlasting debt; and to realise what that debt is Calcutta must be seen. Of no historical worth, except in the story of English colonial enterprise—then it has no rival—Calcutta is the centre of a world-wide trade. It has industries which are peculiarly its own, factories of a dozen types, and, more, public buildings that would grace any European capital, gracefully-planned thoroughfares, a racecourse which attracts in the cool, pleasant weather of late December and early January a crowd resembling in fashion that of the

English Ascot, and theatres and hotels so Western in character that in the height of the season it is difficult indeed to realise that one is in an Indian and not in an English city. One says this of the best and most European parts of Calcutta, of course; the city has its other side—foul slums and nasty, narrow winding streets where dwell thousands of Indians of a score of races, ranging from the fair Rajput of the north, with complexion akin to that of a southern European, to the almost black tint of India's darkest race—the Tamil, of the south; and of the complexion tints between a dozen might be classified. Calcutta will give a royal welcome to India's King and Queen—fresh from the ceremony at Delhi. A pageant on an enormous scale, illustrative

of the history of the great Empire of India, has been arranged, and that spectacle may well rival the Delhi Durbar in magnificence. But nought that can be done in Calcutta, or elsewhere, will in any way equal in significance that Imperial ceremony about to be enacted in Delhi, which will give India its own King after the lapse of ages, and prove to be the crowning link in strengthening the mighty chain which binds together the great Imperial edifice in which India is the corner-stone and the greatest ornament.

The wireless coast station at Karlskrona in Sweden was temporarily closed as from November 1st.

## Wireless Services During Gales

THE appalling number of shipwrecks recently recorded, and especially during the gale which had so disastrous an effect all around the British coast during the past month, serves to emphasise once more the necessity for a wider application of the Marconi system of wireless telegraphy to our mercantile marine service. It is somewhat curious, too, that Britain, the leading mercantile nation, should compare with other countries like the primitive to the modern in this respect. In America the desirability of such communication is almost universally recognised, and on the lakes of Canada—that comparatively new, but wonderfully prosperous and progressive country—the Marconi system is in full operation, and this notwithstanding the fact that shipping can only be carried on for about six months of the year. Apart altogether from the commercial benefits that would necessarily accrue from the introduction of wireless telegraphy, what a world of anxiety and sorrow it would help to obviate!

No more convincing illustration of the extreme value of the wireless system of telegraphy can be given than in the following case which occurred during the recent gale:

The "Duchess of Devonshire," of the Barrow Line, which is fitted up with the appliances for the transmission and reception of wireless, was lying in the docks, and Mr. Kemp, the manager for Messrs. Little & Co., had word sent abroad inquiring the whereabouts of the "Dunure." The message was received by the steam yacht "Sapphire," which was lying at Campbelltown, and which sent back word that it had not seen or heard of the "Dunure," but that it would institute investigations. Subsequently a message was received at the local office of the Ayr Co. in Belfast that the "Dunure" had not left Ayr—an intimation that was most reassuring.

These and many other instances might be mentioned, but it should suffice to all who take an interest in those who go down to the sea in ships and do trade upon the great waters to sound the warning note that unless in this, as in other undertakings, Britain desires to be left behind in the race for progress and the happiness of the human race, there is urgent necessity for a speedy and universal application of wireless telegraphy to liners and our merchant vessels. Six months ago Mr. Kemp brought under the notice of the Harbour Board the desirability of establishing a wireless receiving station at Belfast. The suggestion was one of vast and

far-reaching importance, and should receive the most careful consideration.

The public utility of the Tobermory and Lochboisdale wireless stations erected for the Post Office by the Marconi Co. has been fully realised since the recent storm so seriously disturbed the ordinary system. On the forenoon of November 7th, when the telegraphic communication between Oban and the South was still interrupted, the messages of the Oban district were being dealt with through Tobermory. Despatched from the latter station by wireless, they were received at Lochboisdale and sent to Stornoway; thence they were forwarded by the cable to Poolewe, and then on by land to Inverness, Glasgow and elsewhere. A message between Oban and Dunblane would have to go by this circuitous route, and only by the wireless spanning the gap was this curious arrangement possible. In the few miles between Lochbuie and Achnacraig, in Mull, about sixty telegraph poles were reported down. The staff at Tobermory have been making good headway in dealing with the arrears of work. Consequent upon the dislocation from Tiree, where no mails had been received between October 27th and November 6th, there was a great accumulation of messages.

## Wireless in Fiji

The three wireless stations in Fiji have just been completed by the Marconi Co., including a 5-kw. station at Vatuwaqa (Suva), a 5-kw. station at Lambasa, and a 1½-kw. station at Taviuni. All these stations are working well. The former has communicated 2,200 miles at night, and has spoken Wellington, New Zealand, station (2 kw.), and steamers on the New Zealand coast on several occasions, with distances of 1,500 miles. The M.D. and valve are both installed at the larger stations in Fiji, which we hope to describe in a future issue.

A clergyman of Lautoka was recently fined £4 and costs for erecting a wireless plant on his premises in contravention to the Ordinance.

According to the *Madras Standard*, the extension of wireless telegraphy in India is now to be carried out systematically. A route from Calcutta to Jutogh, Simla, by way of Allahabad and Delhi (described elsewhere in this issue) was chosen in the first instance, and the installations are nearing completion. The next station to the north will be at Lahore, and this will be put in touch with Karachi. Later on Peshawar will doubtless be included in the system. In the west an installation is to be given to Bombay and another to Nagpur. Necessary funds will be provided next year.



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 ..... "Expense, 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.

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### The Share Market.

The market in Marconi shares still continues an active one. The company has issued 187,500 ordinary shares at £2 to the ordinary and preference shareholders in the proportion of one in four. A considerable interest has arisen in the Canadian Marconi Company's shares.

Prices, November 24:  
Marconi Ord. 46s. 47s. ex. rights.  
do. Pref. 1½-2 do. valued at ¼  
do. New 4s. 5s. premium.  
Canadian Marconi 14s. 6d.-15s. 6d.

Marconi's Wireless Telegraph Co., Ltd., in conjunction with the Compañía Nacional de Telegraphia sin Hilos, have instituted an action against the representatives of the Telefunken Company in Spain for infringement of patents Nos. 20041 and 26745 which correspond to the English patents Nos. 12039 of 1896 and 7777 of 1900.

The Marconi Wireless Telegraph Co. of America have commenced an action against the National Electric Signalling Co. (Fessenden System), for infringement of patent No. 763772, which corresponds to the English patent No. 7777 of 1900.

Messrs. Siemens Bros. & Co., Ltd., who are the representatives of the Telefunken Company in Great Britain, have applied to Marconi's Wireless Telegraph Co., Ltd., for a licence to work under patent No. 11575 of 1897.

### The Functions of an Engineer.

At the first meeting of the new session of the Institution of Post Office Engineers, Major A. J. O'Meara, C.M.G., Engineer-in-Chief to the Post Office, delivered a short address. He referred to Sir William Ramsay's indictment of British methods in technical education, as expressed in his presidential address to the British Association. He endorsed Sir William's opinion that a fallacious idea prevails that the functions of an engineer correspond to those of a foreman; he believed that a great amount of injury was being done by "quack" engineers, and considered that there should be some system of registration before a young man was admitted to practice as an engineer. He admitted that there was a difference of opinion as to the value to be placed on a scientific degree, and suggested that, in substitution for the present requirements for a degree, some means should be found for marking down a man's qualifications in such a way as to indicate his ability to apply his theoretical knowledge effectively in an organisation in which human beings, and not the materials used, constitute the factor of prime importance. In the meantime, however, he thought that the degree must be accepted as an indication of certain scholastic attainments, and that the employer himself must assess the value of the personal and practical qualities of each aspirant engineer.

### Wireless Weather Reports.

The poor prophecies which have hitherto been made by the United States Weather Department in Washington have led the authorities to take steps to still further utilise the resources of wireless telegraphy in communicating to the Department the depressions

at sea, which so seriously interfere with the weather in the United States. The Secretary of the United States Navy, Mr. G. V. L. Meyer, has issued instructions to all naval wireless stations on the Atlantic and Gulf Coasts to request special weather reports or observations from vessels at sea, whenever required by the Chief of the Weather Bureau, by telegram direct to the wireless station or stations concerned. Certain wireless stations named in the circular may be used to obtain the desired information. Those at the Navy yards at Boston, New York, Philadelphia and Norfolk are not prepared to obtain information from seaward; the nearest coast stations are at Cape Cod, Fire Island, Cape Henlopen and Beaufort respectively. Other naval wireless stations are at Cape Elizabeth, Portsmouth, Newport, Nantucket Shoals Lightship, Diamond Shoals Lightship, Charleston, St. Augustine, Jupiter Inlet, Key West, Pensacola and New Orleans. The Navy Department are co-operating with the Department of Agriculture in obtaining weather reports. When a request is received from the Chief of the Weather Bureau to the wireless station under the control of the Navy Department special weather reports are to be obtained from vessels within range, a request for such reports being sent broadcast by wireless at the hours mentioned for disseminating storm warnings. These special reports received from vessels are to be sent immediately by wire to the Weather Bureau. In addition, whenever messages other than private are received by wireless stations from passing vessels indicating a disturbed condition of the weather, this information must be forwarded to the Weather Bureau direct; if this information is contained in a private message, the master of the vessel is requested to make a weather report.

#### Another Wireless "Wonder."

Most people have read Hans Andersen's fable of "The Emperor's New Clothes," a suit made of a material visible only to those who were fitted for their office, and will remember how, when the emperor walked in procession through his capital, the beauty and fit of his garments excited universal admiration. This satire on the gullibility of mankind seems overdrawn, yet in these days we have an almost perfect parallel in the attitude not only of newspaper correspondents, but of a large portion of the general public towards many subjects that are for the time being under consideration. Perhaps in no case is this gullibility more evident than in the reports concerning man's struggle to wrest from Nature her inscrutable

secrets. The *Daily News* recently announced the claim of a gentleman from Leeds to have "discovered a system of secret wireless transmission which will revolutionise the science." It appears that this ingenious inventor had converted his bedroom into a wireless telegraph station, and "has been making experiments both day and night during the past few months." "The system of wireless at present in use has," so the inventor confided to the *Daily News* correspondent, "one serious drawback. Any message can be intercepted and picked up by any receiver; and such a system might easily defeat its purposes in case of war." Then he goes on to claim that the wireless installation which he has perfected removes this danger. And this is how it is done: "I have succeeded in transmitting a message for a distance of 28 feet which could only be picked up by the corresponding receiver of my invention. If such can be done—and I repeat I have done it—in regard to short distances, there need be no difficulty in regard to long distances. I go further, and am ready to prove that over ten thousand messages can be sent with absolute privacy from my transmitter in a very short time. Not one of those messages could be intercepted. I have no doubt that secret messages could be transmitted like the present wireless ones across whole continents and oceans." We await the promised proof with equanimity. Meanwhile it is rather disappointing to learn that the inventor is about to forsake these hospitable shores and to take up his residence in America, where the climate is more favourable to the newspaper development of sensations.

#### Wireless and Kites.

A notice issued by Mr. W. H. Alnehurst, hon. secretary of the Kite and Model Aeroplane Association, states that a Volunteer "Motor Man-lifting" Kite and Wireless Telegraph Corps is about to be founded. The equipment of this corps will include a motor man-lifting outfit, with winding gear and a 25-30-h.p. petrol engine. All this equipment will be mounted on a motor chassis which will be capable of carrying sixteen men, besides officers and driver. The kite equipment will be of the Cody type, and of the pattern and materials used by the Royal Engineers. The estimated cost of the whole equipment, including maintenance for two years, is about £700. The men are ready to train, and are only waiting for the equipment. An appeal is therefore made by the Council of the Association for contributions towards this object. The address of the hon. secretary is 27 Victory Road, Wimbledon, London, S.W.

## Australasian News

The advantages of wireless telegraphy have been again demonstrated in connection with the shipping of the Port of Hobart. The ss. "Manuka," from Melbourne, was hourly expected to be reported passing Eddystone on a certain day. Up to a late hour in the afternoon no word had been received of her, and friends of passengers and the shipping company had no idea what time she would arrive at Hobart. However, as the ss. "Ulimaroa" was leaving Hobart for Melbourne she was spoken by the ss. "Manuka," and informed that the vessel was nearing the Tasmanian coast. The weather was unfavourable, there being a strong south-easterly wind, with seas and passing rain and hail squalls, and the atmosphere was hazy. Captain Neville expected to reach Hobart by 5 a.m. on the following day provided the weather improved. The receipt of the message enabled the company to make arrangements for the discharge of the "Manuka's" cargo without taking the waterside workers to the wharf to await the vessel's arrival for an unreasonable length of time.

The Australian Postal Authorities have issued regulations which provide for the issue of general licences at a cost of 5s. each for ships registered in Australia, and of 21s. for experimental licences. According to the regulations, the appliances on ships are to be worked in such a way as not to interfere with the naval or military signalling or the transmission of messages between other wireless telegraph stations, and, except by permission of the Postmaster-General, the wireless telegraph appliances in any Australian, British or foreign ship (other than a ship of war) are 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 the case of emergency. Any officer in command of any ship of war in the Imperial or Colonial Navy, or in command of any part of the defence force, is empowered to take possession of the wireless appliances of any ship or any experimental apparatus, and to use them in the King's service. He may also direct the licensee or person in charge to submit to him any or all messages received or tendered for transmission or delivery. "Reasonable compensation" will be payable for any damage done in the exercise of these powers.

Correspondence has been passing between the Imperial Government and the Commonwealth Government on the Navigation Bill. In clause 234 of the Bill, giving powers to require installation of wireless telegraphy on ships carrying passengers to the prescribed number, it is suggested that in the regulations the Commonwealth will have regard to the number of land stations with which the vessels could communicate in case of need. The question as to the number of passengers which shall make foreign-going vessels liable to be fitted with the apparatus is one which it is felt will be considered with reference to all the interests affected. The Board thinks that the vessels on which compulsory installation seems most fitted are those carrying a considerable number of stercage passengers.

There seems to be no doubt that Mr. Douglas Mawson, who is in charge of an expedition in search of the South Pole, will get enough money to allow of the establishment of wireless telegraphy between a chosen base in the Antarctic and some station in Australasia. Meteorologists are expecting to benefit considerably from this. Moreover, the station Mr. Mawson proposes to erect will keep us in touch with the expedition, and will rob that expedition of one of its chief hardships—the enforced deprivation of all news of the outside world, and the dreary isolation which weighs so heavily upon the spirits of the Polar explorer.

Speaking recently at a Letter Carriers' Society at Wellington, New Zealand, Sir Joseph Ward said that a high-power wireless station would be erected in Wellington. It had been intended that the power should be two kilowatts, but that had been extended to five. The station would be powerful enough to get into touch with Western Australia at night time, while in the day time communication could be carried on with ships within a few hundred miles of Sydney. It was contemplated, too, that the system should be extended to the Chatham Islands and Rarotonga, the latter place being connected with Tonga. He hoped that before long a system of wireless stations across the ocean between the Motherland and the Oversea Dominions would be perfected.

### Compulsory Wireless on Ships.

### At the South Pole.

### The Triumphs of Wireless.

Although the Federal Government has announced its intention of establishing wireless stations on the Australian coast, it has not yet been intimated that Tasmania is to be included in the scheme.

**What  
Tasmania  
Requires.**

Admiral Sir Reginald Henderson, when reporting upon Commonwealth naval matters, included in his recommendations a wireless station for Hobart and Beauty Point, River Tamar, which he selected for sub-bases. He did not, however, recommend this as part of the first scheme to be developed. Since that report was made great advances have taken place in the equipping of the merchant steamers with wireless telegraphy, and if there is no need for the immediate installing of wireless stations in Tasmania from a naval point of view, there is from the standpoint of public convenience. The mail steamers of the New Zealand Shipping Co., and Shaw, Savill & Albion Co., running in the London, South African, Hobart and New Zealand service, have all been equipped with wireless, and the Union Co.'s and Huddart Parker Co.'s New Zealand and inter-State steamers have been, or are being, equipped; while vessels of the White Star, P. & O., Orient, Aberdeen and Ocean Steamship Companies, which call at Hobart in large numbers in the fruit season, also carry the apparatus. Though the distance from the Australian and New Zealand ports is not very great, and the steamers can generally be relied upon to arrive at an approximate time, it frequently occurs that bad weather causes delay, and the receipt of a wireless message would save hours of tedious waiting and uncertainty, and greatly facilitate business. Cases happen where a vessel is expected to arrive at a certain hour at night, and waterside workers turn out in readiness to handle cargo; the steamer gets delayed, and they wait up in all weathers for hours for the ship to arrive. A wireless station would put an end to this. Then, of course, there is always the possibility of a breakdown or other disaster occurring, and a vessel needing urgent assistance, perhaps with many hundreds of passengers aboard, quite possibly off the Tasmanian coast; it may be that assistance could be quickest rendered from Hobart. It has happened that English and inter-State mails and passengers coming by steamer from Melbourne have missed the express at Launceston by half an hour because the whereabouts of the vessel were not known to the railway department. A wireless station in the North would prove of great utility in cases such as that, or where a vessel was delayed by fog or other causes. Instances have happened where London mail steamers wished to send a wireless message to Hobart for coal in order to facilitate

their despatch. Finally, an Australian expedition is on the way to the South Polar regions, and is likely to be fitted with the wireless apparatus. If there was a station in Hobart daily communication could be had with her while she is away. As a matter of fact, wireless telegraphy has become a great public convenience and public necessity, and its value in securing urgent help to vessels in distress at sea is coming under almost daily notice. Tasmania cannot afford to be without a wireless station any more than other important centres can.

The annual report of the New Zealand Post and Telegraph Department makes reference this year to the installation of two high-power and five low-power wireless stations in the Dominion.

**New Zealand  
Telegraphs.**

The importance of erecting such stations has frequently been urged by the commercial community, as well as on grounds of Imperial unity and national defence.

## A Reminder from Leith

The report of the governors, read at the eighth ordinary general meeting of Leith Nautical College, stated that in view of the great and increasing number of vessels fitted with wireless telegraph installations, and the desirability of affording instruction of the working of these to officers and others, they were considering the addition of that apparatus to the equipment of the college, subject to their obtaining a considerable proportion of the cost from the Scotch Education Department. The chairman, in moving the adoption of the report, remarked that there was not the slightest doubt the Board of Trade were placing more and more weight upon the installation of wireless apparatus, and he thought it was only a question of time when the Board of Trade would require every passenger vessel to be fitted with the wireless apparatus. Provost Smith seconded, and the report was adopted.

"Patsy," in a letter to the *Times* on November 17th, invites the attention of the Lords of the Admiralty to the necessity for providing aeroplanes for the Navy, and argues that, "as with the wireless, which has been developed from Marconi's beginnings till it is probably the most efficient wireless service in the world, so should attention be given to the development of aeronautics, thus giving the Navy the chance to make that branch of the service as efficient as submarines and wireless have become."

## Reviews of Books

"ELECTRICAL ENGINEERING," by Harold H. Simmons. (London: Cassell & Co., Ltd. Part I., 7d. net.)

This useful work is being issued in fortnightly parts, the first of which has just made its appearance. The plan of the work is well laid out, and in a later section, electric oscillations, electric waves, and wireless telegraphy will be dealt with. Part I. deals with circuits and conductors and primary and secondary cells. As a knowledge of the fundamental principles of electricity and electrical engineering is essential to a thorough understanding of wireless telegraphy, we can recommend this work to the young engineer, apprentice, or layman who desires to study the subject.

"ENCYCLOPEDIA BRITANNICA." (Cambridge, 1910: The University Press.) 29 Vols., averaging 960 pages per volume. Price varies from 18s. 6d. to 33s. per volume, according to paper and binding.

We will not attempt to deal with the many features that distinguish this edition of a monumental work from its predecessors except to refer to an able article by Dr. J. A. Fleming on wireless telegraphy. The author commences with a summary of the early experimental work in telegraphy without direct or continuous conducting wires between signalling points. He leads off with a reference to Steinheil's important discovery in 1838, then proceeds to discuss the early experiments of Morse and Gale in 1842. Morse was the first to demonstrate that it was possible to interrupt the metallic circuit in two places and yet retain power of electric communication. He arrived at this conclusion by successfully signalling across a canal with metal plates sunk in the water on the opposite banks at two points, with a wire along each bank between the plates, but no wire between the banks. It was found, however, that the distance between the plates up and down the canal must be at least three or four times the width of the canal to obtain satisfactory results; and thus this method of signalling was never likely to be of any great practical or commercial value. Nevertheless, experiments of the same nature were brought to public notice by J. B. Lindsay, as well as by J. W. Wilkins and H. Highton a few years subsequently; and again in 1880 Trowbridge drew attention to the fact that signalling might be conducted over considerable ranges by electric conduction through the earth, or water, between points not metallically connected, whilst pointing to the applicability of the method to inter-communication by ships at sea. Then Sir William

Preece, about the same time, obtained improved practical results by combining together methods of induction and conduction in such a way as to affect one circuit by the current in another.

Reference is next made to the early accomplishments (by conduction through sea water) of Mr. Willoughby Smith and Mr. W. P. Granville for telegraphically connecting lightships and isolated lighthouses with the shore. Sir Oliver Lodge's early investigations then receive attention, including an allusion to his (the first) suggestion of "tuning" by the inclusion of condensers in the circuit. This is followed by a reference to Edison's proposal for telegraphy without directing wires by electrostatic induction, which was the forerunner of a system for communication between railway stations and moving trains. The author of the article does not favour the idea that Edison's proposal for elevated plates can be regarded as an anticipation of the Marconi aerial or antenna, on the ground that Edison did not employ any spark-gap or means for creating high-frequency oscillations in his wires. He (the author) further states that "there is no evidence that this plan of Edison's was practically operative as a system of telegraphy." This may well be so; and in much the same terms allusion is made to Prof. Dolbear's early patent of 1886.

The next section is on "Space- or Radio-Telegraphy by Hertzian Waves." As the author says, all the various forms of so-called wireless telegraphy previously referred to were completely overshadowed by Heinrich Hertz's scientific researches of 1886-7 in the production of electric oscillations. The gradual development of the subject is traced, and is followed by an interesting statement of what Mr. Marconi has done for the practical development of radio-telegraphy.

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It has been decided to establish an Admiralty station at Blyth, with wireless telegraph facilities.

A wireless message received on board H.M.S. "Imperieuse," at Portland, conveyed the news that during the passage of the Second Division of the Home Fleet from Berehaven to Portland, Commander Frederic George Brine was washed overboard from the battleship "St. Vincent," the flagship of Rear-Admiral Richard H. Peirse. Apparently the ship encountered very heavy weather, for the marconigram adds that the unfortunate officer was lost sight of from the moment that a wave carried him overboard, and was never seen again.

**Diary of Events.**

1897.

*December 18th.*—Tests were made between the station at Alum Bay and a steamer, the height of the mast being about 60 ft. Readable signals were obtained up to 18 miles.

1898.

*December 24th.*—Demonstration of the utility and value of wireless telegraphy as a means of communication between lightships and shore. Communication between the East Goodwin Lightship and the South Foreland Lighthouse—a distance of 12 miles—first established on Christmas Eve.

1901.

*December 12th.*—Mr. Marconi received signals at St. John's, Newfoundland, from Poldhu, Cornwall, a distance of 1,800 miles across the Atlantic.

*December 21st.*—Stations for commercial wireless telegraph working opened at Malin Head and Inistrahull.

1902.

*December 16th.*—Message to the *Times* by its correspondent from Cape Breton station.

*December 20th.*—Mr. Marconi sent messages from Cape Breton through Poldhu by wireless to the late King Edward, the Earl of Minto (then Governor-General of Canada), and on December 21st to King Victor Emmanuel of Italy—a distance of 2,270 nautical miles.

1903.

*December 8th.*—The "Kroonland," from Antwerp to New York, when 130 miles west of the Fastnet, disabled her steering gear. The vessel was fitted with Marconi apparatus, and communication was established with Crookhaven, through which the captain sent messages to the vessel's agents in Antwerp giving particulars of accident. Within an hour and a half a message was received from Antwerp instructing the captain what to do.

*December 19th.*—An agreement made by Mr. Marconi with the Italian Government for the erection and working of a station at Bari.

1909.

*December 10th.*—Mr. Marconi was awarded the Nobel Prize for Physics, and on the following day delivered a lecture at the Royal Academy of Science, Stockholm.

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## Rulers of the Ocean

### I—THE WHITE STAR LINE

**G**REAT BRITAIN has reason to be proud of her mercantile marine, which renders the country's claim to the supremacy of the seas indisputable. It is due to the wisdom and enterprise of her shipowners that the mighty fleet of ocean greyhounds now carry passengers and cargo with wonderful rapidity and safety over all the seas, and, in the case of passengers, with a degree of comfort that is even rarely met with on shore. The history of this development is wrapt up with the history of the great shipping lines. One has only to turn to any of these to note the astonishing progress made in marine engineering and ocean transport generally. Among famous lines the White Star Line holds a unique position, and exemplifies the finest traditions of British shipping. It is perhaps not generally known that the flag which now floats over the thirty odd steamers forming the fleet of the White

Star Line is the same that once flew from the mast-heads of a fleet of sailing clippers years before the introduction of steam as the motive agent in the mercantile marine. The origin of the White Star really dates from the epoch of the great rush to the gold diggings in Australia, some sixty years ago, when in a period of about seven years over half a million adventurers were said to have been transported to the goldfields.

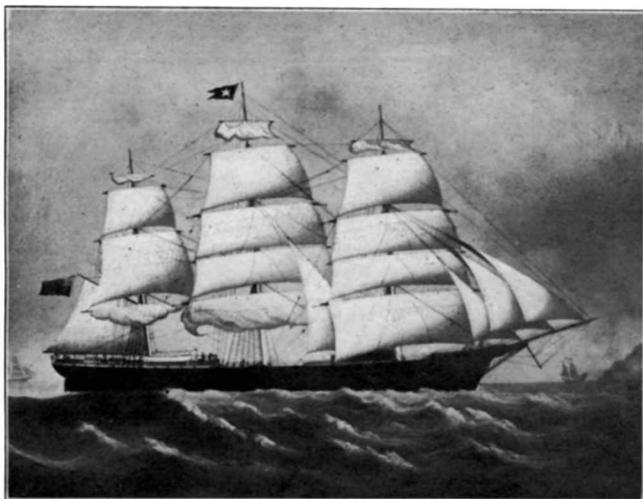
An important change occurred in 1867, when the managing owner of the White Star Line retired, and the flag was taken over by Mr. Thomas Henry Ismay, who began by introducing iron sailing ships in place of the wooden

clippers formerly employed. One of these ships was called the "Bluejacket." Next came the greatest event in the history of the White Star flag—namely, the establishment in 1869 of the Oceanic Steam Navigation Co., Ltd. This was accomplished by Mr. Ismay, who, in 1870, was joined in the management by Mr. G. Hamilton Fletcher and Mr. William Imrie, of the late firm of Imrie, Tomlinson & Co., and in whose office Mr. Ismay and Mr. Imrie had been fellow apprentices. The title of the firm then was altered to Ismay, Imrie & Co.

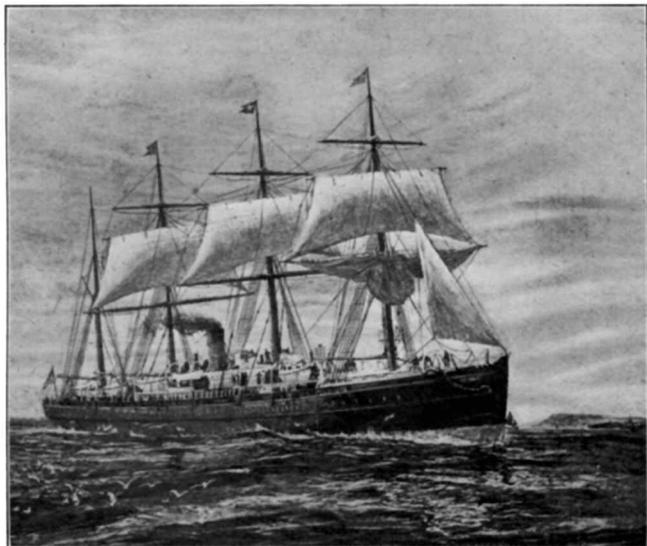
Mr. Ismay had already gained some experience with steamships as director of the National Line, which was established in 1863, in Liverpool, with three steamers called the "Louisiana" (later named the "Holland"), "Virginia" and "Pennsylvania." It is interesting here to recall the fact that the National Steamship Co. had the honour to be the first to introduce compound engines

in the Atlantic trade, the "Holland" having had the original engines, with two cylinders, each 55 in. diameter and 3 ft. stroke, removed in 1869, and replaced by compound engines built by J. Jack & Co., of Liverpool.

Mr. Ismay conceived the idea of establishing a really high-class service of passenger ships to serve the Transatlantic trade, and an order, with a free hand, was given to Messrs. Harland & Wolff, of Belfast, to build a new fleet, the first of which was the "Oceanic," launched in August, 1870. This vessel made her appearance in the Mersey in February, 1871. Her chief dimensions were: Length, 420 ft.; breadth, 41 ft.; depth, 31 ft.; and tonnage, 3,707. The



*The "Bluejacket," First White Star Sailing Vessel*



*First "Oceanic," built 1871*

"Oceanic" at one step quite eclipsed any vessel previously seen in the Mersey, and can be considered the pioneer of improvements which have since made travelling across the Atlantic a luxury. The builders put aside to a large extent the hitherto accepted ideas of steamship design, and, instead of the usual high bulwarks and narrow wooden deck-houses, another iron deck was added with open railings for bulwarks. The saloon, too, was, for the first time, placed amidships, and extended over the entire width of the vessel. Forward and aft of the saloon the state-rooms were arranged along both sides, and as all the sidelights were of unusually large size, they gave a bright and airy appearance to the interior, which contrasted with the older ships, much to the latter's disadvantage. The motive mechanism consisted of two sets of tandem compound four-cylinder engines, with two high-pressure cylinders, each 41 in. diameter, and two low-pressure cylinders, each 78 in. diameter, working on two cranks, with a stroke of 5 ft. Each engine (forward and aft) formed a complete unit in itself, a feature of importance in case of breakdown. There were twelve boilers, with a total of twenty-four furnaces, and working at 65-lb. pressure per square inch. These consumed 65 tons of coal per day, and the speed of the ship was 14 knots.

When she was first laid down the "Oceanic" was intended for the Australian trade via the Suez Canal, which was just about to be opened, but this idea was abandoned and the vessel was put into the "Atlantic Ferry" service, where her regular running and high speed soon

made her famous. According to Mr. Maginnis, in his interesting book "The Atlantic Ferry," the "Oceanic" first sailed for New York on March 2nd, 1871, but had to put in to Holyhead owing to serious heating of the main bearings and crank-pins. After a few days' delay she proceeded to New York, where she was visited by an immense number of people. When she had completed a few voyages the "Oceanic" returned to Belfast to have alterations made, amongst which were the shortening of the four masts, the addition of a whale-back at the forward end, and the increase of her steam-raising power by the addition of two boilers. The saloon accommodation was also improved. The vessel continued in the New York service, making trips from Queenstown to New York in 8½ days, until 1875, when she sailed from Liverpool for Hongkong via the Suez Canal, there

to open with the first "Belgic" and "Gaelic" a service on the Pacific between that port, Yokohama, and San Francisco. She returned to Liverpool in 1879 to be brought up to date in respect of both passenger accommodation and machinery, and sailed again on March 16th, 1880, with new boilers and modified machinery, calling at Suez, Hongkong and Yokohama, and arrived at San Francisco on June 6th, thus enabling passengers to complete a circuit of the globe by reaching Liverpool again in 75 days from leaving, against 80 days taken up till then. On her sixty-second voyage in October, 1889, the "Oceanic" made what was at that time the fastest passage on record across the Pacific, crossing from Yokohama to San Francisco in 13 days 14 hours 4 minutes. The vessel remained in service until late in 1895.

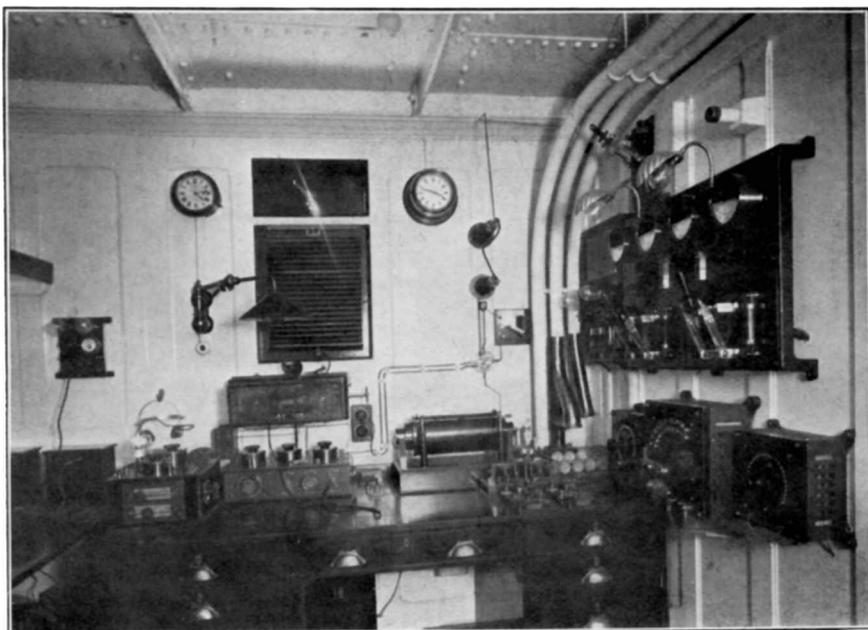
It is a far cry from the first "Oceanic" to the present-day "Olympic" and "Titanic," and striking changes have taken place in the driving machinery and in the fitting up and furnishing of the vessels. All along the proprietors of the White Star Line have been foremost in introducing improvements and applying to their fleet contemporary developments in science and engineering. It is no surprise to find, therefore, that their vessels are now equipped with the Marconi system of wireless telegraphy. One of the early experiments made by the White Star Line deserves to be recalled, and that is the attempt to replace the oil lamps used on board ship by gas lighting. The gas was made from oil by an apparatus carried on board, which occupied about 1,600

cubic feet of space. The first steamer so fitted was the "Adriatic," followed shortly afterwards by the "Celtic." Although the effect produced was a marked improvement, much trouble was caused by leaky pipes, produced by the working of the ship at sea, and the system had to be abandoned. It is interesting to contrast this method of illumination with that now in vogue. A further experiment in the early seventies was made in the adoption of oscillating state-rooms and berths to counteract the motion in a sea-way, but, as in the case of the "Bessemer," this had also to be abandoned.

But we must not tarry over the early days of this famous line, and even the intervening

twin screw, 20,904 tons, and the "Arabic," twin screw, 15,801 tons, are engaged in the Liverpool-Queenstown-New York service. The "Cretic," twin screw, 13,507 tons; "Cymric," twin screw, 13,096 tons; "Canopic," twin screw, 12,096 tons, and "Romanic," twin screw, 11,394 tons, are engaged in the Liverpool-Queenstown-Boston-New York-Boston Mediterranean service. All the above-mentioned boats carry mails and passengers. Between Liverpool, Quebec, and Montreal the "Laurentic," triple screw, 14,900 tons, and the "Megantic," twin screw, 14,900 tons, are engaged.

Between Sydney, Australia and London the White Star Line has a fleet of five steamers in constant service. These are the "Afric," twin



*Wireless Operator's Room on the "Olympic"*

years must be passed over, interesting though this period is as showing how the small fleets of well-equipped liners sailed with great success to America, Australia, the Far East, and elsewhere. Apart from the two leviathan steamships, the "Olympic" and "Titanic," the White Star fleet at present comprises some thirty vessels. Of these, the "Adriatic," twin screw, 25,000 tons; the "Oceanic," twin screw, 17,273 tons; the "Majestic," twin screw, 10,000 tons, and the "Teutonic," twin screw, 10,000 tons, are mail and passenger steamers engaged in the Southampton and Cherbourg-Queenstown-New York service, calling at Plymouth on the eastward passage. The "Baltic," twin screw, 23,876 tons; "Cedric," twin screw, 21,035 tons; the "Celtic,"

screw, 11,948 tons; "Persic," twin screw, 11,974 tons; "Suevic," twin screw, 12,531 tons; "Medic," twin screw, 11,914 tons, and the "Runic," twin screw, 12,482 tons. Between New Zealand and this country there are four twin-screw steamers engaged—namely, the "Delphic," 8,273 tons; "Athenic," 12,234 tons; "Corinthic," 12,231 tons, and the "Ionic," 12,232 tons; the three last-named being the largest vessels in the New Zealand trade. The company also owns three tenders, two for passengers, the "Magnetic," twin screw, 619 tons, and the "Gallic," 311 tons, while the "Pontic" is a baggage tender of 395 tons. There has, however, been recently added a training ship called the "Mersey," 1,829 tons, which is famous as being the first



*First Class Lounge on the "Olympic"*

sailing vessel to successfully carry a Marconi wireless equipment.

Owing to the ocean-carrying trade having been largely transferred in recent years from sailing vessels to steamers, and by reason of the lack of opportunities for training future officers on steamships, the White Star Line decided a few years ago to remedy the deficiency by offering to educate cadets as apprentices on board a first-class sailing vessel of a size suitable for boys to handle. Under the commander there is an efficient nautical and educational staff, by whom the cadets are carefully and regularly exercised and instructed. In addition to having their general education completed, the boys are taught the special subjects required to qualify them for their profession. To carry on this excellent scheme Messrs. Ismay, Imrie & Co. commissioned the Clyde-built clipper ship "Mersey." The "Mersey" is 271 ft. long by 39 ft. beam, and 1,829 tons gross register. She is fitted throughout with electric light, and trades to Australia, or such other parts of the world as circumstances render desirable. About sixty boys are carried, preference being given to those who have had preliminary training on the "Conway" and "Worcester." The Board of Trade has interested itself in the scheme, and has issued special regulations whereby cadets who have had four years' instruction on an approved training ship may sit for an examination for a certificate as second mate, and after obtaining this certificate, and serving in vessels satisfying certain requirements, may be allowed to sit for examination for certificates as first mate and master. The boys are divided into three watches of twenty, each being in charge of a cadet-captain chosen for his general

fitness. These cadet-captains, for the purpose of cultivating discipline, live in a separate room. After obtaining their second-mate's certificates the cadets will have the preference for appointments as junior officers in the steamers of the White Star, Leyland, Dominion and Atlantic Transport Lines. In addition to undergoing a course of studies suitable to their calling, the cadets work the ship. Although carrying cargo, and worked in a thorough-going manner as a trader, the primary purpose of the owners is the patriotic one of training British officers for the British mercantile marine. The "Mersey" recently completed her second voyage as a training ship, when she arrived in London on May 30th last. An account of this voyage and of the working of the wireless set appeared in the

August issue of THE MARCONIGRAPH.

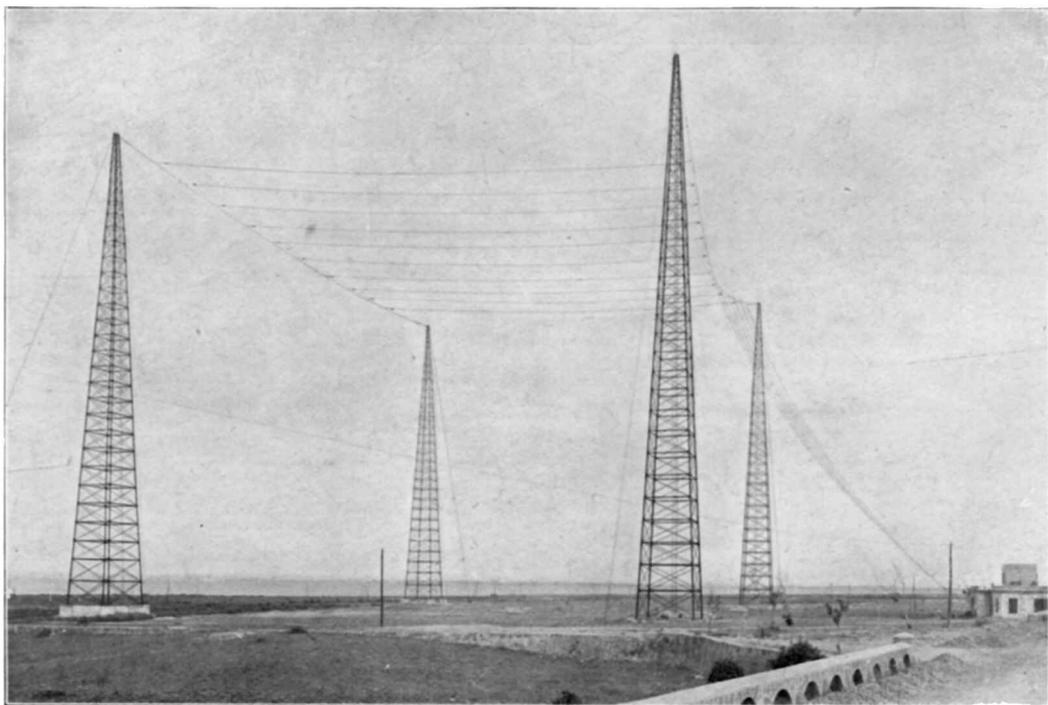
Little need be said at present of the "Titanic" and the "Olympic," the two largest vessels ever built, and the former not yet complete. Both of these vessels will be equipped with the Marconi system of wireless telegraphy. Passing in review the various vessels which form the White Star fleet, a good idea can be formed of the remarkable strides which have been made not only in marine engineering during less than half a century, but also of the magnitude of the organisation which is necessary to maintain the numerous services efficiently and profitably from the owners' point of view. The public are largely indebted to the White Star Line for many improvements in the means provided for ocean travelling. Amongst these may be mentioned: Improved proportions of ships; the placing of the saloon and passenger accommodation amidships; self-acting watertight doors; improved sub-division of the hulls by bulkheads; and wireless telegraphy.

No reference to the vessels of the White Star Line would be complete without recalling the part they play in the protection of their country. It is owing mainly to Mr. Ismay that the British Navy is able, in case of war, to call upon the services of the fastest vessels in the mercantile marine. It was at the time of the Russo-Turkish war, when there seemed some danger of this country being involved, that he offered to put several liners at the disposal of the Government. The idea was considered so excellent that in later ships special arrangements have been made so that they may, in case of need, be quickly converted into high-speed cruisers.

## Marconi Station at Cadiz

THE wireless station which has recently been completed at Cadiz for the Compañía Nacional de Telegrafía sin Hilos, forms one of a group intended to connect the Canary Islands and the more important Spanish coast towns with the capital. The problem confronting the engineers responsible for the installation of the Cadiz, Tenerife, and Las Palmas stations, was by no means a straightforward one. These stations were originally commenced by the Compagnie Fran-

the existing plant could be utilised, and specially to design apparatus, in accordance with the latest Marconi practice, to be used in conjunction therewith. The original power plant was retained. It consists of a 46 horse-power engine, which drives, by means of a belt, a direct-coupled motor generator. A battery of accumulators having a capacity of 1,000 ampère-hours is provided. This is capable of running the station for several hours in the event of a breakdown in the prime mover.



*The Marconi Wireless Station at Cadiz.*

çaise de Telegraphie Sans Fil (Papp system) for the Compañía Concesionaria del Servicio Publico Español de Telegrafía sin Hilos. The affairs of these companies had, however, to be wound up, satisfactory working of the stations never having been effected. The Marconi Company agreed to take over their concession, and the Compañía Nacional de Telegrafía sin Hilos was formed.

From motives of economy, therefore, it was necessary at the outset to decide what part of

The power taken from the alternator is 20 kw. The discharger, which is of the rotating disc type with radial studs, is driven by a separate motor. The Glace Bay pattern of high tension signalling switch is employed, a powerful blast of air being used to quench the arc at the contacts. The original condenser has been retained. This consists of a bank of Moscicki tubes, arranged vertically. The jigger, which is of a modified Clifden type, together with the necessary connections and 'bus-bars,

is arranged as a superstructure. The capacity employed is half a microparad.

The wave length at present in use is over 7,500 ft., 250 microhenries of inductance being required in series with the aerial. The latter is provided for by three drums wound with "sea-serpent" cable, as also is the jigger secondary.

The aerial is of the "L" type, and consists of 15 wires supported by four steel lattice towers 75 metres in height.

Communication between Cadiz and the Canary Islands has proved to be good at all times. Good communication has also been established with the Barcelona station and with the Spanish military station in Madrid. Information is, moreover, to hand from the Eiffel Tower station to the effect that signals from Cadiz are very strong in Paris.

Reception is provided for by means of valve receivers with intermediate circuits.

In addition to the above-mentioned plant, a standard 3-kw. set has been installed for ship communication. A separate aerial is provided for this purpose, reception being effected by magnetic detector and multiple tuner.

In order to comply with the concession, a coherer receiver and Morse inker have been included.

Although, up to the time of writing, the station has not been opened for public service, ample evidence has been forthcoming that the amount of ship traffic will be very considerable. The geographical position of Cadiz is such as to render communication possible with most vessels following the Mediterranean, South African, and South American routes. The station has already proved of some service to the Spanish naval authorities.

### A Chance for Dorset Men.

**I**N the present era of marvellous scientific advance, when the air is being conquered in more ways than one and pressed into the service of man, the wireless aerogram is quickly taking its place alongside the wire-spiced telegram. The "Cecil" medal and prize, awarded annually by the trustees in connection with the Dorset Field Club, subserves a valuable purpose in the stimulus of scientific studies among the young men of the county. For the year 1911-12 the medal and prize will be awarded for the best paper on "The Most Recent Discoveries in Wireless Telegraphy and their Practical Advantages in Commerce and War." The competition will be open to any person who is between the ages of 18 and 35 on May 2nd, 1911 (that being the date of the last annual meeting of the club), and who either was born in Dorset or had resided in the county the

previous twelve months. Papers for both medals must be written clearly or typewritten, and may be illustrated by drawings or photographs, provided that these are the personal work of the candidate. The committee attach great importance to original observation. There is no limit as to the length of the papers. Papers must be sent by March 1st to Mr. N. M. Richardson, of Montevideo, near Weymouth. Fuller particulars may be obtained from Mr. H. Pouncy, of the *Dorset County Chronicle* Office, the assistant secretary of the Dorset Field Club.

### International Telegraph Monument in Berne

**T**WO years ago the graceful and original International Postal Union Monument was unveiled in Berne. It was the work of the French sculptor, M. René de Saint-Marceau, and was the design selected out of a number sent in by invitation of the Swiss Federal Council on behalf of the Governments represented in the Postal Union.

Last month the jury met in Berne to decide upon the most suitable out of about a hundred designs submitted for the new International Telegraph Union Monument, which it is now proposed to erect in Berne, on the Helvetiaplatz. They chose one by Signor Giuseppe Romagnoli, of Bologna, of a statue representing Helvetia, seated, with figures on either side symbolising Trade, Commerce, Labour, and the Professions. The decision that the Telegraph Union as well as the Postal Union should have an international monument was taken at the Lisbon Telegraph Congress of 1908. The Swiss Federal Council, at the request of the Telegraph Union, have already once invited sculptors to send in designs for the new monument, but when the jury met to make a selection they did not approve of any of those submitted. The sum of 20,000 francs is to be awarded in prizes to the sculptors producing the best designs, while the sculptor entrusted with the carrying out of the monument will receive a sum of £2,800.

A Paris journal refers to the hobbies which occupy the attention of Kings in their leisure hours. It is interesting to note that King Albert of Belgium, alone among European monarchs, devotes his leisure to mechanical engineering. King Albert also takes a deep interest in wireless telegraphy; and it is said that in his private laboratory at Laeken Palace, where he conducts experiments, he has a complete collection of wireless apparatus.

## Maritime Wireless Telegraphy

THE new turbine steamers "Riviera" and "Engadine," which the South-Eastern and Chatham Railway Co. are placing on their cross-Channel service, are in many respects similar to the vessels already running on the Dover-Calais and Folkestone-Boulogne routes. They are, however, somewhat larger, being 315 ft. in length, 41 ft. moulded breadth, and 24 ft. 6 in. in depth from the awning deck. They are further distinguished from those already at work in having an installation of water-tube boilers instead of the ordinary cylindrical type. The passenger accommodation is of the usual nature, and does not call for special mention. Owing to the large and increasing traffic carried on by the company in shipping motor-cars for continental tours, special provision has been made on the new vessels for handling and stowing such vehicles. In addition to being provided with extra large hatchways to the holds, the steamers have been constructed with the after-ends of the main and awning decks specially strengthened for the carriage of motor-cars. The lifeboats are carried on the promenade deck, and can all be swung out in less than a minute. Indeed, as soon as the vessel leaves port it is the practice to swing the boats outboard until the destination is nearly reached. In this way the deck is left free from encumbrances, and the boats are ready for immediate lowering if required. Wireless telegraphy is fitted to each vessel. Further attention to safety is to be found in the shape of an installation of the Stone-Lloyd watertight door system, dividing the hull into four watertight compartments at a moment's notice. The vessels are fitted with a rudder at each end. The after rudder is of the balanced type, and has been specially designed by the builders for their turbine steamers. It is worked by a steam tiller controlled by telemotor gear from the flying bridge.

The propelling machinery comprises three Parsons turbines, each driving its own shaft and propeller. A set of six Babcock & Wilcox water-tube boilers provides the requisite steam generating power. A spare boiler has also been installed so that one boiler may always be off duty for cleaning.

On her trials the "Riviera" maintained a speed of 21.99 knots for four hours with only four out of the six boilers at work. With the turbines fully employed the highest mean speed on the mile was 23.07 knots. A speed of 15.15 knots was attained by the vessel when

running astern, so that she is exceptionally powerful in this respect. The builders are William Denny and Brothers, of Dumbarton.

Making her first trip across the Pacific from the Orient recently, equipped with wireless, the Osaka Shosen Kaisha steamer "Chicago Maru" was enabled to avoid a typhoon and considerable danger therefrom to her upper works. The wireless from the Japanese coast reported when the "Chicago Maru" was one day out that there was a typhoon raging to the north, and by altering her direct course slightly Captain Goto passed it to the south, and suffered only two days bad weather as a consequence.

Messrs. Lamport & Holt have inaugurated their new express passenger service between England and South America by the sailing on her maiden voyage of the twelve thousand ton liner "Vandyck," with nearly three hundred passengers, most of whom were booked for Brazilian ports and for the vessel's final destination, Buenos Ayres. The "Vandyck" has been fitted up with most of the modern features of the great Atlantic liners, prominent among which is an installation for wireless telegraphy. It has been arranged to make Southampton a homeward port of call.

The steamer "Aidan," an addition to the passenger fleet of the Booth Line, recently arrived in Liverpool. She is a ship of 4,544 tons, built for the Brazil service by the Tyne Iron Shipbuilding Co. The vessel starts with the advantage of having the Marconi wireless telegraphy apparatus on board.

The following British vessels have been equipped with Marconi 1½-kw. sets and emergency plant during the past month: Steam yacht "Iolanda" (private owner), s.s. "Ballarat" (Peninsular & Oriental Co.), s.s. "Laconia" (The Cunard Steamship Co.), s.s. "Victorian" and s.s. "Armenian" (Frederick Leyland & Co.), s.s. "Mayaro" (The Trinidad Shipping & Trading Co.) and s.s. "Erinpura" (The British India Co.). The Marconi Co. have also received instructions to equip the following vessels for the Anchor Line Co.: s.s. "Circassia," s.s. "Castalia," s.s. "Columbia," s.s. "Caledonia" and s.s. "California."

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## Personal

Mr. G. Marconi should have presided at the annual dinner of the Newsvendors' Benevolent and Provident Institution on November 27th, but he was out of England on that date, and consequently was unable to attend. He has contributed twenty-five guineas to the fund.

The presidential address which Mr. Marconi had arranged to deliver before the Junior Institution of Engineers on November 28th has been postponed until January 5th, 1912.

Mr. J. Henniker Heaton sails from England on a journey to Australia on December 1st, where he carries with him our best wishes.

## Athletics

On Saturday, November 11th, about thirty members from the London office of Marconi's Wireless Telegraph Co., Ltd., visited Chelmsford, and were entertained by the works staff. In the afternoon a football match was played on the Recreation Ground, a good game resulting in a victory for the works by 2—0. High tea was subsequently provided at the Marconi Club, London Road, the company numbering about seventy. A smoking concert followed. Mr. C. Mitchell (works manager) presided, and was supported by Mr. Dowsett (chief of the test-room) and the following members of the staff from London: Mr. Bradfield (deputy-manager), Mr. A. Gray (chief of the engineering department), Messrs. Taylor, Hobbs, Cross and Withy. Mr. Dowsett extended a hearty welcome to the visitors; and Mr. Hobbs, in reply, invited the Chelmsford staff to London in January for the return match, and said they would be pleased to reciprocate their hospitality. Mr. P. Dumenil thanked the directors of the company for their generous financial support of the club, which, he said, was much appreciated. Mr. Bradfield distributed the following prizes: Walking race—1, A. Garner; 2, P. Dumenil; 3, H. Corfield. G. Royffe (scratch) was the fastest loser. Billiard handicap—1, Mr. C. Mitchell (who gave the prize for competition at the next handicap); 2, F. A. Hance. Highest break, A. Hazelton and S. Sawyer equal. During the evening a capital musical programme was contributed to by the following: Messrs. Rison, Cooper, Burden, Suckling, Herring, Hudson, Trueman, Smith, Meyer, Radke, Walsingham, Wilson, Fenning, Hewer, Fahie and Greenaway. Mr. Rison was the accompanist. The arrangements for the day were carried out by a committee, with Mr. C. Robarts as secretary.

## Movements of Engineers

Mr. G. Vincent has returned to the Belgian Company at Brussels.

Mr. E. E. Triggs, having completed the removal of the Post Office Wireless Station at Crookhaven, has returned to London.

Messrs. A. B. Blinkhorn and H. E. Watterson have returned to London from Athens.

Mr. H. M. Burrowes has left Glace Bay and has joined the technical staff of the English Company, and Mr. F. H. Melville has taken his place at Glace Bay.

Mr. W. H. Venn is on his way back to England from Brazil.

Messrs. J. J. Leary, C. H. Keith, and R. H. Strickland are also returning to England from the Fiji Islands.

Mr. A. Dalgairns has gone to Broomfield Station for a course of instruction.

Mr. E. J. Watts has returned to London from the Cape.

## Movements of Telegraphists

Mr. A. J. Osborn has been transferred from the "Baltic" to the "Corsican."

Mr. T. Gallivan has been transferred from the "Hildebrand" to the "Hilary."

Mr. H. Hayes has been transferred from the "Corsican" to the "Armada Castle."

Mr. J. K. Lush has been transferred from the "Oravia" to the "Ascanius."

Mr. C. Searl has been transferred from the "Teutonic" to the "Atahualpa."

Mr. J. Durrant has been transferred from the "Mauretania" to the "Victorian" (Leyland).

Mr. T. J. Chapman has been transferred from the "Virginian" to the "Winifredian."

Mr. L. A. Dodds has been transferred from the "Ascanius" to the "Virginian."

Mr. C. J. Alsford has been transferred from the "Anselm" to the "Hildebrand."

Mr. A. F. Bruton has been transferred from the "Virginian" to the "Armenian."

Mr. A. W. O'Connor has been transferred from the "Grampian" to the "Dominion."

Mr. B. R. Stansfield has been transferred from the Marconi School to the "Devonian."

Mr. G. F. Pepper has been transferred from the Marconi School to the "Empress of Britain."

Mr. W. G. Sutherland has been transferred from the "Gloucestershire" to the "Leicestershire."

Mr. S. W. Brown has been transferred from the "Tunisian" to the "Grampian."

Mr. H. Sturdy has been transferred from the "Francis" to the "Oravia."



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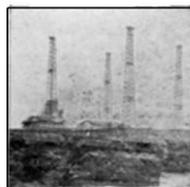
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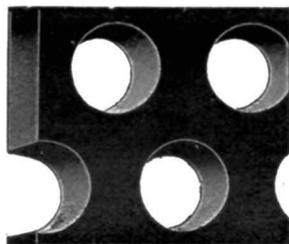
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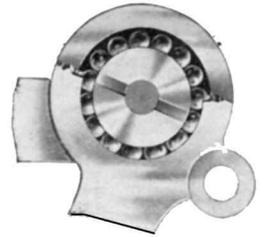
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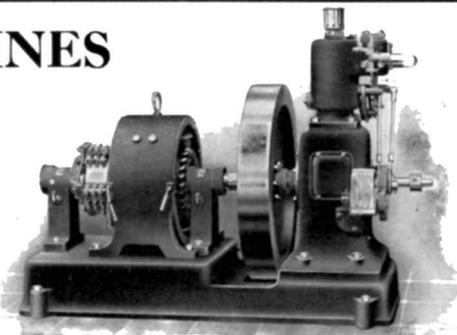
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