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A Great Marconi Scheme

Direct Communication Between London—New York ; New York to the Far East and to South America.

Important Agreement with America and Canadian Land Line Companies.

ONE of the most important announcements ever made in connection with the world's telegraphic systems was made on April 18th. This announcement was to the effect that Marconi's Wireless Telegraph Company had made arrangements with the Marconi Wireless Telegraph Company of America to construct for that company a number of long-distance wireless stations, and that the two companies had signed a working agreement with the Western Union Telegraph Company of the State of New York, and with the Great North-Western Telegraph Company of the Dominion of Canada, which provides that the Marconi companies shall have the full benefit of the Western Union and the Great North-Western Telegraph Companies' land line stations for the receipt and delivery of their messages throughout the United States and Canada upon the most favourable cable rate terms. The agreement provides that the Marconi Company shall affix a Marconi signboard to all offices of the Western Union Company. The Western Union and the Great North-Western Telegraph companies have in all about 25,000 telegraph offices throughout the United States and Canada.

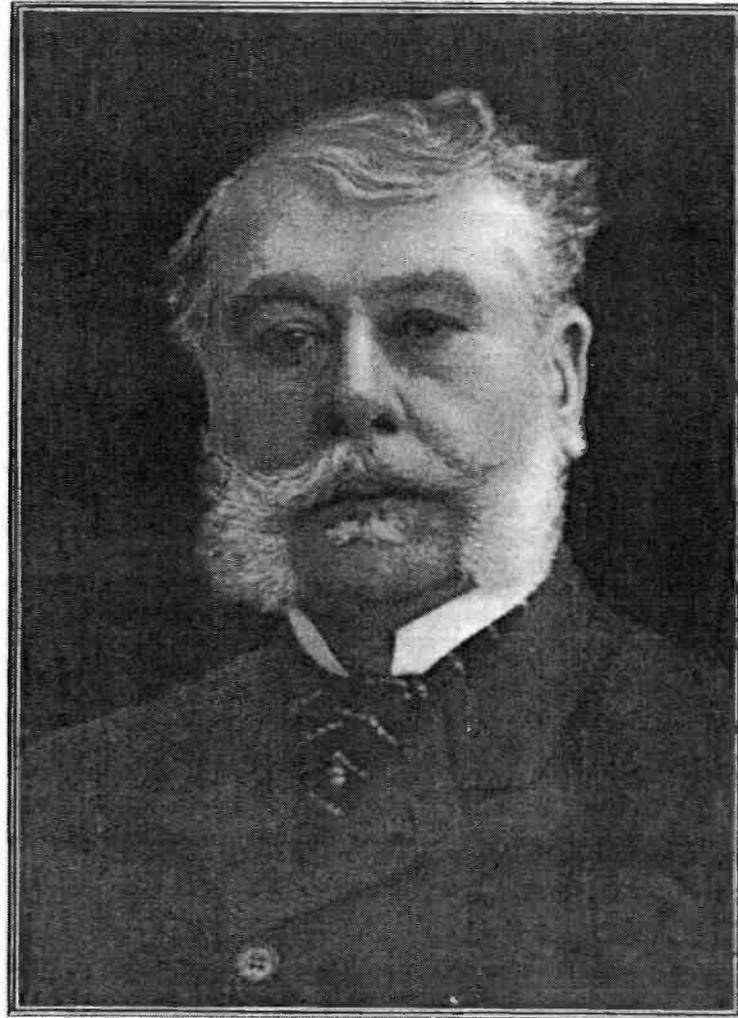
The importance of the agreement above referred to lies in the fact that the Western Union Telegraph Company and the Great North-Western Telegraph Company of Canada, with their numerous offices, automatically become feeders of the Marconi system. The charge per word for Marconigrams from London to New York will be 7½d., and when the arrangements are completed it should be possible to communicate from London to New York in five minutes.

The Marconi companies are about to erect new long-distance wireless stations providing direct communication between New York and London. The mere mention of this great undertaking is enough to raise wonder ; it is a proposition which, upon reflection, will strike the mind of the reader as one of unparalleled importance and as one of the most stupendous undertakings in the history of communications. Not so long ago such an idea was ridiculed ; soon it will become one of the commonplace achievements of the Marconi Company. It does not stand alone, however, in the programme of the American Company, for preparations are in hand for the construction of a number of stations to give communication with the East from San Francisco to the Hawaiian Islands, the Philippines, China, and probably Japan.

The American Company's programme further provides for a second long distance station to be erected in the immediate vicinity of New York to communicate with Cuba, Panama, and South American countries. We must leave to our next issue a more detailed account of this undertaking, so inspiring in its magnitude and beneficial in its prospects.

The shareholders of the Marconi Wireless Telegraph Company of America passed on April 18th a resolution in general meeting to increase their capital to \$10,000,000 in shares of \$5 each in order to enable it to complete its enterprise.

The American Company is registered under the laws of the State of New Jersey, in accordance with which the shareholders have the first right to apply for any increase of capital.



M. JULES CHARLES-ROUX

M. Jules Charles-Roux

Director of the *Compagnie Française Maritime et Coloniale de Télégraphie Sans Fil* (French Marconi Co.)

STATESMAN, author and business man ; under each of these categories would the subject of our sketch this month fill a distinguished niche. Born at Marseilles on November 14th, 1841, M. Jules Charles-Roux received his education at the Lycées of Marseilles and of Paris. From 1860-1864 he took a course at the Faculté des Sciences, at Marseilles, under Professor P. A. Favre. At this early date M. Charles-Roux showed signs of great literary ability, which found outlet in the publication of several scientific books dealing with the subject of the substances used in the soap industry. M. Charles-Roux early identified himself with the commercial and municipal life of his native city, having been member of the Chamber of Commerce from 1880 to 1889 and Municipal Councillor from 1886 to 1888. In the latter year he was appointed *Adjoint* to the Mayor. He was for three years Councillor General of the Bouches du Rhone, which department he later represented in the Chamber of Deputies.

One would suppose that these activities would naturally fill the life of a man. Not so with M. Charles-Roux, however, who found satisfaction for his artistic tastes and scientific attainments in his association with the Cercle Artistique and the Société des Amis des Arts and the Geographical Society of Marseilles. While a member of the Chamber of Deputies, between the years 1889-1898, M. Charles-Roux was a member of the Customs and Budget Commissions. In 1894 he was Reporter of the Budget of the Ministry for the Colonies, and three years later Reporter of the Budget for the Ministry of Commerce. In 1898 he was elected Vice-President of the Budget Commission and of the Colonial Group. During this period he delivered numerous discourses on tariff, colonial, labour, financial and mercantile marine questions.

Anything like a complete list of the honorary offices which M. Charles-Roux has filled would be impossible to give in the space at our disposal, but they range from Vice-President of the French Maritime League to that of President of the Union Coloniale Française. In addition, he has filled the office of President of the Société Marseillaise, Director of the Banque de France, Director of the Sugar Refineries of Saint Louis and of the Franco-African Society. He is President of

the Council of Surveillance of the Marseilles Steam Navigation Company (Fraissinet et Cie.), the oldest steam navigation company in France, his paternal grandfather being one of the founders of the firm, in which M. Charles-Roux obtained his early experience in ship construction. He is President of the Compagnie Générale Transatlantique, one of the most important shipping companies in Europe, Vice-President of the Suez Canal, as well as Director of the Comptoir National d'Escompte, of Paris ; of the Compagnie des Chemins de Fer Paris-Lyon Méditerranée, and President of the Land Bank of Egypt.

In 1865 he was a member of the Commission appointed by the Marseilles Chamber of Commerce to examine the work of cutting the Suez Canal, and he was present at the inauguration of the Canal. He also represented his country on the Commission which went to South America in 1886 in connection with the Panama Canal, and he has paid numerous visits to Belgium, Holland, Germany and Great Britain to report upon the harbours, docks and ports.

M. Charles-Roux has published numerous articles in the leading French economic and political reviews. His book entitled "Notre Marine Marchande" was awarded a prize by the Academie des Sciences Morales et Politiques. A larger work, published in 1901, dealing with the Suez Canal, won an award from the Academie Française.

M. Charles-Roux has also published a number of works on the archæology and history of Provence. At present he proposes to complete his studies upon "La Provence," and to publish monographs on ancient Marseilles, the Abbaye of Saint Victor, Arles, Tarascon, Beaucaire, Avignon, Orange, Vaison, Montelimar and the Château de Grignan. He has also in contemplation works dealing with the ruins of the Valley of the Rhone, Toulon Hyères, les Arcs.

He holds the following decorations : Commandeur de la Légion d'Honneur, Officier de l'Instruction Publique, du Mérite Agricole, Commander de Léopold de Belgique, du Christ de Portugal, du Danebrog, Grand Officier de Saint Stanislas de Russie, de l'Ordre de Charles Trois de Monaco, de la Couronne de Prusse, Grande Croix de Divers Ordres Coloniaux, etc.

An Epic Tragedy of the Sea

Wireless—The Wonder Worker

ON Wednesday, April 10th, the "Titanic" left Southampton replete with all the luxuries that engineering science, commercial organisation, and nautical skill could provide. Five days later she sank to the ocean bed, a useless mass of lumber. She went forth an emblem of man's achievements won from the mighty forces of nature; she lies now in the silence of her gloomy grave, a warning to man's arrogance. In every sense but one this mighty vessel was a "Titan"—a veritable god among the members of her craft; but in the very sense in which she was not a god she was the symbol of human impotence. The world had reluctantly to accept that the "Titanic" had sunk. In the dark hours between the setting of a Sunday's sun and the dawn of Monday, April 15th, the "Titanic" met an icefield which had floated down from the Arctic Sea. The presence of ice there at this time of the year was unusual, but other Atlantic steamers had met the same field and passed through it—not all without damage. It probably was the misfortune of the "Titanic" to have run upon a berg in advance of the main field, and the damage done by the impact was sufficient to send to the bottom of the sea a vessel proclaimed to be unsinkable. All accounts agree that the night, though moonless, was starry, that the atmosphere was unusually clear, and the sea absolutely calm when the disaster occurred. The majority of the survivors note with surprise the slightness of the shock, a fact which corroborates apparently the well-substantiated report that the "Titanic" did not strike an iceberg "head on." The shock caused practically no alarm amongst the passengers, though one of the surviving stokers is reported to have said that the water immediately poured into the stoke-hole. It was not until the engines stopped a moment later that any disquiet was felt. Even then there was absolutely no panic. The belief in the unsinkability of the "Titanic" was firmly rooted, and an idea was apparently current that an iceberg had been merely grazed. The order, "All passengers on deck with lifebelts on," came about half an hour after the collision, and the sailors almost simultaneously began to prepare the boats.

Like a Phoenix from the fire there arises from the gloom of this disaster two incidents, one which displays the noblest qualities of the Anglo-Saxon race, and the other a glorious record of the beneficent part which wireless telegraphy plays at sea. The scene in which wireless played its heroic part, and brought succour to those who had escaped from the sinking ship, is vividly described in the words of the surviving wireless operator of the "Titanic," Mr. Harold Bride. Mr. Bride was the second operator on this vessel, and was relieving his chief, Mr. J. G. Phillips, at the time when the collision occurred. "I was standing by Phillips telling him to go to bed, when the captain put his head into the cabin. 'We have struck an iceberg,' he said; 'you had better get ready to send out a call for assistance. Don't send it until I tell you.' The captain went away, and in ten minutes he came back. We could hear terrible confusion outside, but not the least thing to indicate any trouble. The wireless was working perfectly. 'Send a call for assistance,' ordered the captain. 'What call shall I send?' Phillips asked. 'The regulation international call for help—just that,' was the reply; and Phillips began to send the signal 'C.Q.D.,' joking whilst doing so. After a few minutes, however, the captain reappeared, and said, 'Send S.O.S.; it may be your last chance.' The 'Carpathia' answered our signal, and we told her our position, and said we were sinking by the head. The operator went to tell the captain, and in a few minutes returned and told us that the 'Carpathia' was putting about and heading for us." The "Carpathia" reached the scene of the wreck at 4 a.m. on Monday, and took on board all the passengers who were in the boats. In a little time the "Olympic," "Baltic," "Virginian," "Parisian," and other vessels were apprised of the disaster by means of wireless telegraphy, and communication was at once established with the shore, and the world then heard of the epic tragedy of the sea.

What may have happened had the "Titanic" not been fitted with wireless installation is too horrible to contemplate. Collisions with icebergs in the past have been fatal to many good ships. The loss of the "President"

and the "Pacific" in the earlier days of Atlantic navigation is ascribed to this cause, though no one lived to tell the tale. But in the case of the "Titanic" the wireless installation which she carried enabled her instantly to call up help.

The nation's gratitude for the wonderful means which have enabled this to be carried

hardly possible for any vessel equipped with even moderately powerful instruments to be lost on any frequented route without being able to communicate information and to summon help. The 'Titanic' had the call upon a circle of at least three hundred miles radius even in daylight, while at night the range of her instruments would be doubled



"THOSE WHO HAD BEEN SAVED, HAD BEEN SAVED THROUGH ONE MAN—MR. MARCONI
Extract from a speech by the Right Hon. Herbert Samuel, the Postmaster-General, on April 18th

out is adequately expressed in the following extracts from the British Press :

"We owe it to patient research in a delicate and difficult branch of science that the 'Titanic' was able, with wonderful promptitude, to make known her distress, and to summon assistance. But for wireless telegraphy the disaster might have assumed proportions which at present we cannot measure; and we should have known nothing of this occurrence for an indefinite period. Many a well-found ship has, in fact, disappeared in these berg-haunted waters without leaving a sign to indicate her fate. Thanks to Marconi's apparatus, it is now

or trebled. She could speak to the shore and to every vessel over that enormous area of ocean, and she could be spoken to and assured that help was on the way. Not only so, but the ships appealed to could communicate with one another, act in concert, and transmit the news to indefinite distances. The advantages conferred by this abridgment of space are enormous. No vessel need be alone, none need vanish without a sign from human ken, and in none but crushing and instant disasters need any despair of help. This is surely one of the greatest of the many boons conferred upon humanity by patient, persistent and often

very discouraging inquiry into natural laws, carried on, at all events in its initial stages, by students animated only by love of knowledge. Marconi shares are now well known on the Stock Exchange, and wireless telegraphy is a huge commercial undertaking, but few besides experts have the faintest conception of the difficulties to be overcome, or of the mental and moral equipment needed to overcome them, when the hints are few and obscure, when every instrument has to be called out of the void, and when hope of gain, if considered at all, was infinitely remote."—*The Times*, April 16th.

"The imagination is struck once more by the wonderful part played by wireless telegraphy in the story of the 'Titanic.' The wounded monster's cry of distress sounded through the latitudes and longitudes of the Atlantic, and from all sides her sisters, great and small, hastened to her succour. But for this new instrument of communication it might have been that the greatest product of naval architecture would have passed from our human ken her fate for ever unknown, or unknown at least until one or more of her boats struggled to the Newfoundland shore. . . . The wonder of the wireless is once more demonstrated. We recognise, with a sense near to awe, that we have been almost witnesses of the great ship's death agony."—*Pall Mall Gazette*, April 16th.

"With this means of communication (wireless) the terrible isolation of mid-ocean has vanished for ever. Her appeal for aid was received by half a score of ships and tall en in by the nearest land stations. From the moment when it was made her passengers and crew had the comforting knowledge that help was coming up from all quarters. Every ship within range hurried to her assistance, but it was impossible to avert loss of life."—*Daily Mail*, April 16th.

"Even while the great liner was reclining back from the shock of the fearful impact the Marconi operators were at their places, and those poignant appeals for help—mute, invisible—were flying outwards on their instantaneous errand. The 'Virginian,' steaming through the darkness 170 miles away, noted the call and instantly turned to the rescue. The 'Olympic' picked it up, and the bells rang, too, in the telephoneroom of the 'Baltic,' 200 miles below the horizon. . . . There is a new sense of the value of the wonderful invention which was able to summon aid when aid could have been obtained in no other way."—*Daily Telegraph*, April 16th.

"Never before has the romance of wireless been brought so vividly to the imagination

of two hemispheres as by the news reporting the disaster of the 'Titanic.' Who could fail to have been thrilled by the brief word pictures of the 'Carpathia,' the 'Virginian,' the 'Olympic,' the 'Baltic,' and other great transatlantic liners speeding hundreds of miles across the waste of waters to their sister ship in her hour of need?"—*Manchester Weekly Times*, April 20th.

"But for the wireless what would have been the state of the unfortunate people wrecked? They might have drifted about for days looking in vain for the help that did not come, and there might have had to be told over again the story of privation and death with which the history of the sea has made us only too familiar."—*Portobello Advertiser*, April 20th.

The Right Honourable Herbert Samuel, M.P., Postmaster-General, referring to the disaster at the dinner of the London Chamber of Commerce on April 18th, said:

"Those who had been saved had been saved through one man, Mr. Marconi, whose wonderful invention was proving not only of infinite social and commercial value, but of the highest humanitarian value as well. He had seen it stated that in the United States of America the efficiency of the wireless telegraphy service had been impaired by lack of regulation. He did not know whether that was well founded or not, but as Postmaster-General he could assure them that such disturbance was impossible here. Parliament had given the Postmaster-General a complete control over the use of wireless telegraphy, and no one could operate or establish a station without the Postmaster-General's licence, which was only very sparingly given, and for purposes of experiment and research and under such conditions which precluded disturbance of commercial or humanitarian messages. Round the coast, in charge of his department, there was a girdle of wireless stations which were in constant communication with the telegraphic services of the country and with the life-saving stations. No fewer than 100 liners had been equipped with wireless apparatus, including a certain number of cargo vessels. All the operators on these ships were required to hold a Post Office certificate of efficiency, and to answer immediately any signals of distress, and under conditions which, as far as possible, precluded interference with one another."

The inevitable crop of problems have arisen out of the disaster to the "Titanic," several having to do with wireless telegraphy. A number of false rumours were spread about the wreck, and these were attributed to the operations of amateur wireless telegraphists on

the Atlantic coast. Whether the origin of the false statements is traceable to this source or not, it is satisfactory to note that the American Government have quickly taken steps to bring the practice of wireless telegraphy on their shores under control.

It is as well to emphasise the fact that in this country an amateur who is interested in wireless work is not allowed to put up an installation unless he can show that he intends to undertake serious research work. Even then it is necessary for him to explain to the authorities the exact dimensions of his proposed plant, and to submit to such conditions as ensure that he cannot interfere with the serious work carried on in connection with the system. An additional safeguard is provided in the fact that the sanction of the Marconi Company is necessary before Marconi instruments can be employed. In the United States amateurs are still allowed to carry out experiments as they wish, but, as has already been indicated, legislation on the subject is expected shortly. Quite apart from restrictive legislation, the progress of wireless telegraphy has added to the difficulties of interference. Even in the old days of the coherer it was possible by means of having two coherers on the one antenna to receive two messages simultaneously. With the recent advances made in tuning, it may fairly be claimed that interference has become a trouble of the past. Inquiry shows that all the messages which came through the Marconi Stations were accurate.

In view of the outcry that every ship should carry more than one wireless operator, it should be mentioned that many large ships have already two operators, but in the case of the smaller vessels questions of economy have to be considered; but a more serious matter than that is the thought that there may have been several vessels in the vicinity of the "Titanic" which were not fitted with wireless telegraphy, and therefore were unable to respond to the liner's insistent appeals for help. It is a remarkable fact that outside the Navy the number of ships flying the British flag which are fitted with wireless reach about 400, whereas Lloyd's Register contains the names of something like 30,000. It would seem just as necessary for a tramp steamer to carry wireless as for a liner, so as to ensure this safeguard for its crew, and to be able to answer the distress calls of other vessels. Hitherto, the tendency of legislation passed abroad has been to insist upon the installation of wireless telegraphy only on ships carrying passengers; but the time has probably come when the public realise the value of an extension of the system to all ocean-going vessels.

The news of the loss of Mr. J. G. Phillips, who was the chief operator on board the ill-fated "Titanic," occasioned a most profound



J. G. Phillips, Chief Marconi Operator on Board the "Titanic."

sorrow among his colleagues. The columns of the daily Press have, during the past few days, echoed the noble heroism which he displayed, and have presented us with vivid glimpses of his splendid self-sacrifice that make us glow with pride for the bravery of our deceased colleague. We cannot do less than add our testimony to his disinterested self-sacrifice and cool demeanour in time of danger, and those of us who had the honour of personal acquaintance with him knew that such conduct was characteristic of him.

Mr. Phillips was a native of Godalming, and was educated at the local grammar school. He started his career as a telegraph learner in the Godalming post office, and in March, 1906, he joined the Marconi school at Liverpool. In August of that year he was appointed to the operating staff, and sailed on various ships—notably the "Teutonic," "Pretorian," "Buccaneer" and "Oceanic." He also served on the operating staff of the high-power Transatlantic wireless station at Clifden from May, 1908, to July, 1911. His loss will be mourned by a large circle of friends among the company's staff, while his example is one of the noble instances of devotion to duty which brighten the annals of wireless telegraphy.

Mr. H. S. Bride, who served as second operator on the vessel, and who was among the saved, was born at Nunhead, and educated at Roan School, Greenwich, and the Technical



H. S. Bride, Second Operator on Board the "Titanic" (rescued).

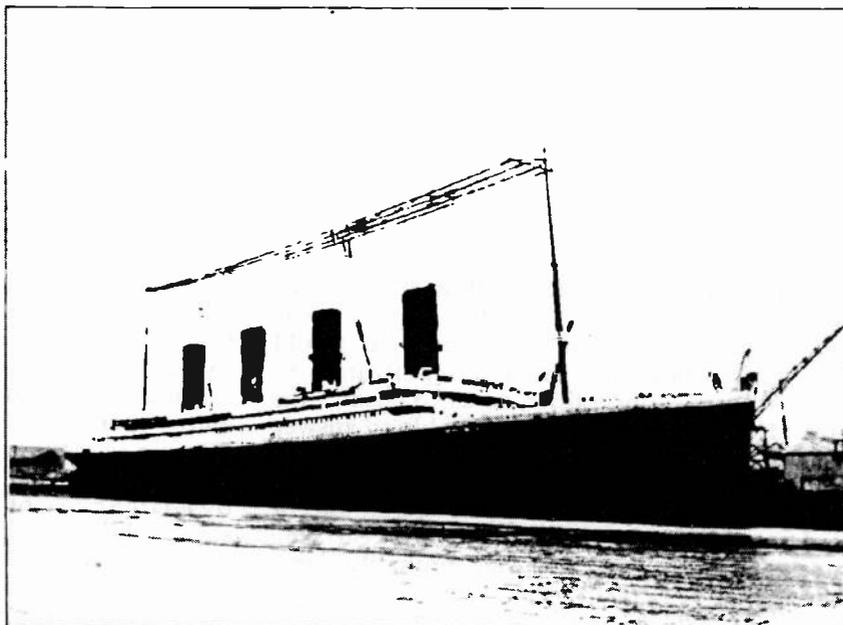
School, Beckenham. He entered the wireless service in July, 1911, and has served at different times as operator on the "Haverford," "Lusitania" and "Anselm."

Wireless Equipment of the "Titanic"

THE wireless equipment of the "Titanic" was the most powerful possessed by any vessel of the mercantile marine, and only equalled by that of the "Olympic." Its generating plant consisted of a 5-kw. motor-generator set, yielding current at 300 volts 60 cycles. The motor of the set was fed at 110 volts D.-C. from the ship's lighting circuit, normally supplied from steam-driven sets; while, in addition, an independent oil-engine set was installed on the top deck, and a battery of accumulators was also provided as a stand-by. The alternator of the motor-generator set was con-

nected to the primary of an air-core transformer, and the condenser consisted of oil-immersed glass plates. To eliminate as far as possible the spark-gap and its consequent resistance, which, as is well known, is the principal cause of the damping of the waves in the transmitting circuit, the ordinary Marconi rotary disc discharger was used. This is driven off the shaft of the motor-generator. The guaranteed working range of the equipment was 250 miles under any atmospheric conditions, but actually communication could be kept up to about 400 miles, while at night the range was often increased up to about 2,000 miles. The aerial was supported by two masts, 200 ft. high, stepped 600 ft. apart, and had a mean height of 170 ft. It was of the twin T type, and was used for the double purpose of transmitting and receiving. The earth connection was made by insulated cable to convenient points on the hull of the vessel.

The receiver was the Marconi standard magnetic travelling band detector used in conjunction with their multiple tuner, providing for the reception of all waves between 100 and 2,500 metres. The multiple tuner was calibrated to permit of the instrument being set to any prearranged wave-length, and further to be provided with a change switch to permit of instantaneous change of the circuit from a highly-syntonised tuned condition to an untuned condition (for stand-by) especially devised for picking up incoming signals of widely different wave-lengths. By reason of its robust nature the magnetic detector could be employed permanently connected to the transmitting aerial, thus dispensing with all mechanical change over switching arrangements.



The ss. "Titanic" leaving Southampton original from

Wireless Telegraphy on the British Gold Coast

ACCRA, a fort on the Gulf of Guinea, about 80 miles east of Cape Coast, is one of the latest centres whereon Marconi's Wireless Telegraph Co., Ltd., have contracted to supply and erect a radiotelegraph station. It has been since 1876 the capital of the British Gold Coast Colony, and with its population of 20,000 inhabitants is an important town, being, in fact, the first in the Gold Coast Colony to be raised to the rank of a municipality. The sea frontage extends about three miles, but there is no harbour, and steamers have to lie about a mile out; goods and passengers being landed in surf boats.

The radiotelegraph station will be equipped with a 5-kw. set, driven by an oil engine. As the plant is required for working in a damp, tropical climate, special attention will have to be given to the materials used in construction of the apparatus; hence wood will be used as sparingly as possible. The station will be capable normally of a sending wave 300 metres in length, but it will be also capable of transmitting waves varying in length from 600 to 900 metres. Five masts in all will be provided, the main mast being of the sectional steel type, 200 feet in height; the remaining four masts will each be 60 feet in height, and will be of the tubular steel type arranged symmetrically on the circumference of a circle having the main mast for its centre. The main aerial will be of the umbrella type, and the second will be a twin wire type aerial.

There will be no special features in connection with the power plant. The prime mover will be a 5-h.p. oil engine, and to this will be direct-coupled a 3-kw. continuous current dynamo, having a pressure regulation suitable for enabling it to be used to charge the accumulator battery of 54 cells. The motor alternator will consist of a continuous current motor, designed to run off the accumulator battery and to drive a disc discharger mounted on an extension of its shaft. The transformer will be designed to afford a transformation ratio of either 300 to 10,000 or 300 to 5,000 as desired.

There will also be provided a transmitting jigger and aerial tuning inductance, whilst the manipulating gear will consist of a Morse hand-key actuating an electromagnetic relay key in the transformer primary circuit. The receiver will be of the standard telephone magnetic detector pattern, working in conjunction with the multiple tuner, the combination being capable of syntonising the receiving circuits to all wave lengths between 100 and 2,300 metres.

The Accra station will be employed mainly for communication with ships, and its erection will be watched with interest, inasmuch as it

will afford further proof of the ease with which wireless telegraphy may be worked in tropical climates.

The Imperial Wireless Scheme

AN echo of the Imperial scheme of wireless telegraphy, which we described in our April issue, was heard in the House of Commons on April 3rd. On the motion for the adjournment of the House for the Easter recess several members raised the question of Imperial inter-communication. Mr. Herbert Samuel, the Postmaster-General, replied with respect to the specific question raised during the discussion—the question of cable rates, with special reference to the advisability of the construction of a state-owned Atlantic cable. In the course of his speech he said:

"With a view to improving the strategic communications of the Empire, and also to enable Press rates to be reduced, I have entered into arrangements, as the House is aware, with the Marconi Company for the erection of a chain of wireless stations to connect this country with India, Australia, and New Zealand, at a total cost of over half a million pounds, which, we believe, will be of importance from a naval and military point of view, but which will also, we anticipate, enable the rates to be reduced for wireless telegrams, and at the same time not be unremunerative to the Governments which are partners in this enterprise. It is a plan which will place the British Empire far in advance of any country in the world respecting wireless telegraphy."

Mr. L. Harcourt, the Colonial Secretary, who also took part in the debate, said with regard to wireless telegraphy:

"It is a remarkable advance in the eight or nine months since the [Imperial] Conference closed to be able to say that we are now covering three-quarters of the world by an Imperial system of wireless telegraphy. We have a service from London to Egypt, from Egypt to Aden, from Aden to Bombay, from Bombay to Singapore. Northward, in the future, to Hong-Kong, and southward, in the almost immediate future, to Australia. . . . We intend to have wireless communication from Aden to some point in the Union of South Africa, possibly Pretoria; and if the resources of science will not allow that to be done, we may decide to make an intermediate at Nairobi."

Rapid progress is being made with the military wireless installation at Fort William, Calcutta, and the finishing touches are now being put to the last six masts.

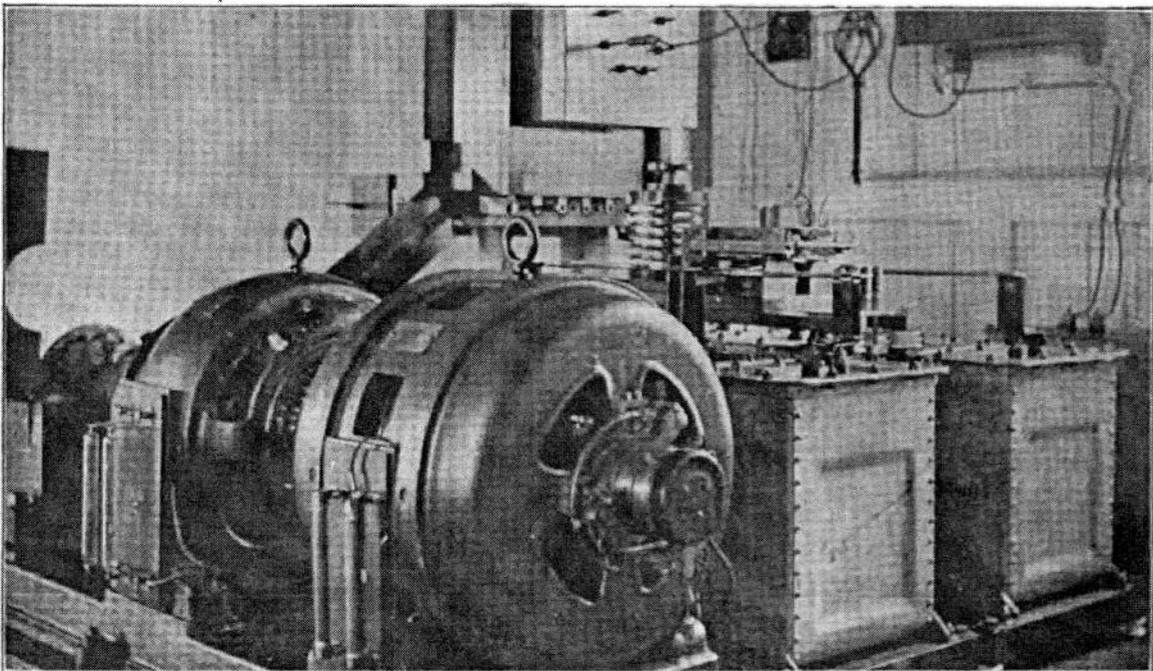
Wireless in the Southern Pacific

The Stations in the Fiji Islands

UP to the time of the opening of the Suva station there were no commercial wireless telegraph stations south of the Equator. Fiji is therefore satisfying a decided want in providing a first-class service for ships equipped with wireless apparatus. The last of the stations erected by the Marconi Co. was satisfactorily completed and turned over to the Government early last October. The control station, situated at Vatawaqa Point, near Suva, the capital, communicates with the other two island stations, and also handles all ship

Lambasa, the centre of a large sugar cane estate, is similarly equipped. The third, a self-contained 1½-kw. set, is at Waiyevo, the Government station on the Island of Taveuni. Marconi boats lying at Hobart, Tasmania, report signals from Suva as good and clear. Similar reports came to hand from Honolulu, Sydney, Wellington, and Auckland.

The stations are owned and operated by the Government in accordance with the regulations of the International Radio-Telegraphic Convention. Ship messages are charged at



Transmitting Apparatus at Suva—5-K.W. Disc Set.

traffic. To facilitate the dispatch of messages it is connected to the town and to the office of the Pacific Cable Board by line telegraph and telephone. Delivery at the other stations is effected by native runners.

Suva is fitted with a self-contained 5-kw. disc set, capable of transmitting all waves between 600 and 1,200 metres. A valve tuner is provided in addition to the ordinary magnetic receiving set. Uniform radiation is effected from an umbrella aerial suspended from a 160-ft. sectional steel main mast to four 50-ft. extension poles.

the rate of tenpence a word, cable counting, without a minimum. All ships communicating with the stations must conform to this rate, which is divided between the two stations in the usual way. The normal range is 300 miles, but every effort is made to handle messages over greater distances when occasion arises. The service is open from 10 a.m. to 4 p.m., and from 8 p.m. to 2 a.m. Arrangements are pending for a continuous watch to be kept.

An inter-island service is also open to the public at the rate of threepence per word, count-



Interior of Station at Suva.

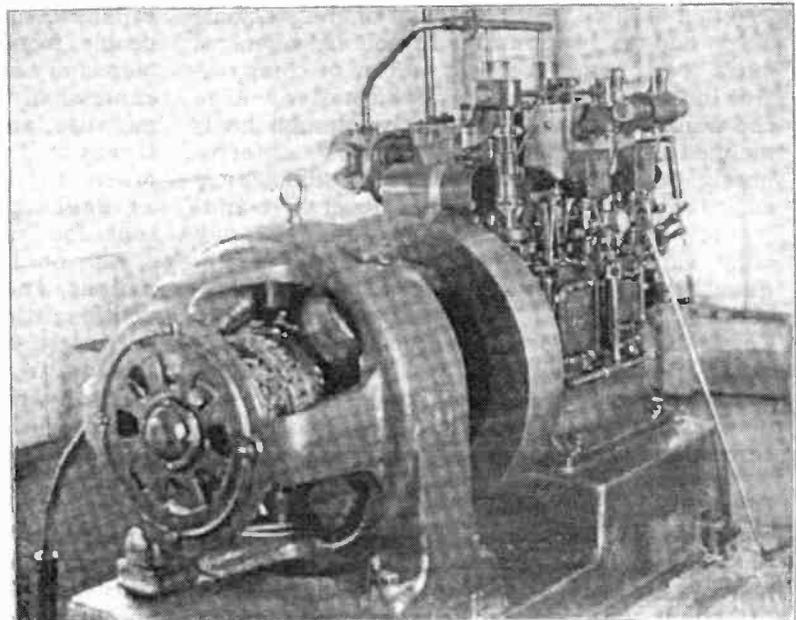
ing as above. This includes free delivery in the town of Suva, and within a mile radius in the case of the other two stations. Suva messages are collected and delivered by the Pacific Cable Board, their office being connected to the wireless station by line telegraph. Messages are collected at the wireless stations at Lambasa and Taveuni. Delivery beyond the mile limit from these stations is charged at the rate of one shilling per message. The Lambasa and Taveuni stations are open from 10 a.m. to 4 p.m. each weekday, and to clear at 8 p.m. Sunday hours are from 10 to 10.30 a.m. and 3.30 to 4 p.m. The system is working satisfactorily in every way, and should be of great value to all concerned. The service "via Marconi" compares more than favourably with the cable communication between Suva and Levuka.

We may now leave the technical and commercial aspects of this subject to record some impressions gathered during a sojourn in the district. The journey to Fiji was one of varying scenes and temperature. Leaving England on a typical December day, the last of John Bull's Island was enveloped in a cold, damp mist, through which the rugged coast of Cornwall loomed treacherous and forbidding. The trans-Canadian journey was through

a white country, and the temperature was extremely low at places, especially at Winnipeg, where the thermometer stood at 15° below zero. After crossing the "Great Divide," and commencing the descent of the Pacific Slope along the precipitous banks of the Frazer, the whole aspect of the country was changed.

The journey to Fiji from Vancouver occupied about eighteen days, the steamer calling at Victoria, B.C., Honolulu, and Fanning Island. Honolulu well deserves its name as the Paradise of the Pacific, and raises hopes as to what may be found in Fiji, which hopes are not to be disappointed. The Fiji

Isles are a sub-tropical group of some couple of hundred islands of all sizes and varieties. They are mostly of volcanic origin, and surrounded by coral reefs. The vegetation is rank and exuberant in places, while in others grass-covered mountains predominate. Some of the river scenes are of unsurpassable beauty; the vivid greens of the tropical shrubs and creepers bathed in golden sunlight make a succession of ever-changing scenes, both restful and pleasing to the eye. Coconut, banana, and sugar cane planting are the staple industries of the colony, but tea, tobacco, and hemp



Diesel Generator S. I. at Suva

are also cultivated. An excellent steamship service provides a good means of getting these products to the Australian and New Zealand markets.

The Fijians have evolved, in the course of a generation, from a barbaric race to a peace-

A large coloured element in Fiji are the immigrant Indians from Southern India. These people are brought from India each year and indentured to planters in the Islands. At the expiration of their term of service they are at liberty to return to India, or remain on in the



View of Suva looking across the Harbour.

ful, happy people, living comfortably on the rents of their lands. A Fijian is no lover of work, and it was with difficulty that the requisite number of "boys" could be got together to help in the erection of the stations. They had to be tempted to toil by offers of extra food, money being a matter of comparative indifference to them. In his native village the Fijian is clean and orderly, though he is inclined to be lazy. A "disease," unfortunately only too prevalent among the whites as well as the natives, is malua fever (bye-and-bye fever)—the practice of never doing to-day what can be put off till to-morrow. A frequent answer when a boy is told to do anything is "Malua"! The natives are usually hospitable and courteous to visitors who penetrate into their villages, and one is generally asked to partake of some kava—an infusion of the root of a shrub, and a popular drink throughout the South Seas. It is excellent to quench one's thirst, and taken in moderation is of value medicinally. An overdose, however, results in temporary incapability of one's lower limbs. In taste it resembles soap-suds with a dash of pepper. The ceremonials attendant with kava drinking are varied and extremely artistic.

islands. In very few cases do they return to India, and as a consequence the population is being rapidly increased. The Indians already greatly exceed in numbers both whites and Fijians combined. They are a very different people from the happy, smiling Polynesians. Mercenary and crafty, with an habitually sullen expression, they regard one's every action with mistrust, and suspect everyone of continually trying to "do" them. In a word, they judge others by themselves. Still they fill a gap, as, unlike the Fijian, they will sell their very souls for "pica."

Life on the stations possesses many fascinations, and it is delightfully free from conventionalities. The white population are extremely hospitable, and new comers to the Islands are welcomed with open arms. The erection was carried on in great comfort, as it was possible to live on the site in the station quarters, and also to keep the labour close at hand.

In the evening, when the "knock-off" bell had gone, the boys all cleared off for a tub, and then sat down to their "ki-ki" (food). This consisted of rice and canned meat. Having consumed a prodigious quantity, they idle around their fire or decorate themselves with

banana leaves and creepers, and commence singing one of their weird native "mekes"—a crude melody accompanied by a rhythmic motion of the hands, heads and legs. The volume and quality of their voices comes as a surprise to the stranger, and their mode of singing is extremely novel. A leader keeps time by beating on a log with two sticks. A very popular song among the Fijians is "I never shall forget you." They always favoured us with this when they were specially pleased with the day's work, or when we presented them with tobacco or kava.

The Fijians behave like overgrown children, and if anything untoward happens they go off into peals of shrill laughter. This is particularly annoying, especially if a couple of hundred feet of aerial wire gets kinked into a hopeless muddle, and while one stands in the fiery heat of a midday sun trying to unravel it, a group of Fijians are standing around as if it had been done for their entertainment.

An incident at Lambasa brought out the irresponsibility of the native in a striking and almost tragic manner. Two men were being lowered in a bo'sun's chair from the working cage by a couple of boys. Without warn-

ing one of the boys walked away, and the extra strain pulled the winch handle out of the other's grasp. Had not a nigger, employed in the mast erection, instantly run up and caught the flying handle on his chest—a plucky and risky thing to do—a nasty accident might have resulted. The native interest when the condensers splashed at Suva, and during the rock blasting at Lambasa, was exceedingly amusing. A volley of rifle shots could scarcely have shifted them quicker.

The Southern Pacific is an evergreen memory to all who have been fortunate enough to spend any time there. Reflecting on a sojourn there after returning to London, one fully realises the truth of the remark:—

"The price of the journey is not altogether covered by steamship fares and the hotel bills. To these the voyager must be prepared to add the red-gold coin of a little heartache, the heavy silver of a little longing, paid down on the counter of life for long months after the journey is a memory of the past. There is no quarter of the wide earth's surface that holds the heart so strongly, no beauty of the world's many tropical lovelinesses that haunts, and returns, and calls like the realm and the beauties of the sunny South Sea Islands."



The Marconi Construction Party. The Engineer in charge was Mr. J. J. Leary, who is shown seated in centre of

Bunting's Goddess.

A Tale of a Wireless Station.

WE were all agreed that Bunting should never have joined the "wireless" service. He had taken the step in the innocence of a heart fired with stories of wireless appeals for help at sea, and of the trans-ocean pursuit of criminals. These he regarded as daily events in the lives of operators; and he felt aggrieved when he found that he was merely a link in a chain of communication for the benefit of business men and other soulless people who were inclined to use codes. Garston, who was a sarcastic recruit from the cable service, declared that Bunting was attracted to wireless telegraphy because he thought that the "x's" which disturbed the peace of the operator were genuine kisses, and not atmospheric electrical freaks. Bunting replied that he had never in his life hugged such a delusion; and Garston admitted that Bunting was not likely to embrace anything so unsubstantial.

However, we were very pleased to have Bunting with us at what I may call "X" Station. Like most wireless stations, it stood on a bleak headland, with one leg in the sea; and it was three miles from the last outpost of civilisation—the fully-licensed Moor Hotel. Bunting was quartered there, and when he came on duty he supplied us with much-needed comic relief. His three-mile walk (the "road" between the hotel and the station was beyond any vehicle except an aeroplane) put him in a bad temper, which he vented in words that banged and rattled like our high-power transmitter. In the intervals of work he would sing ballads in a falsetto tenor; and he never let a day pass without telling us one or more of his adventures with a young lady who alternated between the stage of the "Frivolity" and an apartment house in Tulse Hill.

The Operator's Romance.

One morning he arrived looking as I imagine Mr. Martin Harvey would look if he were representing Sydney Carton after a fearful night. He glared at us and flung himself into a chair.

"Just my infernal luck!" he groaned.

Garston went up to him and patted him on the head.

"Poor boy!" he said. "Has Yvonne fled from Tulse Hill with the stage manager? Fortify yourself with the thought that you are the last—that is to say, the latest—man to be

deceived by woman. Centuries ago a French king scratched the following couplet on his prison window:

*"Souvent femme varie,
Bien fol est qui s'y fie."*

Bunting jumped to his feet.

"Bosh!" he cried. "I had not even the chance to be deceived by her."

"After all these adventures?" began Garston incredulously.

Bunting waved his hand, as if dismissing Yvonne summarily by the O.P. side.

"I met her last night," he said solemnly.

"A woman!" I murmured. "Last night?"

"Another dream," commented Garston mournfully.

"She was incredibly real," exclaimed Bunting. "incredibly real and incredibly beautiful! Figure to yourself"—Bunting had been to Boulogne several times and considered he had a right to appropriate a French phrase if he wanted—"my feelings when I got back to the hotel last evening, at sunset, and came round the north-west corner and saw, sitting on the bench where I have kicked my profane heels for hours, the most radiant vision of a female that I have ever seen here, or in Paris, or——"

"Or in Tulse Hill," interjected Garston.

"The sunset light was full upon her," continued Bunting, "illuminating a face and figure that would have killed Venus and Diana with envy. I say no more. I gazed, I stood, I was conquered. In a flash I recollected that she and I were alone in the desert, as it were. Introductions would, of course, be superfluous. I put on my 'C.Q.D.' smile and advanced——"

"Yes?" said Garston. "You advanced, you grinning idiot, and she retreated—fled—bolted, no doubt, to the bar-parlour as the most convenient refuge."

"Wrong again! She had the sun in her eyes, and did not see me. But at the moment of my determined advance another man also advanced round the south-west corner. I foresaw a collision—perhaps blood. She solved the difficulty by turning to him and saying, in the sweetest and most natural voice imaginable, 'What a long time you have kept me waiting, George.' Then she took his arm and strolled off with him, not so much as glancing at me—me, with black murder in my heart."

"George?" muttered Garston. "What a name!"

"I suppose it was Yvonne?" I asked.

Bunting replied in language which startled me, even though I have been the bosom friend of many a Scotch engineer on board big liners. Maurice Hewlett would have been glad to pick up some of his rich, old, highly-embroidered words. I gathered that Yvonne was related to this monopolised beauty as a worm is to a divinity.

"Well, there is nothing for it," said Garston coldly. "We must kill the man."

"Too obvious," commented Bunting. "Besides, it is an axiom in affairs of this kind that the death of a lover does not divert the affections of a woman towards the murdered."

"You are an expert," admitted Garston, "so I suppose you are right."

"Who is she, anyway?" I asked.

"I don't know," replied Bunting. "A woman's name is the last thing I think about."

Garston told him he was an unscrupulous rascal. Bunting was too depressed to explain—as he usually did with desperate solemnity on such occasions—that he did not mean what he had appeared to mean. He went on duty with the air of a Suffragette entering Holloway.

Materialisation of the Goddess

Next day he brought us the refreshing information that her name was Rosa. Incidentally he had learned that the man's name was Johnson. Bunting was not the kind of man to call a vision of loveliness Mrs. Johnson upon any consideration whatever. It was as Rosa that she entered the endless procession of Bunting's goddesses. It was about Rosa, Rosa, that we heard day by day. Beginning by being perfect, she proceeded to be super-perfect, in spite of the gloomy proximity of a husband. There was one radiant day when she had actually said "Good morning" to him at the entrance to the hotel. There was another glorious occasion when he had been privileged to stand aside and let her walk past him in a corridor. For these thrilling moments he had paid in full by submitting to a few conversations with the too faithful husband—a young man who could be induced to talk about nothing but the weather and the fishing.

Garston and I paid a few visits to the hotel in the hope of being allowed to gaze upon this divinity. But on each occasion she had disappeared with her satellite into some recess of the landscape. We were extraordinarily disappointed, for even Garston had become infected with Bunting's fever of worship. He concealed his symptoms under Iago-like remarks which drove the perfect lover to a frenzy. Nevertheless, it was he who arranged the official letter offering to extend the courtesies of the station to Mr. and Mrs. Johnson.

They accepted. And if Bunting's heart had

not been very strong the news would have put a sudden end to his interest in love and everything else. He survived, because he looked forward to a possible extinction of the husband. The man might take a fancy to sit down upon the alternator, or lean against the whirling belt—anything simple and effective might occur in a wireless station. Apart from that, it was he—Bunting himself—who was to have the honour of explaining everything to HER. He was to tell her the whole story up to the magnetic detector and the bridging of the Atlantic.

We had a dreadful time with him until the day of their arrival. Garston had to administer doses of bromide to keep him at his post. Two hours before the visitors were due to arrive Bunting went to the look-out with a telescope. When he had at last sighted them he rushed around the station like a whirlwind to see that every nut and every bolt was in readiness to do homage.

The Station Welcome

Then a surprising thing happened. As soon as they crossed the threshold Bunting became cool and collected, as if he were a past-master of ceremonies. He made a formal little speech of welcome, and introduced Garston and myself with felicitous and flattering remarks. Then he led them slowly round the station, explaining everything with the conviction and simplicity of an expert. Thus I had ample leisure to study the goddess. She was pretty, certainly, and had a wilful, commanding air which was attractive enough. Her husband was a quiet, determined individual. They were dressed in what I believe to be the prevailing fashion in good society.

Everything went ahead on orthodox lines until Mrs. Johnson asked a question.

"I suppose," she remarked, "that you get many curious messages through at times?"

Bunting smiled, as a Foreign Secretary might smile if a lady suggested that he knew one or two State secrets.

"Frequently; oh yes, quite frequently," he replied. "If I were not under the oath of secrecy I would entertain you for hours with examples. A recent one I may, however, mention to you, as it is practically public property. Some rich, old gentleman has been spending hundreds of pounds in frantic messages to all the liners, and in replies to their replies. 'Have you on board,' he asked, 'a lady in a long coney-seal coat, and hat with white wings, who has decamped with an unscrupulous adventurer dressed in a green lounge suit with green Homburg hat?' He offered to pay all the expenses of the answers, and so— But, of course, you will have seen all about it in the papers?"

"We read no papers," broke in the husband.
 "Oh, ah! Well, we have been kept busy with the answers, I can tell you. It appears that the old man returned from a Continental visit to find that the penniless blackguard had got ten days' start with his daughter, who has pots of money in her own right. The foolish girl and the fortune-hunting scamp were traced to Liverpool; there was a rumour also that they had slipped down separately to Southampton. Anyway, they got to sea somewhere and somehow, and it remained for the Hertzian waves to search them out. Our service has, in fact, proved so successful that they have been discovered on six or seven boats—which is impossible, as Euclid used to say. There was a nasty scene at Lisbon, where the detectives dropped on a mining engineer and an English governess, who had nothing to do with the case. At present, according to the conviction of several sea captains, the villain and his dupe have divided themselves into five separate entities, and placed themselves on five different vessels."

Station Hospitality

Bunting rattled ahead about the scandalous elopement until Garston drew our visitors gently away for a cup of tea—the limit of station hospitality. During tea, Bunting switched off to the stories of heroism at sea. There was one, I remember, about an operator whose ship had been sunk in six fathoms of water. He had continued to send the C.Q.D. signal for ten hours, sustaining himself by the ozone emitted by the condensers.

After their departure Bunting sank into a chair, limp and exhausted.

"I have done my best," he gasped.

"The Admirable Crichton could not have done better," commented Garston, "but some of your yarns were as tall as our aerials."

"They appealed, though; they appealed." Bunting claimed feverishly.

"They seemed bored about the runaway couple," I remarked. "I expect they only pretended not to know about it."

"They are in love," sighed Bunting. "They are deaf to the thunders of the ether."

"Bosh," said Garston. "They were probably runaways themselves."

As he spoke the words his expression changed. He made a sudden dive towards a higgledy-piggledy pile of newspapers and magazines on the table, and began turning them over in a frenzy of haste. A second search gave him the one he wanted. He opened it and thrust the page against Bunting's nose.

"If you have got any eyes to see," he shouted, "look!"

Bunting looked. I looked. And there fell

upon us a cold and awful silence, broken at last by Garston in his most acid tones:

"There's a reward of £500 to the man who gives the first information."

Bunting sprang to his feet and then sank back again.

"Gentlemen . . ." he began feebly.

"That's all you need to say," remarked Garston.

Bunting told us the rest of the story with tears in his eyes. He had taken the first opportunity of an interview with them.

"I think it only courteous to inform you," he had said, "that your identity is known to us."

They had looked at each other with a smile.

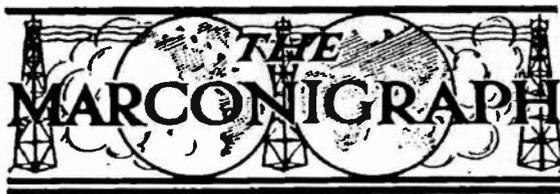
Then the goddess had exclaimed: "Oh, Mr. Bunting!"

That was all! That was really all. They had not asked Bunting whether he had earned the £500.

They went quietly back the very next day to make peace with the enraged father. Evidently the goddess managed it with her characteristic skill, for we read in the newspapers of a confirmatory wedding celebrated with a huge amount of pomp.

We abolished our savings in sending the bride and bridegroom a present. And a little later there came a gold chronometer and chain for Bunting and a trifle for Garston and myself, "in acknowledgment of the courtesies of the station."

Major S. Flood Page, one of the directors of Marconi's Wireless Telegraph Co., Ltd. speaking at a meeting of the London Chamber of Commerce on April 18th (at which he was elected a member of the Council), said that all those who were connected with wireless telegraphy were dissatisfied with what had taken place in America during the 'Titanic' disaster. Such a thing could not happen in England. The United States was the only country in the world where the telegraph system did not belong to the Government. There was apparently little control over any telegraphic communication, and, unfortunately, it had become the fashion in the United States to have what was called "amateur wireless." That was impossible in England, because no man could practise wireless telegraphy, even for experiments, without a licence from the Post Office. This should be borne in mind when they read about the feeling of terror caused by the fear lest Marconi wireless messages might be tapped. The present experience had produced one satisfactory result, as President Taft had announced that he would bring a Bill before Congress so that such occurrences should not take place again.



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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 the various Marconi shares continues one of the most active features of the Stock Exchange. The ordinary shares which were quoted in our last issue at 5¼-½ have risen in the past month as high as 9¼.

During the month the shares of the American Marconi Company were introduced on the London market. The capital of this company has been increased to £2,000,000 in shares of 5 dols. each. There has been very active dealing in these shares, which had previously only been dealt in in America.

The shares opened on the London market at 3½, and were quickly bid up to 3¾, but after the price fell away on profit taking from America, the shareholders in the old company having a right to subscribe for the new issue on such advantageous terms, they sold largely on the opening of the market here.

The present prices of the various issues are :

Ordinary	8½-¼
Preference	7½-½
New Shares	5½-6½
Canadian	32/9-33/3
Spanish	2½-½
American	2½-½

The American Marconi Co.

The following is an extract from the directors' report of the American Marconi Company for the year ended January 31st, 1912 :

"The balance-sheet shows that during the past year fairly satisfactory business has been done and advances made in the progress of the Company. In accordance with the conservative custom heretofore prevailing, our auditors (Messrs. Deloitte, Plender, Griffiths & Co.), have deducted for depreciation on all station and experimental work the usual 10 per cent., and it is pleasing to note that after such deduction a working balance remains, also that after writing off the loss standing to the debit of profit and loss account, a small amount stands to the credit of this account. During the latter part of the year 1911 your Company extended its activities to the Pacific Coast, and while operations have been established there since the latter part of November only, fourteen vessels, both passenger and freight, have been equipped; stations have been erected at San Francisco and San Diego, and although there has not been much time in which to try out matters fully, receipts shown to date are eminently satisfactory. It is the intention of your company to erect other stations on the Pacific Coast, at most prominent points, so that the service on

the Pacific Coast will rank in order with the very efficient and continuous service now provided by this company on the Atlantic Coast. Following the very favourable decision in the patent action which was obtained in England by Marconi's Wireless Telegraph Company, Ltd., of London, your company has commenced actions against various users of wireless apparatus, which it claims infringe the Marconi basic patents, notably against the United Wireless Telegraph Company and the Clyde Steamship Company, the New England Navigation Company—using apparatus supplied by the Massie Wireless Telegraph Company—and the National Electric Signaling Company—which operates under the Fessenden System. Evidence has been submitted in some of the cases; an early trial before one of the judges of the United States District Court will be had, and, without prejudging the case, we think we may confidently look for a decision in our favour similar to that obtained in England. Matters of great importance, both regarding the welfare of this company and also of the entire Marconi System, are now pending; these matters cannot be discussed in full as yet, but it is hoped that developments will have so far progressed as to enable a full statement to be made at the annual meeting."

Since the above report was issued the actions against the United Wireless Telegraph Company and the Clyde Steamship Company have been settled completely in the favour of the Marconi Company, both the defendants having acknowledged the validity and scope of the Marconi patent, admitted their infringement, and submitted to permanent injunction in favour of the Marconi Company.

The Belgian Company's Report

The annual general meeting of the shareholders of the *Compagnie de Télégraphie sans Fil* (the Belgian Marconi Company) was held at Brussels on May 1st. The directors' report showed that during the year under review the number of maritime installations controlled by the company was seventy-four. Twenty-eight new installations were carried out during the year ending December 31st, 1911, but, on the other hand, installations on board forty-two vessels were ceded to associated companies. During the same year the *Compagnie de Télégraphie sans Fil* participated in the construction of the *Deutsche Betriebsgesellschaft für drahtlose Telegraphie*, to which concern it transferred the stations operated on board German commercial vessels. The balance sheet shows the company to be in a very prosperous condition.

Lack of Coastal Stations in Chili

A correspondent of the *Times* remarks that the Pacific Steam Navigation Company's coasting steamers running through between Chili and Peru have now been all fitted with the Marconi wireless apparatus, which should be a great boon to passengers by these fine and favourite steamers. It is stated that, following this good example, many of the principal teamers of the South American Company (as Chilian company running on the coast) are also to be similarly fitted. Unfortunately the absence of Marconi stations on the coast detracts sadly from the benefits accruing from this important innovation, for apart from the Chilian Government station now being erected for military purposes at Arica and the Peruvian Government station in Lima, the entire coast from Valparaiso to Panama has no means of availing itself of the advantages of wireless telegraphy.

The correspondent omits to mention that the Marconi Company are erecting stations 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 wavelength 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.

A Wireless Compass

Mr. Bellini has joined the engineering staff of Marconi's Wireless Telegraph Company, which has been engaged in developing the Bellini-Tosi Directional System. An improved apparatus has been installed by the Marconi company on the s.s. "Mauretania," the results of which have been highly satisfactory. The company is now prepared to furnish ships with installations which will enable them in a fog to define their position, besides determining the direction of land or of an approaching vessel.

The Coastguard Services

The *Globe* announces that in future officers and men of the wireless telegraph section of the Coastguard Service will only embark in the fleet for 28 days' training once in two years, instead of every year as at present. In the case of the Signal Section no more embarkations in the fleet are to take place, but officers and men will undergo from 28 to 35 days' training once every four years in the Signal School.

The International Convention

Historical Retrospect

THE International Radiotelegraphic Convention will open in London on June 4th, and promises to be an event of great importance. The time is not ripe for dealing with the propositions which will be brought forward at the various meetings, but a few sidelights upon the past history of the Convention may help to a general understanding of the matters, which we hope to deal with in our next and succeeding issues. The Convention owes its existence to the practicability of Mr. Marconi's invention, and to the advance which he was able to make under the aegis of Marconi's Wireless Telegraph Co. The progress of the invention was carefully watched by the British Government from the first entry into the field of practical application. By the year 1890 the Marconi system had reached a point of development when the Admiralty thought it desirable to obtain sets of the apparatus for trial and two years later an agreement of a limited character was entered into between the Admiralty and the company for the supply of Marconi apparatus for naval use. In July, 1903, a further and more complete agreement was entered into. At that time the increasing use of wireless telegraphy for maritime purposes had raised questions of international interest, and it had become evident that on many points regarding the interchange of messages international agreement would be desirable.

A conference met at Berlin in August, 1903, on the invitation of the German Government. The outcome of that conference was that all the powers, with the exception of Great Britain and Italy, agreed to certain proposals to be considered at a subsequent conference for the international regulation of wireless telegraphy. The British delegates had been instructed to maintain an attitude of reserve owing to the position in which wireless telegraphy was at that time placed in the United Kingdom, the fact being that in the then state of the law the Government had not that control over wireless telegraphy which would have enabled them to enforce the provisions of the Convention. The Wireless Telegraphy Act, which was passed in 1904 for two years only, and which was renewed in 1906 without modification for a further period of three years, prohibits the installation or working of wireless telegraphy apparatus in the United Kingdom, or on board

British ships, without a licence from the Postmaster-General. Its principal objects were, by regulating wireless telegraphy, to make it more useful for purposes of defence and general communication. The memorandum which was laid before the House of Commons in explanation of the Bill stated that the necessity of legislation depended in the first place on the importance from the naval point of view of giving the Government control over wireless stations in time of war or emergency, and, secondly, on the desirability of placing the Government in the position to enter into an agreement on the subject with other countries if it should be found expedient to do so. The second Convention, after several postponements, was summoned for the autumn of 1906. The primary objects of that Convention may be classified under the following heads:

1. The acceptance and transmission of telegrams.
2. The adoption of rules of working.
3. The provision of means of collecting charges and settling accounts between the different countries.
4. Arrangements for the publication of all information necessary for inter-communication.
5. Rules to prevent interference and confusion in working with adequate provisions for enforcement.
6. Provision that, with certain exceptions, inter-communication must not be refused on account of the differences in the systems of wireless telegraphy employed.

A brief summary of the regulations agreed to at the 1906 Convention may be given here. The contracting parties were the Argentine Republic, Austria, Belgium, Brazil, Bulgaria, Chili, Denmark, France, Germany, Great Britain, Greece, Hungary, Italy, Japan, Mexico, Monaco, the Netherlands, Norway, Persia, Portugal, Roumania, Russia, Spain, Sweden, Turkey, the United States of America, and Uruguay. The plenipotentiaries of the governments of the countries enumerated above agreed, subject to ratification of the Convention. In some cases, notably the United States of America, the Government did not ratify the Convention, and the regulations in consequence did not apply. By the application of Articles I. and II. of the Telegraphic Convention of St. Petersburg, certain general

obligations regarding the acceptance and transmission of telegrams were imposed on all countries. The rules and working laid down coincided with those of the Telegraph Convention, and embraced the manner of calling from one station to another, of answering calls, the order and nature of the service indications, the signals to be used, the form of telegrams, etc. The principal object secured by the regulations regarding charges and accounts was that the whole charge in all cases should be collected from the sender wherever the radio-telegram might be handed in, and a system of accounting was framed which rendered this possible. Special provisions were required to meet the circumstances peculiar to radiotelegraphy to prevent interference. The range of effect, and, therefore, the range of possible disturbance, was said to be greater the more the energy used. It was therefore agreed to lay down that stations should not use a greater amount of energy than was necessary for the particular purpose in hand. Article XXVIII. of the regulations provides "that all stations are bound to exchange traffic with the minimum expenditure of energy required for obtaining effective communication." Inefficient apparatus or operators on board ships would naturally be a fruitful source of confusion. To prevent this Article VI. of the regulations laid it down that every ship and shore station must be licensed by the government to whose authority the station would be subject, and that no ship would be licensed unless the system was a syntonised system, capable of transmitting and receiving at a reasonable speed, and not using an excessive amount of power. It was further provided that every ship fitted with a wireless apparatus must also have a telegraphist licensed by the Government to whose authority the ship would be subject; and, in order to allow him to be licensed, he must have a competent knowledge of the adjustment of the apparatus, and be able to read by sound at a speed of at least twenty words a minute, and must have a knowledge of the regulations applicable to the exchange of radiotelegraphic traffic. Articles II. and III. of the regulations specify two wave-lengths of 300 and 600 metres for the service of general public correspondence. The normal wave-length on board ship was fixed at 300 metres. Wave-lengths between 600 and 1,600 metres were excluded from commercial use, and entirely reserved for Government purposes. Besides the above specified regulations, Article VIII. of the Convention requires that the working of radiotelegraph stations shall be organised as far as possible in such a manner as not to interfere with the working of other stations of the kind. The Convention defined the wave-lengths

used in commercial work, and reserved other ranges for naval, and others for trans-oceanic work. No regulations were made limiting the damping or maximum wave energy in a train which might be used. Since the last Convention the position with regard to wireless telegraphy has changed considerably. In 1906 it seemed to have been taken for granted that the Marconi Co. possessed no fundamental or basal patent rights in Great Britain in connection with wireless telegraphy by electric waves. It was assumed that anyone was free to employ antennæ for transmitting and reception and earth connections, or equivalent means at both stations with systems of spark telegraphy, or any other mode of producing electric waves. Since then the questions as to the scope and validity of the Marconi patents have been tested in the British and American Courts of Justice, and the validity of the patents has been fully maintained. Further developments of a far-reaching nature have been carried out, and the British Government have embarked upon a scheme of Imperial wireless communications, while the use of wireless telegraphy has been extended in every direction, and its beneficial services have been demonstrated on innumerable occasions.

A greater number of countries will be represented at the forthcoming Convention than at the Berlin Convention in 1906, and a great deal of interest will centre upon the proceedings.

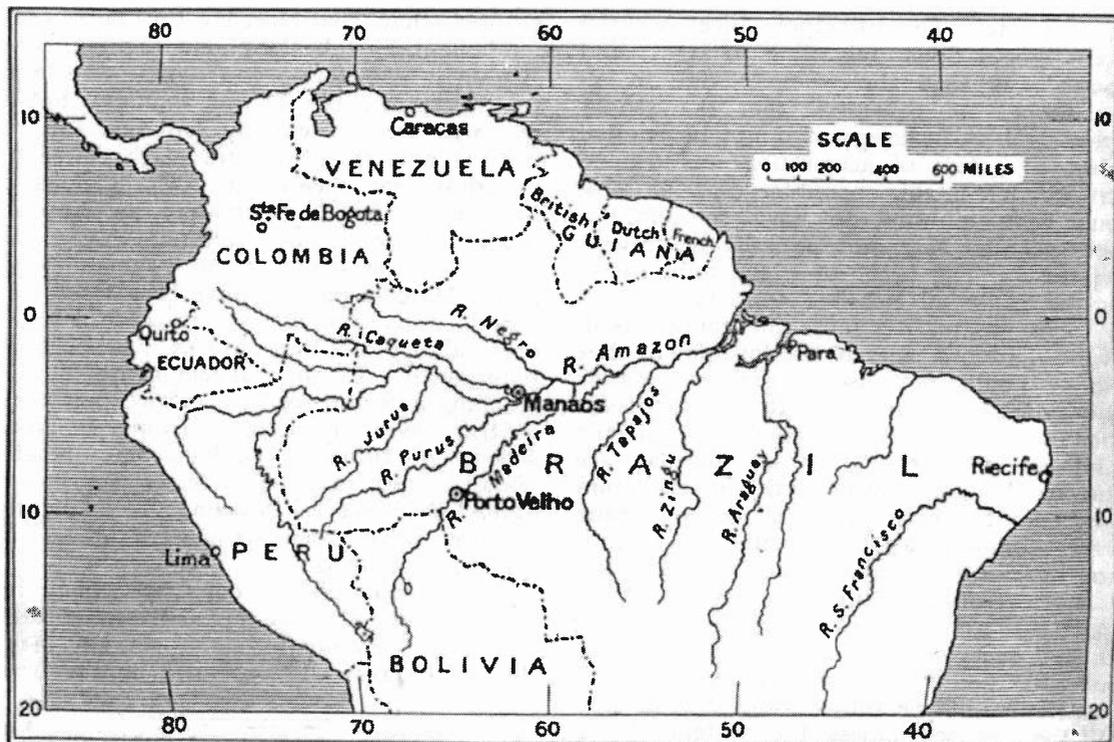
The Athens Station

Mr. A. B. Blinkhorn, who was engineer in charge of the construction of the big land station at Athens, has just returned from Greece. Among other works which have been carried out in Greece by Marconi's Wireless Telegraph Co., Ltd., have been the equipment of the yacht "Amphitrac" for his Majesty the King of Greece, and the H.M.S. "Averoff." The Athens station was handed over at the end of October, 1911, and the Government have expressed complete satisfaction with the land station and the ship stations, of which they have now had several months' experience. The Athens station is at present used only for naval purposes, but it may later be opened for public service, when all boats passing through the Suez Canal will be in range of it. Two submarines, which are being built in France for the Greek Navy, are to be fitted with Marconi apparatus for wireless telegraphy.

Lieutenant Athanasiadis has been appointed by Royal Decree the Director of Wireless Telegraph Service in the Hellenic Navy. Lieutenant Athanasiadis has made a special study of wireless, and spent some time in London.

The Wireless Mission to Equatorial Brazil

Some Notes on the Reception of Wireless Signals



Stanford's Geog. Estab., London.

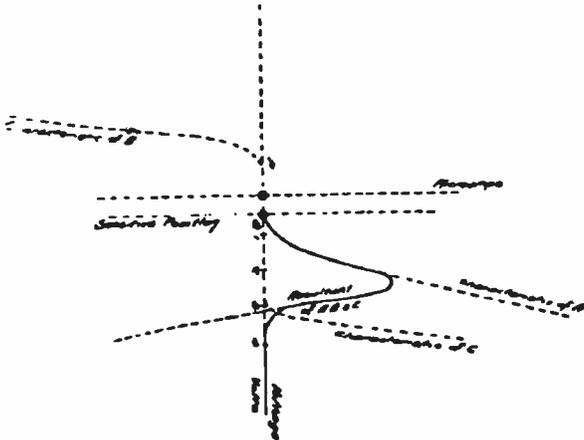
ON February 16th last a party of Marconi engineers and telegraphists left England by the Booth liner "Hildebrand" for the Upper Amazon, having as their destination the high-power Marconi station of the Madeira Mamore Railway Company. This company was formed to build a railway for effecting transportation over that portion of the Mamore river in North Brazil and the borders of Bolivia on which navigation is impossible. The actual length of the first section of the railway is 250 miles. Much might be written of the earlier attempts to construct a railway along this route, three companies having made attempts to do so, each attempt resulting in failure because of the deadly nature of the climate; but it was left to the engineers of North America to accomplish the task which proved beyond the powers of their predecessors, and when the final rail of the first section is laid next year, and the railway opens for traffic, an immense area of incredibly rich and fertile land will be opened to civilisation.

Two years ago the railway company, ham-

pered by the impossibility of communicating quickly with its engineering staff, arranged for the installation at Porto Velho and at Manaus of high-power Marconi stations, and it is through this medium that the chiefs of the construction department have been able to maintain communication during the building of the railroad now nearing its final stage. With the advent of commercial conditions, it will be necessary to make such alterations in the Marconi stations as will enable continuous day and night services to be maintained. There is no need to refer to the stations fitted up at Manaus and Porto Velho, for these were described exactly twelve months ago in THE MARCONIGRAPH; but a brief notice might be made concerning the difficulties of communication in this district and of the means adopted to overcome them.

One of the difficulties of constant communication in the Amazon basin is the incessant atmospheric electrical discharges, and to overcome this trouble a receiver has been designed, which is termed a triple balanced valve detector, in which are embodied most of the distinctive

features of the receivers evolved by five years' working across the North Atlantic. This new receiver, in which is employed a low resistance intermediate circuit with low condenser



losses, consists essentially of three low-vacuum Fleming oscillation valves with special filaments. Although the instantaneous current value of the "x" is very much greater than the instantaneous current value of the signal, the total energy is not much more, and if two valves with identical characteristic curves be opposed one to another, and a third valve with a steeper characteristic curve be added in opposition to the first valve, we have the resultant shown in the diagram, signals being rectified to a certain value, after which the combination becomes conductive both ways.

The "x's" being of a very high voltage are greatly reduced, and instead of coming in as crashing noises, are heard only as small, isolated clicks, and do not affect the reception of the musical note of the signals. By these and other means it is hoped efficiently to handle the expected addition to the already heavy traffic between the Porto Velho and Manaus stations.

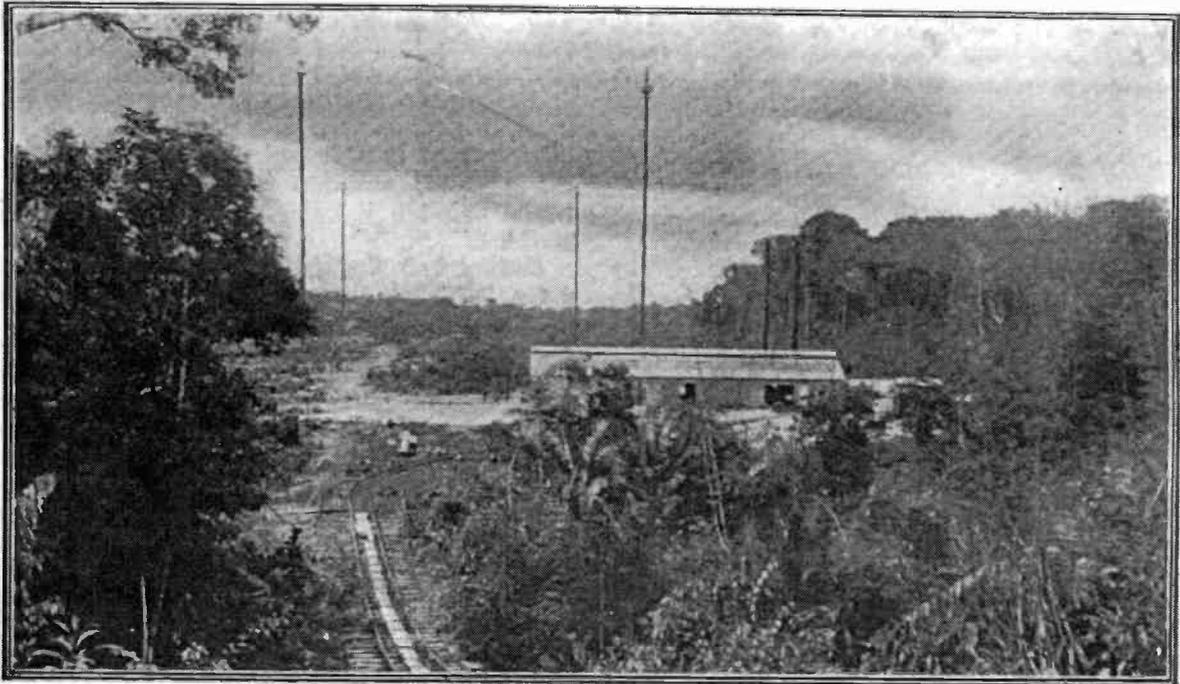
During the voyage of the "Hildebrand" some very interesting results were obtained in the reception of the daily Poldhu press intelligence, and the news has been received on an exceptionally small ship aerial up to a distance of 2,606 miles, which leads to the assumption that in the near future the monotony of a voyage to the Brazils will be relieved by the introduction of the daily ocean newspaper system, which is such a feature of the present-day western ocean passenger trade.

In addition, from the time of leaving Liverpool until arrival at Para, we have every night been in touch both with Clifden and Glace Bay. So much for the technical features of the enterprise; but no note on the Brazilian installations would be complete without a reference to the nature of the country encountered.

For days past the good ship "Hildebrand" forged ahead at full speed up the great river, and the mileage by the chart is well over the thousand. It is hard to describe the effect upon the traveller of this wilderness of yellow water. The Rio Amazonas is the greatest



Marconi Wireless Station at Porto Velho.



General View of Manaus Station.

area of virgin jungle in the world. In a broiling sunshine, it is difficult to realise that barely three weeks ago our party left Charing Cross in bitterly cold weather. The hot air reeks of vegetable decomposition. On either bank endless palisades of vivid, intensely green forest grow down to the water's edge, arrayed by countless varieties of clinging orchid and parasitic flower. Parrots fly screaming overhead; there is a quick scuffle of monkeys among the tree-tops, huge lepidoptera float by like sheets of orange and gold paper, and at one time we saw brown faces peering at us through the undergrowth as we passed. But it is when the purple robe of night descends

and the Southern Cross hangs luminous over the sleeping forests, that eerie noises and the calls of prowling animals mingle with the gurgle and ripple at our bows, and hosts of winged insects arise from the swamps and investigate the ship. Human life in the torrid equatorial cities on the banks of the Amazon—that mighty mother of rivers—is extremely rich and full. The modern Brazilian strikes the visitor as being exceedingly wealthy. He builds vast mansions and furnishes them regardless of expense, and sprinkles his lawns with iron and marble statues. To sit outside a café in Para and watch the endless stream of automobiles passing is a revelation.

The Uruguayan Decree

Commenting upon the decree which, as announced recently in the *MARCONIGRAPH*, has been issued, making it compulsory for all vessels conveying passengers between Uruguayan and foreign ports to have wireless telegraphic installations on board, the *Times* correspondent, writing from Montevideo, states that this decree will affect a considerable number of vessels of various nationalities for whom Montevideo is a port of call on their itinerary, but by no means the most important or one where they can look for passenger trade of any great extent. It is therefore doubtful how far they will care to comply with this somewhat peremptory decree, or whether they will not adopt the alternative of "cutting" a port that is already sufficiently unattractive

on account of the high charges enforced. In the latter case it is the port itself that will suffer. No doubt, at no very remote date, all passenger steamers will be provided with wireless installations, but they are hardly prepared to take the step at short notice, at the bidding of the President of a minor South American Republic.

The opinion of the English shipping agents in Montevideo is that, whilst the step is a bold one, they approve the idea in itself, but think that at least double the time should be allowed before the decree becomes effective, and that it should not be made quite so drastic at the outset. No doubt if representations to this effect were made to the President in proper form, some mitigation might be obtained.

The Awakening of China

THE Chinese upheaval is one of the most significant political events of the period. Now that the progressive forces have secured the guidance of the destinies of the Empire, it is not too much to expect a rapid development of the vast resources which China is known to possess. Another direction in which an advance is likely to be made is in the provision of facilities for radiotelegraphic communications. The nucleus for this already exists, thanks largely to the foresight and enterprise of the Italian Naval authorities. It may come as a surprise to many to learn that in the matter of wireless telegraphy, China has already a history. At the time of the Boxer rising about ten years ago, the question of erecting wireless stations at Peking, Tientsin, and Taku was brought to the notice of the Chinese Government by Marconi's Wireless Telegraph Co. In 1904, fearing a recrudescence of the trouble, it was arranged to equip a station at the Italian Legation in Peking and another at the Italian Settlement in Tientsin. The late Emperor of China was present at the inauguration of the station in Peking, but the newspapers, or at least those which were at that date untouched by the spirit of modernity which has at last awakened in China, invoked their Deity to protect the Chinese people against European aggression! However, the stations remained; and not only did they remain in active service under the control of the Italian Navy, but they rendered very valuable assistance to the inhabitants of the two cities during the recent revolution. Everyone flocked to the stations for news from other parts of China. The Japanese Government sent a warship (fitted with wireless) to Taku, thus maintaining communication between the legations and the coasts. To render the service more effective, a number of Japanese sailors were instructed to operate the Peking Station, inasmuch as they were better able to communicate rapidly in Chinese signals. It is not difficult to understand how invaluable were the services of the wireless stations on the occasion referred to. The dread of death which filled the minds of foreigners dwelling in the disturbed areas was to no small extent assuaged by the knowledge that communication with the outer world was not interfered with; bankers and merchants could communicate with their clients and principals abroad. Telegraphic communications are invariably the first to fall before the fury of the sword or the ravages of fire, but the message transmitted from the wireless station emerges triumphant through the stress and turmoil of storm or battle.

It may be added that before the outbreak of hostilities the old regime had under consideration the question of the establishment of wireless telegraph communications, but owing to the unsettled state of the country they were unable to proceed. The enlightened President of the New Republic, Yuan Shih-Kai, has been favourably impressed by the success of the existing stations, and there is little fear that, under his able guidance and inspiration, China will lag behind other nations in this matter. In taking a further step towards the development of wireless communication in the Chinese Empire, they can gather splendid encouragement from the British Government and from the Governments of British Dominions across the seas, whose great scheme of wireless communications will, when completed, make for the more effective consolidation of the Empire.

Mr. Marconi in New York

Referring to Mr. Marconi's visit to America, the New York correspondent of the *Daily Telegraph* sent the following despatch:

"Mr. Marconi's modesty is compelling the wonder and admiration of American Pressmen. He came here to prove that the United States Wireless Company has been infringing his patents, and the company surrendered almost without a struggle. But Mr. Marconi has not boasted about the victory, and he has not availed himself of the services of the publicity agent to boom his fame and his enterprises.

"Such self-effacement is almost incomprehensible here, where nearly everybody with goods or brains to sell has a highly paid Press agent, usually a clever reporter, whose mission in life is to keep the name of his patron in the public prints at all seasons and at all costs. Mr. Marconi has not suffered by his modesty, and it is a tribute to his genius to say that the reporters have sought him more zealously than any other recent arrival from Europe.

"Mr. Marconi told an interviewer that he believed the day of wireless wonders was only just dawning. 'I believe,' he said, 'that in the near future a wireless message will be sent from New York completely round the globe with no relaying, and will be received by an instrument located in the same office as the transmitter, in perhaps even less time than Shakespeare's forty minutes.'

"Most messages across the Atlantic, Mr. Marconi predicts, will probably go by wireless at a comparatively early date. 'In time of war wireless connections will be invaluable,' continued Mr. Marconi. 'The enemy can cut cables and telegraph wires; but it is difficult seriously to damage the wireless service. The British Empire has realised this, and is already equipping many of its outposts with wireless stations.'"

Poldhu—An Impression

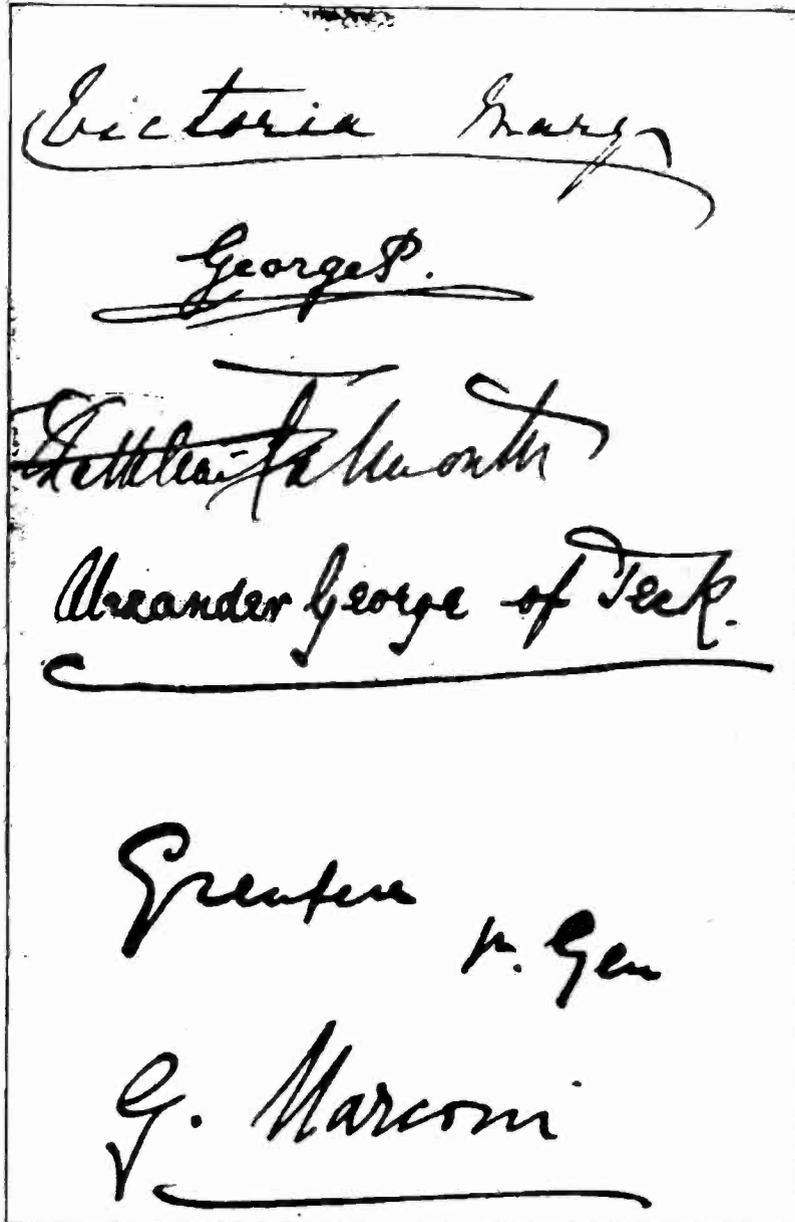
TWO steel poles, each 240 ft. in height, are being erected at the Marconi station at Poldhu, where the transmitting plant is being duplicated. The new set will consist of a turbine-driven alternator with direct current disc. Poldhu is destined to play an important part in communication with the newly-opened Spanish stations.

To undertake a pilgrimage to Poldhu, one of the revered shrines of Mr. Marconi's genius, where the beginnings of transatlantic wireless telegraphy were made about eleven years ago, is no enviable task. Up to the present the Royal Geographical Society has neither sent me a medal nor even asked me to describe the hardships of the journey in a lecture; but learned bodies always move slowly, and it is possible that they are still incredulous of my exploit. The wooden towers are kept in sight during the greater part of the dreary drive from Helston to Poldhu, and the announcement that these towers are to be superseded by steel poles will occasion more than one passing regret to those who had

come to regard them as symbols of a mysterious world.

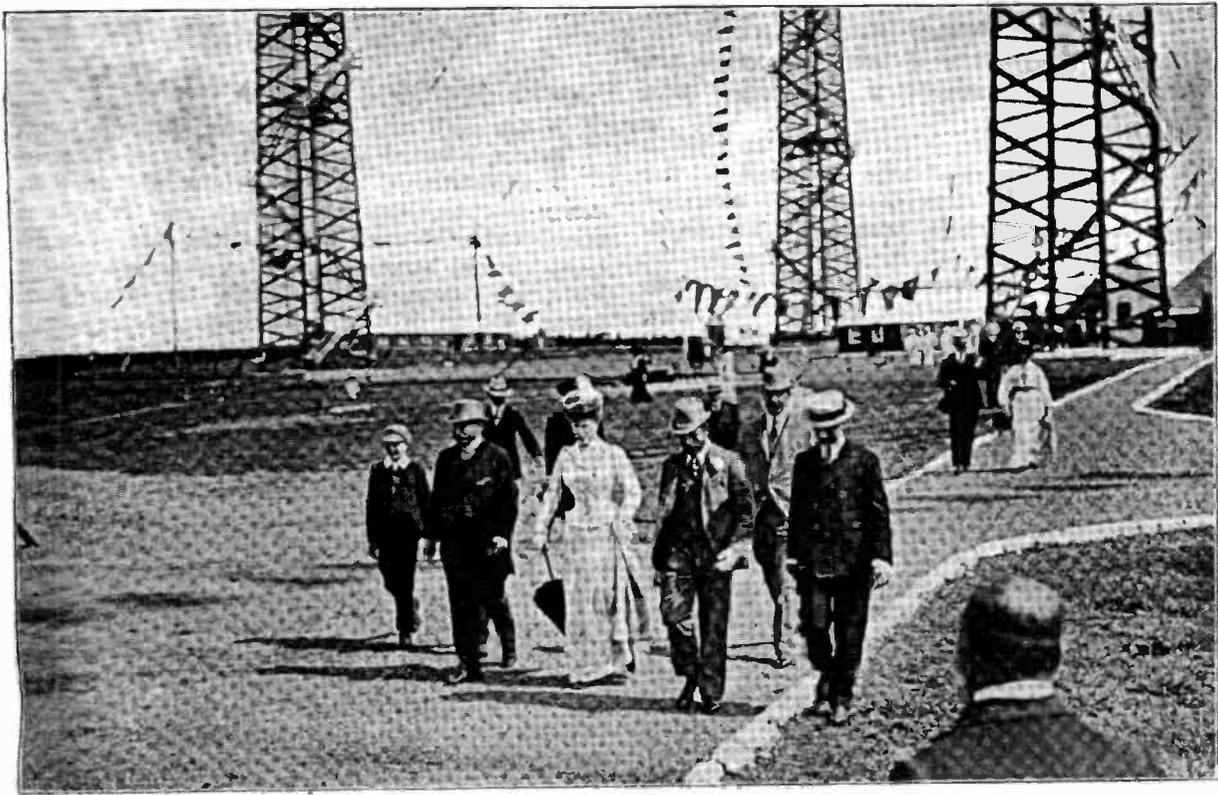
A visit to Poldhu is like a visit to a world of unreality, where those things in life which we count the most real or material one by one drop into dreams. Landor was uttering

no paradox when he exclaimed, "It was a dream! Ah, what is not a dream?" He was merely putting into one of those haunting lines in which he excelled a profound truth. Poldhu is entirely suggestive of a dream, and it emphasises the usual experience in life that the more of a reality to-day the more of a phantasm is to-morrow. An eminent scientist to whom electrical phenomena are a matter of everyday study, said in 1899: "No familiarity with the subject removes the feeling of vague wonder with which one sees a telegraph instrument, merely connected with a length

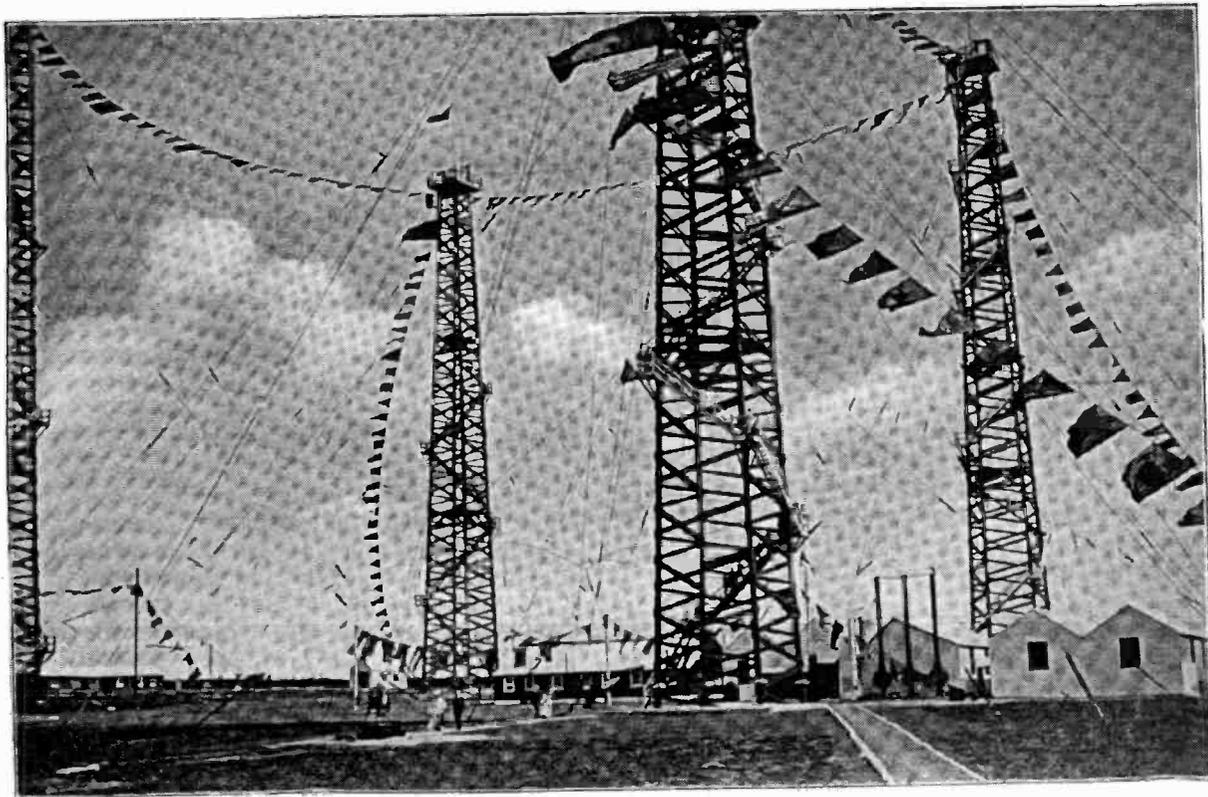


Signatures of the Royal Party Visiting Poldhu on July 18th, 1903. (Preserved in the Mullion Hotel.)

of 150 ft. of copper wire, run up the side of a flagstaff, begin to draw its message out of space, and print down in dot and dash on the paper tape the intelligence ferried across thirty miles of water by mysterious ether." There was a time when such an achievement was mistaken for something convincing. To-



Their Majesties (as Prince and Princess of Wales) on a visit to Poldhu Station, July 18th, 1903. Accompanying Their Majesties were Prince Alexander of Teck, General Lord Grenfell, Lady Falmouth and Mr. Marconi.



The Wooden Towers at Poldhu.

day, when the bridging of the Atlantic by wireless telegraphy is a mere commonplace matter, the achievement of 1899 pales into insignificance.

There is no glitter or movement at Poldhu such as gives an impression of reality; the station would seem to be formed and moulded by the country in which it stands. The hardness and bleakness of it, the inexpressible charm of it, the soft airs pungent with salt, above all the secretiveness of the low-lying buildings and impressive towers, standing on the black rocks jutting far out into the ocean, and lashed by sea foam of dazzling whiteness—all these tend to mystify one rather than to awaken the perception to the actual significance of the station. Then, perchance, occurs the memory of some great ocean tragedy, in which life and property have been saved through the timely intervention of wireless telegraphy, and at once there is awakened a full consciousness of the marvellous power of the modest-looking buildings, where are housed the apparatus and devices which deprive one of one's fear and detestation of the sea. To some the sea is a treacherous, restless, slimy creature, glorying in the griefs of humanity. The mysterious ether waves connecting ocean-going vessels with the shore rob the sea of many of its terrors.

As night descends upon the tranquil scene Poldhu station assumes a garb of suppressed animation. The great Atlantic liners "stand by" in mid-ocean to receive the latest accounts of the day's happenings through this station, so that the roaming populations on board the large liners may be well versed with the world's affairs. That it should be possible to actuate an instrument from a distance of hundreds or thousands of miles, and oblige it at will to reproduce audible signals without the aid of any continuous artificial conductor, strikes the mind as being an achievement both wonderful and mysterious, and we return to grasp at the everyday dreams which we call hard fact. Shelley foolishly thought he could fathom the mysteries by escaping out of the twilight into the dark. He had the extraordinary delusion, when his friend plucked him out of the bottom of the river, where he lay like a conger eel, that in another moment he would have solved the riddle.

To facilitate navigation at the mouths of the rivers Obi and Jenessei, orders have been given by the Russian Department of Posts and Telegraphs for the construction of wireless telegraphy stations on the island of Vaigatch and on the coasts of the Jaidaran Gulf and the Jugorski Straits.

"Coffin Island"

Wireless News from Pulpits

IN the Gulf of St. Lawrence, lying between Prince Edward Island and the west coast of Newfoundland, lies a group of thirteen storm-swept isles—the Magdalen Islands—connected with each other at low tide by sand bars. From November to May they are cut off from all communication with the mainland, except for an occasional wireless message, and no ship dare approach them during that season, on account of the lack of proper harbours.

An ominous title is that of Coffin Island, so called, however, from Admiral Sir Isaac Coffin, who received a grant of the whole group at the end of the eighteenth century; the title still being in the name of his descendants, who, according to various accounts, have the right to demand a rental of one shilling an acre, with the proviso that it be paid when convenient. There is a population of over three thousand, mostly French Canadians, who originally came from Nova Scotia, simple fisher-folk, who are protected by the Dominion Government from the intrusion of American fishing smacks within the three-mile limit.

As may be imagined, they are cut off from the outer world and its news during the winter season, and the Dominion Government has determined to remedy this privation. The Postmaster-General, Mr. Louis Philippe Pelletier, has engaged the editor of the *Quebec Chronicle* to write a news-letter of 1,000 words. Mr. David Watson will mail his news on Tuesday to the Marconi station at Pictou, from which it is to be transmitted to the receiving station at Grindstone Island.

The operator there will send copies to the Roman Catholic clergymen at Etang du Nord, Amherst, and House Harbor, who will translate the message into French. A copy will also go to the Church of England clergyman at Grindstone. On Sunday these news-letters will be read by the pastors to their respective congregations after service, and it is expected that from now on the churches will be packed to the doors.

The first week's budget of news, which somewhat exceeded the stipulated length, good measure being given to celebrate the occasion, touched upon the following subjects:

The passage of a Bill in the Dominion Parliament to pay the Grand Trunk Pacific Railway a Government subsidy of \$10,000,000; the derailing of a train on the Grand Trunk Railway; the election of Yuan Shih-Kai as President of the new Chinese Republic; a report on winter navigation up to Quebec and the improvement of Quebec Harbour (both of vital interest to the islanders).

The Conquest of the Air Wireless Telegraphy and Aircraft

THE question of fitting aircraft with apparatus for wireless telegraphy is of increasing interest, as year by year these machines become a more reliable means of taking observations of military operations. The problem has been to design apparatus which will conform to the limitations of weight and provide an efficient aerial system for transmission and reception. Marconi's Wireless Telegraph Co. have of late given considerable attention to this problem, and have been conducting some important experiments with a view of solving the various technical problems. The field of the more recent experiments has been the Army aircraft factory at South Farnborough. Late in March an Army aeroplane went out for a short flight fitted with a clockwork V. sender, and from it good signals were received. Early in April similar experiments were carried out, and in these Captain Dawes, of the Air Battalion, went as a passenger, and transmitted his observations to the receiving station at the factory. The messages which he sent were very clearly received, and later the machine flew over an area of about three to four miles radius from the aircraft factory, and Capt. Dawes was able to report on the movements of troops manœuvring in the vicinity. These reports, which would have been of the utmost military value, were taken down at the receiving station, which was in touch with the aeroplane during the whole of the flight. On the third circuit Capt. Dawes himself received the messages which the Marconi operator transmitted from the aeroplane. The success of these experiments, which were for the purpose of demonstrating the efficiency of the special Marconi apparatus employed, proves that at a not far distant date the company may expect to maintain communication both ways with an aeroplane up to a radius of 100 miles.

A memorandum on naval and military aviation was issued during the month by the War Office, giving further details of the scheme which, in the debate on Army Estimates on April 4, Colonel Seely informed the House of Commons had been adopted by the Government, on the recommendation of the Committee which, under his chairmanship, had been commissioned to consider and report on the whole subject. At the central Flying School to be established on Salisbury Plain it is satisfactory to note that "signalling by all methods" will form one of the courses. The purposes for which aeroplanes will be required

inland are: reconnaissance, prevention of enemy's reconnaissance, inter-communication, observation of artillery fire, and infliction of damage on the enemy. The total number of aeroplanes required for the seven squadrons of the military division will be eighty-four. As regards the use of airships for military purposes, the memorandum proceeds: "Careful consideration has been given to the question of whether airships should still be used for military purposes. The airship possesses the great advantage over the aeroplane in military warfare of being able to receive messages by wireless telegraphy; it is also able to transmit to greater distances."

American Notes

WIRELESS amateurs in Cincinnati, Ohio, have organised a Jack Binns Club, which is to be a meeting place for the discussion of wireless matters.

The navy department have changed the name of four of its large wireless stations as follows: Cape Elizabeth to Portland Me., Point Loma to San Diego, Cal., Table Bluff to Urecka, Cal., and Unalaska to Dutch Harbour.

The navy department at Washington have adopted the word "radiogram" to designate a wireless message. Attention has been called to the fact that the words "radiogram" and "radiograph" have long been used in connection with X-ray work.

Postmaster-General Hitchcock has fixed 15 cents as the maximum rate per word that the United States may pay for wireless messages within the limits of the United States. No charge will be made for the date and the name of the place from which the message is sent.

The central offices and branches of the National Telegraph throughout the Republic of Uruguay are now transacting business through the radiotelegraphic stations, charging for the land service, including address and signature, 75 centesimos (26 cents) for the first ten words, and two centesimos for each additional word. The radiotelegraph charge is 10 centesimos for each word, with a minimum of ten words. The call signal is U.M.V. All private stations have been closed.

The Marconi Wireless Telegraph Company, of America, have received instructions from the California Atlantic Steamship Company to equip the s.s. "Stanley Dollar."

Maritime Wireless Telegraphy

*So, outward bound and homeward, through scene
ye know by name
Observe the panorama that reeks of English fame;
Do note the ancient landmarks just where they
used to be
When your sublime forefathers arranged to rule
the sea.*

O. SEAMAN.

At a meeting of the North of England Steamship Owners' Association, a communication from the Board of Trade was received to the effect that a Bill has been presented to the Spanish Cortes having for its object the compulsory installation of wireless telegraphy on all vessels carrying passengers from Spanish ports on and after January 1st, 1913. The Secretary was instructed to request the Chamber of Shipping to raise objections as to the application of the measure to foreign vessels.

We read in a morning paper on April 9th that "wireless telegraphy had again played a conspicuous part in a rescue at sea." It was the usual story. The American steamship "Ontario," of the Merchants' and Miners' Line, bound from Baltimore to Boston, took fire off Montauk Point at midnight on Sunday, April 7th. The news was at once despatched by the wireless operator, and received at the coast stations, when an immediate search was made for the blazing vessel. Two messages were sent:

" 2 a.m.—Big fire below."

" 2.45 a.m.—About to be beached near Montauk Point. Have to leave my key. Flames driving me from wireless room."

Tugs and revenue cutters started simultaneously from New York and New London in

search of the "Ontario." Meanwhile the coast receiving stations got the following messages:

" 3.15 a.m.—'Ontario' ashore 1½ miles from Point. Life savers gone to her."

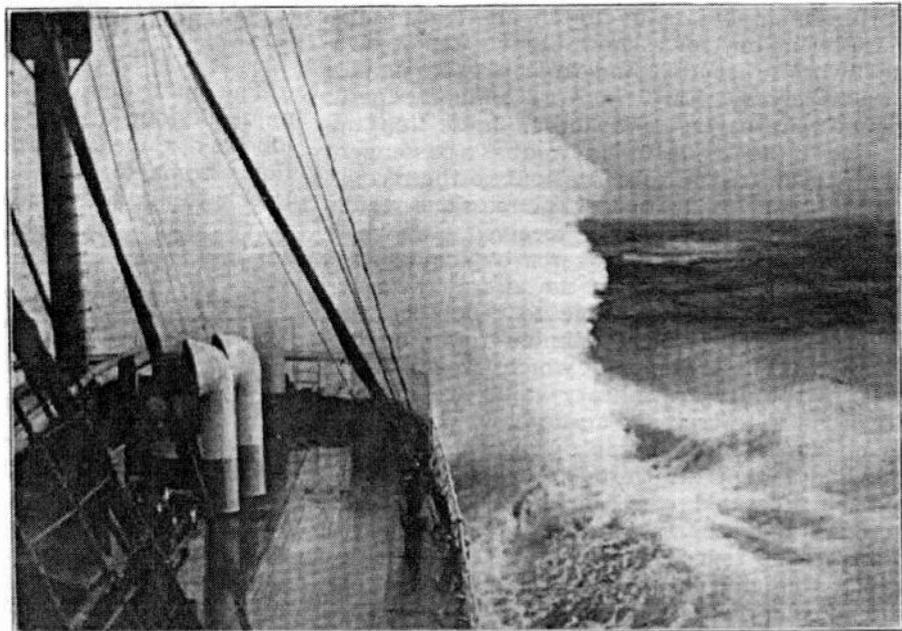
" 3.25 a.m.—Fire under control."

" 5.20 a.m.—Fresh flames. Beyond control."

" 6.10 a.m.—Life-savers now sending breeches buoy to take off passengers and crew."

" 7.30 a.m.—All saved. Transferred. Tug."

A peculiar interest attaches this month to our usual list of vessels which are being equipped



A Cargo Steamer forcing its way through a typical Atlantic Gale.

with 1½-kw. and emergency plants. These include the following passenger and cargo vessels: "Letitia," the Donaldson Line; "Wilcannia," the P. & O. Steamship Company; "El Argentino," the Argentine Cargo Line; "Hesperides," the Houston Line; "Success," the Success, Ltd.; "Parana," the R.M.S.P. Company; "Colonian," the Leyland Line; "Dimboola," the Melbourne Steamship Company; "Chili" and "Peru," the P.S.N. Company; "Ardeola," Yeoward Brothers; "El Uruguayo," the British & Argentine Steam Navigation Company; "Deseado," the R.M.S.P. Company; and "Morwenna," the Dominion Coal & Iron Company.

From Convict Ship to Museum Wireless on the "Success"

By J. R. Stapleton.

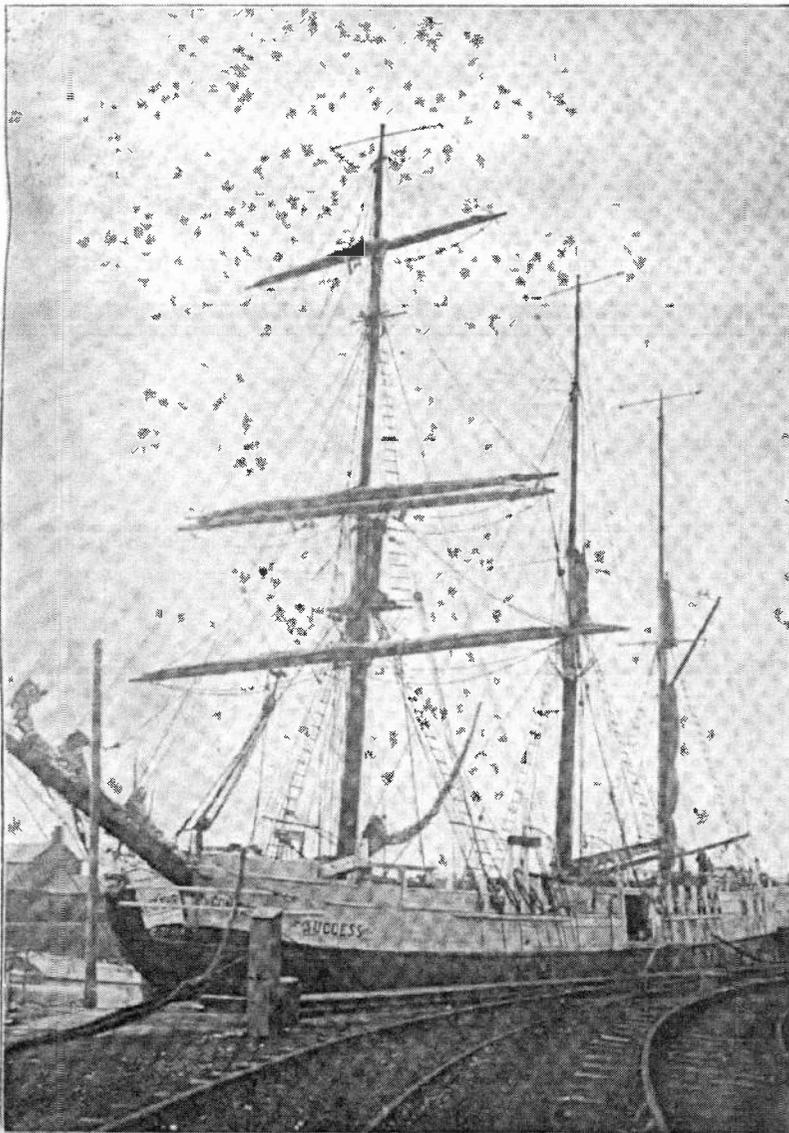
THE mention of this incongruously named hulk awakens unpleasant memories of the tortures which criminals of a bygone age had to endure. Many, no doubt, have visited the "Success" as she lay in some port or near a seaside resort for inspection by pleasure-

seekers, her grim hull beckoning to the public through gay adornments to come and bear witness to the methods which their ancestors adopted in the treatment of captured wrongdoers. In its new rôle this conspicuous vessel is making a strong bid for public favour, and

it is not surprising that the aid of wireless telegraphy has been invoked to help it in its tour round the world. It is claimed that the "Success" is the oldest ship in the world sailing under her own canvas, and the only convict ship in existence. The vessel contains such an amazing and diversified collection of relics that the time spent in studying them is amply repaid.

The "Success" was built as long ago as 1790, and, prior to being used as a show vessel, she had a most romantic career. She is not the first sailing ship fitted with wireless, for, as we announced some months ago, the "Mersey," engaged upon the more useful career of training cadets for the mercantile marine, made a tour round the world, in which the wireless equipment played an important part.

In view of the unique character of the "Success" it is appropriate to describe the wireless equipment, which differs from the ordinary ship installation, inasmuch as a cavalry transmitting set is used in conjunction with a standard ship receiving apparatus. The generator consists of a four-pole self-exciting alternating current dynamo, designed for an output of eight ampères fifty volts alternating current, and four ampères seventeen volts con-

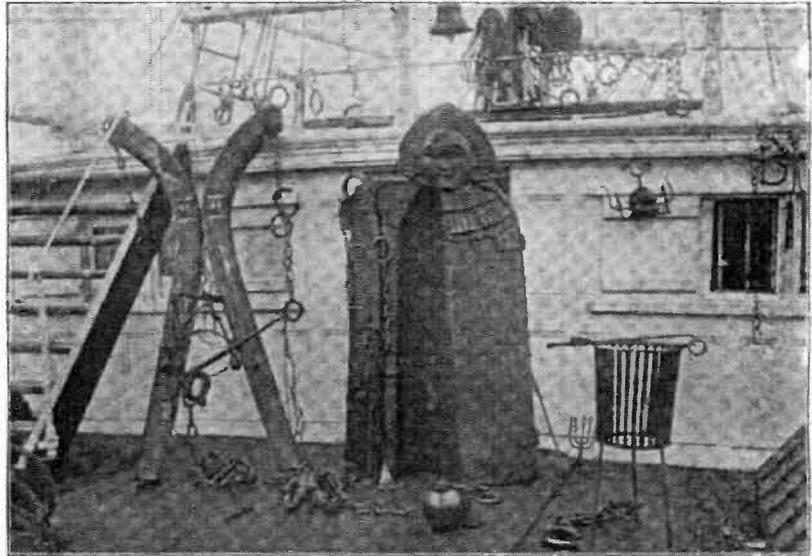


Arrangement of the Aerial on the Convict Ship "Success."

tinuous current, direct coupled to a double cylinder petrol engine. The alternating current supplies direct power to the cavalry transmitting set, whilst the direct current leads are taken through a specially designed switchboard for charging a battery of eight accumulators, the latter to be used with the emergency coil set. The battery is connected to a ten-inch coil through a manipulating key, thus enabling the apparatus to be worked whilst charging.

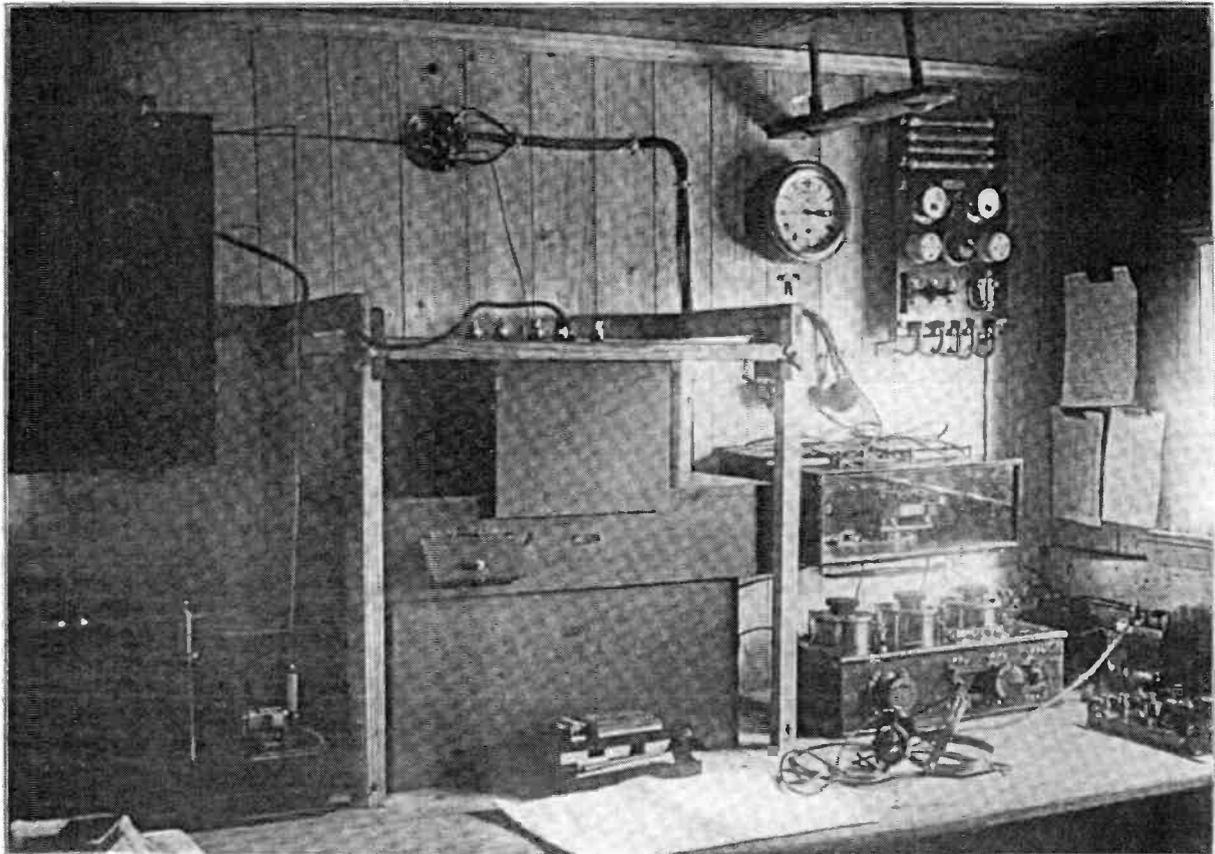
The receiving gear comprises a double magnetic detector and multiple tuner. Being a wooden ship, it was necessary to run special earth leads. These are composed of 30-ft. strip copper, running down the vessel sides and nailed on to the copper bottom of the ship.

Some difficulty was experienced in fitting



Instruments of Torture used in Olden Days.

the aerial to avoid the enormous amount of rigging employed on the vessel, but this difficulty was overcome by fitting the spreaders with iron bands to within a foot of the truck of each mast. This arrangement possesses



An Old Cell converted into a Marconi Cabin.

the advantages of allowing the aerial to pass clear of the topsails. An inverted L-shaped aerial was found to be the most practical type, and the down leads were brought from the mizzen mast on the port side to the Bradfield insulator to the forward end of the poop deck where the cabin is situated.

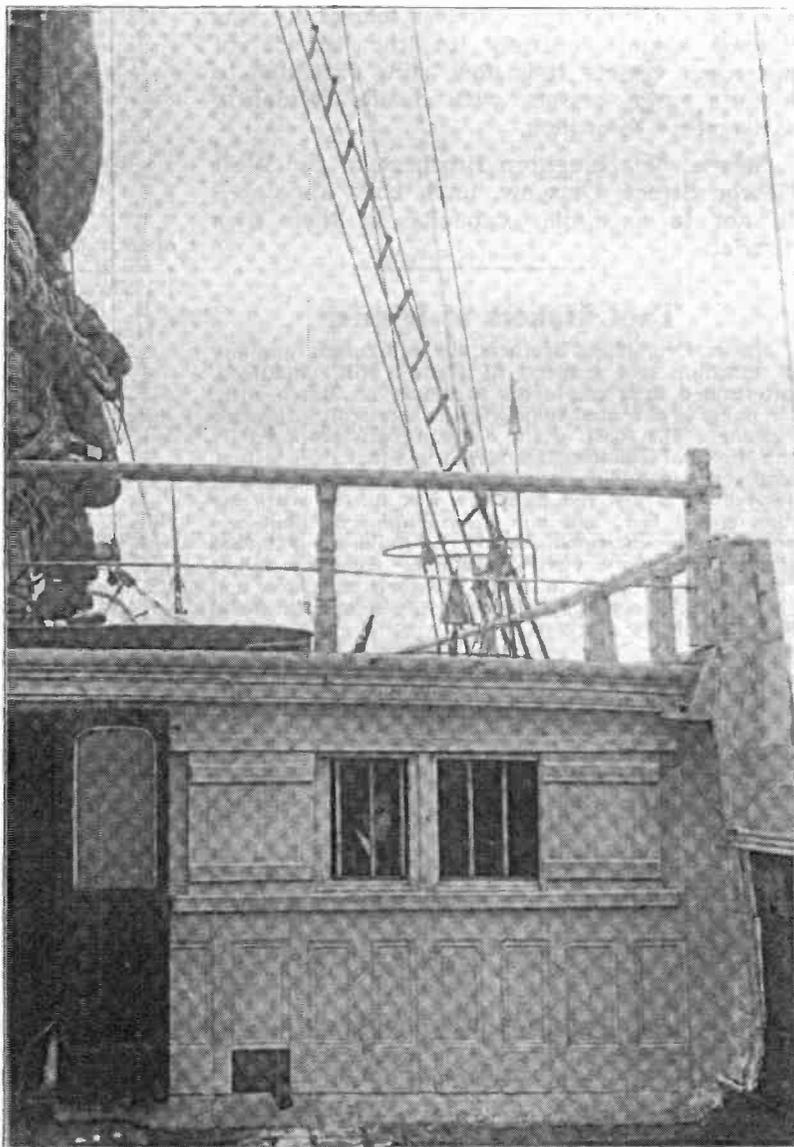
The cabin selected for the wireless apparatus was originally an old convict cell, and its history is such that we cannot pass it by unnoticed.

When the "Success" was stationed at Sydney as a receiving ship for transported convicts this cabin was used as a kind of "good behaviour" cell for convicts who had served fourteen years aboard, and had, either by good conduct or by special work, earned a little respite from the dungeon below deck. It was the haven sought after by all prisoners, and its popularity is explained by the fact that it was the only cell on board that admitted daylight or fresh air to penetrate its interior.

According to records which are carried by the vessel the long confinement of prisoners in dark dungeons deprived them of their sight, so that by the time an unfortunate inmate reached the reward of his good conduct by promotion to the upper deck he was unable to profit by it.

The most notorious character housed in one of the "black holes" was the bush-ranger, Harry Power. This desperado was condemned to the convict ship for many deeds of robbery and outlawry, but not for bloodshed, for it was his boast that he had never shed a drop of blood. It is even recorded that Power endeavoured to invoke the aid of the supernatural, so that a victim of his might part with his "bawbees" without being compelled to do so by the muzzle of a pistol. There is poetic justice in the fact that the iron key which spelt doom and despair to the unfortunate creature on whom it was turned should now be replaced by a key whose tappings dispel any sense of isolation.

It is the intention of the present proprietors of the vessel to exhibit her at New York during the whole of the coming summer, for the first few weeks at a convenient pier near the Brooklyn Bridge, and for the remainder of the season at far-famed Coney Island. Visits to Boston, Providence R.I., and other New England coasts are planned to follow, and subsequently



Exterior of the Marconi Cabin.

she will be taken to the Great Lakes. Later plans include visits to Philadelphia, Baltimore, Charleston, New Orleans, Galveston, etc., and then through the Panama Canal, and finally to San Francisco, where it is expected that the "Success" will arrive in time for the great exhibition four years hence.

Personal

Messrs. Joseph Chadwick & Sons, of Tower Buildings, Liverpool, have been appointed to act as representatives of the Marconi International Marine Communication Co., Ltd., for the Liverpool district for the sale and hire of Marconi wireless installation for use on board such ships as do not require a passenger certificate. While up to a very recent date the scope of maritime wireless telegraphy was limited almost entirely to the service of passenger vessels, it is now being extended to include cargo vessels, with results eminently satisfactory to owners.

Messrs. MacNaughton Brothers, of 190 West George Street, Glasgow, have been appointed to act in a similar capacity in their own district.

Tool Makers at Dinner

Messrs. Drummond Brothers, the well-known company of machine tool makers, of Ryde's Hill, Guildford, entertained their employees to dinner on March 29th. No pains were spared to provide a thoroughly enjoyable evening. The toast of the company was proposed by the Mayor of Guildford, who remarked that their history read very much like a story from the "Arabian Nights." Twelve years ago the company was started with one man and a boy, and now they employed about 250 people. The chairman, Mr. E. E. Pullman, said that there were many virtues that the company might fairly claim, and not the least was their enterprise and their pluck in sending their mainstay round the world in search of new markets.

Movements of Operators

G. J. Wright, from the "Dunvegan Castle" to the "Goth."
 W. Groves, from the "Plassy" to the "Zealandic."
 E. G. Hill, from the "Soudan" to the "Zealandic."
 H. J. Belcher, from the "Galician" to the "Normannia."
 R. C. Scott, from the Marconi School to the "Hantonia."
 J. L. Lambert, from the "Empress of Ireland" to the "Ultonia."
 T. Knox, from the "Athenia" to the "Cameronia."
 E. J. Trail, from the "Cestrian" to the "Ionian."
 W. D. Coysh, from the "Victorian" to the "Mongolian."
 H. Hayes, from the "Irishman" to the "Scandinavian."
 E. W. Dexter, from the "Mongolian" to the "Sicilian."
 S. E. McLeod, from the "Arabie" to the "Numidian."
 A. H. Jeffries, from the "Leinster" to the "Connaught."
 L. A. Dods, from the "Worcestershire" to the "Derbyshire."
 R. Sweetnam, from the "Suevic" to the "Elmina."
 T. G. Barron, from the Marconi School to the "Empress of Britain."
 F. H. Baker, from the "Huayna" to the "El Argentino."
 L. A. Hancock, from the Marconi School to the "Mauretania."
 F. James, from the "Mauretania" to the "Oronsa."
 S. G. Rattee, from the "Empress of Britain" to the "Pannonia."
 H. S. Bride, from the "Anselm" to the "Titanic."

A. S. Rawlings, from the "Armenian" to the "Minnesota."
 H. Kirby, from the "Megantic" to the "Armenian."
 G. H. Sellars, from the Marconi School to the "Delaware."
 K. S. Cawhey, from the "Lusitania" to the "Hilary."
 H. E. Harrison, from the Marconi School to the "Lackawanna."
 A. D. Hathaway, from the Marconi School to the "Megantic."
 J. Starkey, from the "Virginian" to the "Mendi."
 W. A. Woodhouse, from the "Oronsa" to the "Galician."
 A. E. Osborne, from the "Franconia" to the "Victorian" (Leyland).
 J. McKenna, from the "Baltic" to the "Virginian."
 C. E. Rookes, from the "Teutonic" to the "Bohemian."
 W. Merryweather, from the Marconi School to the "Carmania."
 S. V. Branton, from the "Montfort" to the "Corsican."
 W. J. Wing, from the Marconi School to the "Empress of Ireland."
 R. H. Mountain, from the Marconi School to the "Franconia."
 E. D. Mayer, from the Marconi School to the "Huayna."
 S. Lemon, from the "Teutonic" to the "Oronsa."
 J. M. Martin, from the "Carmania" to the "Suevic."
 F. M. Bailey, from the "Corsican" to the "Worcestershire."
 H. K. Gibsons, from the "Hubert" to the "Anselm."
 L. A. Hancock, from the "Mauretania" to the "Cestrian."
 A. Braddock, from the "Campania" to the "Hesperides."
 A. Wilkins, from the "Laurentic" to the "Parana."
 C. H. Crossman, from the Marconi School to the "Laconia."
 J. W. Boadella, from the "Laconia" to the "Mauretania."
 G. McCormack, from the "Ulster" to the "Munster."
 C. W. Perkin, from the "Campania" to the "Adriatic."
 A. Jamieson, from the Marconi School to the "Adriatic."
 F. Skeet, from the "Adriatic" to the "Arabie."
 R. McCutcheon, from the Marconi School to the "Arabie."
 G. H. Sellars, from the "Delaware" to the "Caronia."
 T. G. Barron, from the "Empress of Britain" to the "Colonian."
 W. P. Marshall, from the "Arabie" to the "Delaware."
 R. B. Darracott, from the Marconi School to the "Empress of Britain."

Movements of Engineers

H. Dobell has returned from Spain, and H. M. Burrows from Clifden. Both are at present attached to the London office staff in connection with the Imperial scheme.
 W. B. Cole has returned from Constantinople, and is temporarily attached to the London office staff.
 A. Dalgairns and H. S. Tishaw have gone to Clifden.
 R. V. Ridges and F. C. Lunnon sailed for Glace Bay on April 25th.
 E. G. Tyler and W. H. Venn have returned to London on the completion of the alterations to the P.O. station at Niton, Isle of Wight.
 A. B. Blinkhorn is temporarily attached to the London office staff.
 G. S. Whitmore has returned to England from Glace Bay, and is now on leave.
 C. G. Rattray is on his way home from Soller.
 O. Frost, having completed the installation on the Danish cruiser "Absalom," has returned to Chelmsford.