

KENNETH DINGE

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WIRELESS PROGRESS IN AUSTRALIA



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Amalgamated  Wireless
(Australasia) Ltd.

47 YORK STREET, SYDNEY
167-9 QUEEN STREET, MELBOURNE
WELLINGTON, N.Z.



E.T. FISK

F. Inst. R.E., A.M.I.E. (Inst)

Managing Director

Amalgamated

Wireless (Asia) Ltd.

E.T. Fisk



COMMERCIAL wireless in Australia dates back to 1910, when the first ships equipped with wireless arrived in Australasian waters.

Little was known of the then comparatively new science of wireless communication, and any wireless work that had been carried out during the preceding years had been spasmodic, and of an experimental nature only. So little progress had been made that there were no Coastal Radio Stations in Australia for wireless-equipped ships to communicate with.

Between the wireless situation in Australia in 1910, or, one may truthfully remark, the non-wireless situation, and the thriving and ever expanding wireless industry of 1930, employing thousands of Australians, wonders have been worked. In the space of two decades a new science has been developed in Australia and a key industry of vast importance to every Australian has been established. That it has attained such importance and has placed Australia in the forefront of wireless progress is due to the foresight, ability, and conscientious research and development work of Mr. E. T. Fisk, Managing Director of Amalgamated Wireless.

To-day, practically every ship in the Australasian Mercantile Marine is wireless-equipped; a chain of eighteen modernly equipped Coastal Radio Stations encircles the Australian coastline, while nine Island Radio Stations are operating in New Guinea and Papua, and four stations in the Fiji Islands. In the Northern Territory, Wireless Stations serve as feeders to the landline telegraph system. Broadcasting stations in each of the capital cities transmit programmes throughout Australia, while in Sydney and Melbourne the most modernly-designed short-wave transmitters are capable of transmitting any local broadcasting programmes to England and America. The largest and most scientific wireless equipment of every type is now manufactured for use at sea, on land, and in the air.

The A.W.A. Radiophone Service between Australia and Great Britain and the Continent of Europe, inaugurated on April 30th last, is now in successful operation, and dozens of people daily carry on private and business conversations from their homes in Australia with residents in Great Britain and Europe.

The Beam Wireless Service to Great Britain, the Continent of Europe, and North and South America now handles the greater part of Australia's overseas telegraphic communications.

This far reaching progress in the application and development of wireless was entirely due to the pioneering work carried out by Amalgamated Wireless (A/sia) Ltd., which was incorporated in 1913, and at once set about the task of providing Australia with modern wireless communication facilities.

A.W.A. Radiophone Service

To Great Britain and the Continent.

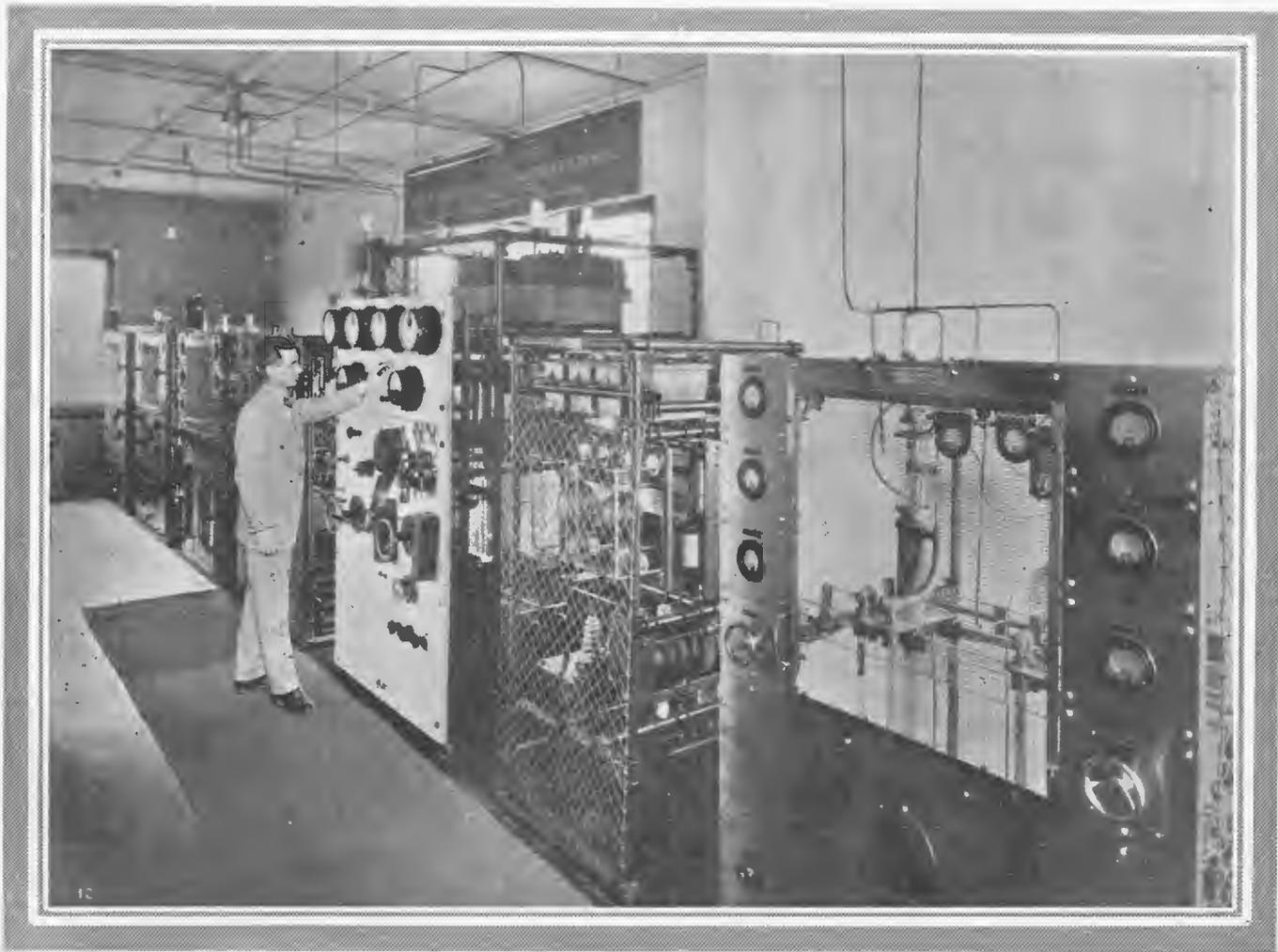
The longest telephone service in the world was opened on 30th April last, when Mr. Scullin, Prime Minister of Australia, spoke with Mr. Ramsay MacDonald, the English Prime Minister, and the Rt. Hon. W. M. Hughes, P.C., K.C., spoke with the Rt. Hon. David Lloyd George, by wireless telephone between Sydney and London.

Established and operated by Amalgamated Wireless, the A.W.A. Radiophone represents the first wireless telephone service to be inaugurated between Great Britain and a Dominion.

The necessity and practicability of wireless communication between Australia and England was early recognised by Mr. Fisk, who commenced experimenting in 1914, and was successful in receiving the first direct wireless telegraph messages from England to Australia in 1918. This was followed by his effecting the first wireless telephone reception from England in 1924. His strenuous advocacy and practical experiments in trans-ocean telegraphy resulted in the establishment of the Beam Wireless Service between Australia and Great Britain and the Continent of Europe in 1927, and due to his untiring efforts wireless telephony between Australia and the Homeland is now an accomplished fact. The whole of the transmitting and receiving gear installed by Amalgamated Wireless for the Imperial and International Wireless Telephone Service was designed, manufactured, and installed in Australia by Australians in the A.W.A. organisation.

The wireless telephone rates between Australia and Great Britain show a more than favourable comparison when compared with the rates ruling between New York and London; the rate for the Australian service being £2 per minute, with a minimum of £6 per call to Great Britain, as against £3 per minute or £9 per call minimum between New York and London, which is about a quarter of the distance between Australia and Great Britain.

Telephone subscribers in Australia may speak from their own homes or business places by simply ringing up trunk lines, B071, and asking for "London Service." The telephone number of the person wanted is not essential—the name and address are sufficient.



*20 K.W. Short Wave Transmitter at Radio Centre, Pennant Hills, for use in Overseas Broadcasting and the Wireless Telephone Service to Great Britain and Continent of Europe.
Designed and manufactured in Australia by A.W.A.*

Beam Wireless Service.

The science of wireless has advanced by leaps and bounds during the last few years. Its commercial application has been a veritable triumph, annihilating distance and bringing the most distant parts of the world into wireless contact with the centres of civilisation. In that triumph Australia has not only played a very great part, but in the development of many phases of wireless, has led the world.

Less than two years ago, the only Australian wireless communication services available to the public were the Marine services to and from ships, and the Island services between Australia and Papua, and Australia and New Guinea. To-day, step into the Beam Offices at Sydney and Melbourne, or enter any Post Office in the Commonwealth, and you may send a message, via Beam, to some of the remote places of the world—to Esthonia or Greenland in Europe; Yukon or Alaska in North America; to Porto Rico or San Domingo; in the West Indies; Guatemala or Costa Rica, in Central America; to name but a few of the traffic destinations in these particular countries.

By day and night, messages are being despatched to Great Britain, Europe, Canada, the United States of America, and South America, via Beam.

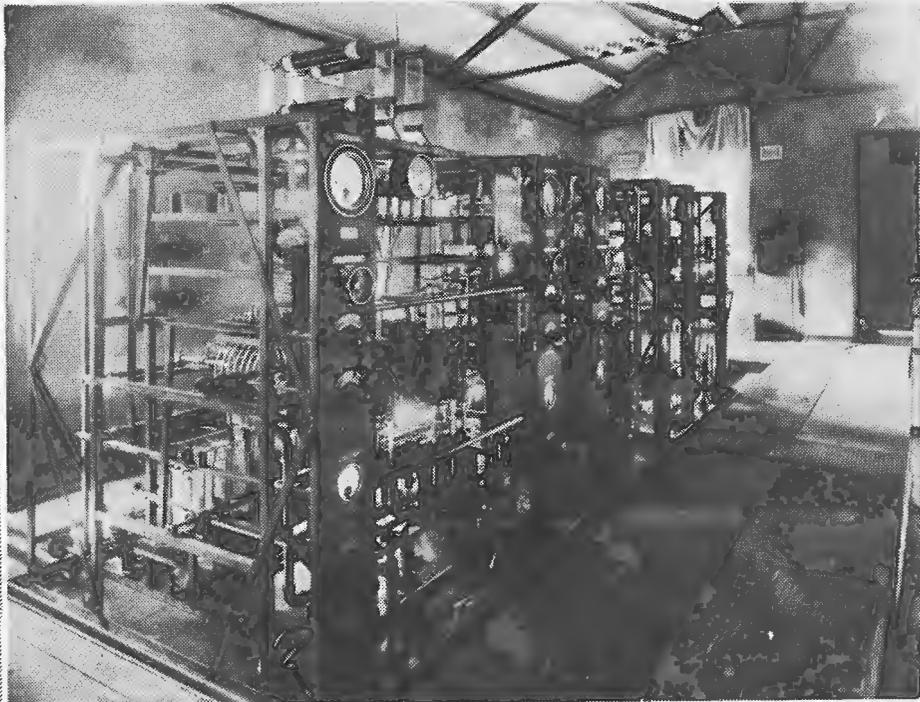
The Beam wireless service between Australia and Great Britain and the Continent of Europe, owned and operated by Amalgamated Wireless (A/asia.), Ltd., was opened for commercial traffic on April 8th, 1927, and almost immediately leapt into public favour.

Additional Beam facilities were made available on June 16th, 1928, by the opening of the service between Australia and North and South America, thus providing not only direct communication with the New World, but also a second link with the Old World, via the Montreal-London Beam circuit.

Considering the excellent service rendered to clients—a service unknown to international telegraph users prior to the advent of the Beam—and the lower rates quoted to the public, together with the speed and accuracy of the Beam System, it is not surprising that to-day the majority of the messages between Australia and Great Britain, the Irish Free State, Europe, Canada, United States of America, and South America are transmitted "VIA BEAM." The service has been the means of effecting a saving to the Australian business community of many thousands of pounds per annum.

The greatest long-distance direct telegraph service in the world, the Beam service, is operated entirely without re-transmission or relays. It is by far the most speedy method of communication yet devised, the speed of working being limited only by the mechanical limitations of the manipulating and recording instruments at each terminal.

Beam wireless signals travel at the rate of 186,000 miles per second, and the sending apparatus handles the messages at the rate of 1,250 letters per minute.



*Top—Valve Transmitters at Beam Wireless Station, Ballan, Victoria.
Bottom—Control Switchboard at Beam Wireless Station, Ballan, Victoria.*

Beam Wireless Service—Continued

It will be seen that a message of 125 code words could be in London one minute after transmission commenced in Australia.

The Beam Offices of Sydney and Melbourne are open for traffic day and night. The doors are but ornamental—they have never been closed since the inauguration of the service. Messages may be lodged at any time, or on receipt of a telephone call—in the case of Sydney BW 2211 and in Melbourne F 4161—a Beam messenger will gladly be sent to collect messages within the city area. Messages are accepted at the A.W.A. Offices in Sydney and Melbourne, and at all Postal Telegraph Offices in the Commonwealth, but be sure to mark your message "VIA BEAM."

Beam Stations.

The Beam wireless transmitting centre in Australia is located near Ballan—about 50 miles to the N.W. of Melbourne, and the receiving centre is at Rockbank—18 miles from Melbourne in the same direction. Both stations are connected by special telegraph lines with the Beam Wireless Office, 167 Queen Street, Melbourne, and with the Beam Wireless Office, 47 York Street, Sydney. At Ballan there are two transmitters—one of which is used for sending messages to London, whence they are distributed through the United Kingdom to Europe, and the other transmits to Montreal all messages for the North and South American Continents.

The transmission of messages originates at the Beam Offices in the heart of Melbourne or Sydney, and the telegraph operators there, by means of the special telegraph lines to the Beam stations, automatically cause the great transmitters at Ballan to radiate the messages, and likewise messages from London or Montreal are received at Rockbank and automatically passed on to the telegraph centres in Sydney or Melbourne, where they are recorded on tape. The whole of this work was carried out under the direct supervision of Mr. E. T. Fisk, Managing Director of A.W.A. Ltd., who, for the last decade had not only visualised a direct trans-ocean wireless communication between Australia and Great Britain and Australia and the other Dominions, but had consistently advocated and educated the powers that be to a realisation of the needs for such services, and had demonstrated to them the technical means and methods by which it could be carried out.

To-day Mr. Fisk has the satisfaction of seeing his cherished idea of a direct wireless service successfully in operation.

Coastal Radio Services.

The Coastal Radio Services play a very effective part in the inter-communication of the people of Australia and the adjacent Islands, also with ships at sea. The Service comprises 29 stations, all of which are owned and controlled by A.W.A. Ltd. They are so organised and situated that at any time of the day or night a message from or to any vessel within 500 miles of the coast can be despatched or received. The night range of these stations is anything up to 3,000 miles, and with a special short-wave apparatus communication with ships in European and Eastern Pacific waters is maintained.

The Coastal Wireless Stations form the only telegraphic route to many important points in the Pacific, including Papua and the Mandated Territory of New Guinea. The stations also send out to ships at sea a press news service, navigation warnings and reports, and weather forecasts.

Messages for ships at sea can be lodged at any Postal Telegraph Office, and also at the A.W.A. offices in Sydney and Melbourne, or at any radio-telegraph station, where rates and particulars regarding routes, etc., will also be supplied. A list of the Coastal Radio Stations now being operated by A.W.A. is as follows:—

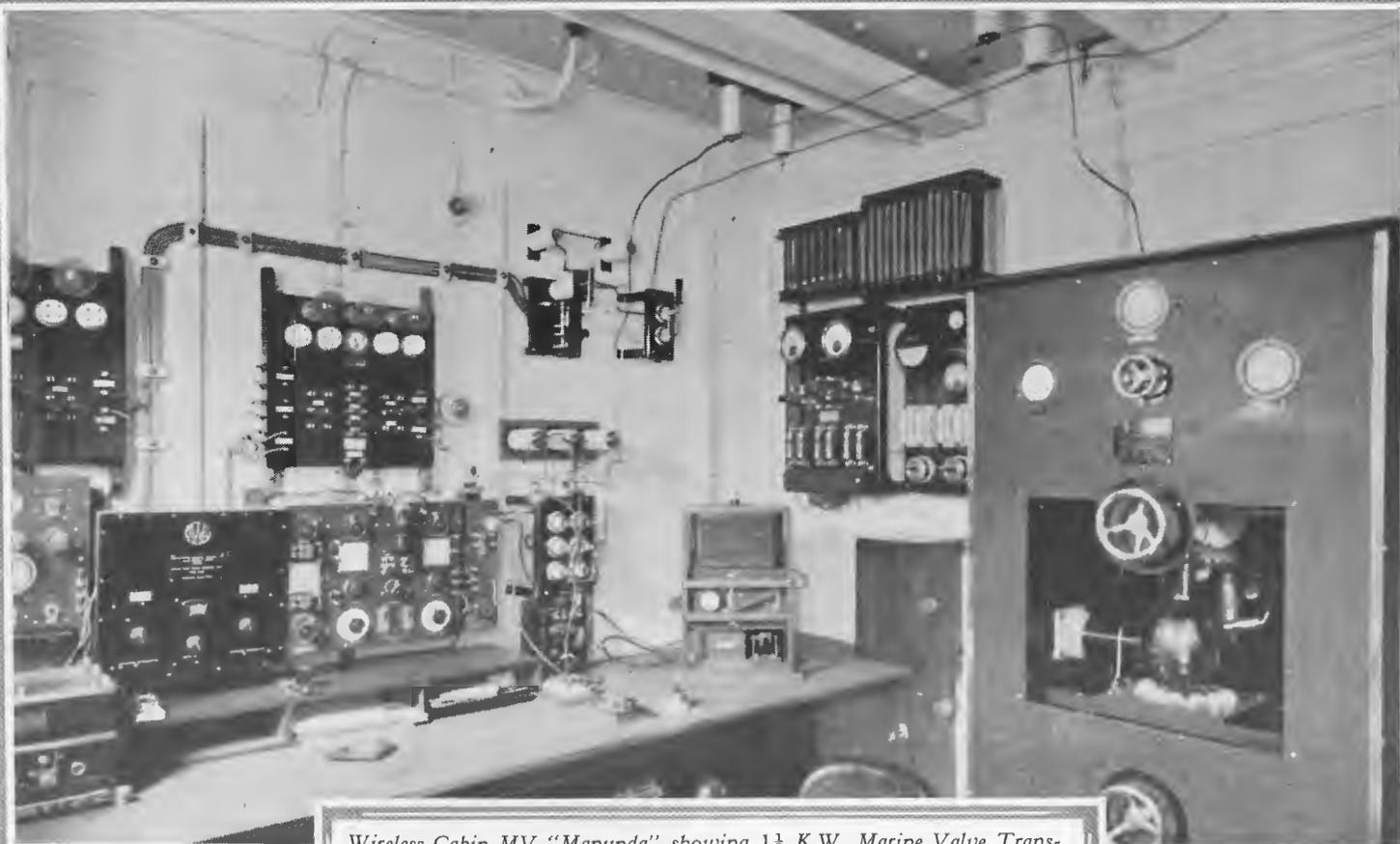
Brisbane	Geraldton	Rockhampton
Broome	Hobart	Sydney
Cooktown	King Island	Thursday Island
Darwin	Melbourne	Townsville
Esperance	Perth	Willis Island
Flinders Island		Wyndham

All passenger ships and most of the cargo ships trading in Australian waters carry wireless installations, and can be communicated with through some one of the stations listed above.

Marine Wireless Services.

Probably the greatest benefit which wireless has conferred on mankind is its application to shipping and navigation generally, particularly as a means of ensuring the safety of life and property at sea. Ever since the Company's inception, it has devoted a large proportion of its resources to the development of apparatus for the various purposes of marine communication and navigation.

We all know that to-day every passenger ship crossing the oceans is equipped with efficient wireless apparatus, but probably everyone does not realise the



Wireless Cabin MV "Manunda" showing 1½ K.W. Marine Valve Transmitter on right with ¼ K.W. spark emergency Transmitter and long wave and short wave Receivers in centre. Auto Alarm equipment at left.

Marine Wireless Services—Continued

important fact that a wireless station on board a ship, even on the remotest part of the sea, is a definite unit of the world's telegraphic system. Through carefully planned international arrangements, it is possible to hand in a telegram at any town or village which has a telegraph office, in any part of the world, and to have such telegram despatched through the various landlines, cables and wireless stations, to a person on board a ship in any part of the world. In the same way, if you are, for instance, at sea on board a ship off the coast of South America, you can give the wireless operator a telegram addressed to a person in Alice Springs or Bourke, in an Italian village, in Alaska or elsewhere, and know that in a few hours that telegram will be delivered to your friend at his home.

You will not have to concern yourself about the various routes your message will follow or the charges of the various authorities who operate those routes. You will pay so many pence or shillings per word, calculated by the operator in the ship, and the rest will be taken care of for you by means of the world's international telegraphic network.

Wireless is also extensively used in nearly every part of the world for the broadcasting of official time signals, meteorological bulletins, weather reports, storm warnings and warnings of any wreckage or other navigation dangers.

The Marine wireless service conducted by A.W.A. comprises the equipment of modern wireless apparatus, manufactured in its own works, on vessels of the Mercantile Marine; the services of operators; the benefits of its modern research organisation; the employment of inspectors to supervise the efficiency of the installations on the ships and the work of the operators; and reciprocal services in other parts of the world.

Network of Australian Controlled Stations in the Pacific Islands.

Amalgamated Wireless (A/asia.) Ltd. have established three large centres in the south-western Pacific—at Fiji, New Guinea and Papua.

The installation of modern wireless equipment at Suva Radio, designed by A.W.A. engineers and manufactured at the Company's Radio-Electric Works at Sydney, has established Fiji as an important link in the world's wireless system, and a part of the Empire wireless chain.

The A.W.A. radio station at Suva, Fiji, handles overseas traffic to Great Britain and the Continent via the Australian Beam Service, and is also in communication with important Island centres such as Samoa, Friendly Islands, Gilbert

Australian Controlled Stations—Continued

and Ellice Islands, New Caledonia, New Hebrides and Honolulu. Suva Radio also maintains communication with the three other A.W.A. controlled stations in Fiji—Labasa, Savu Savu and Taviuni.

The daily broadcasting of weather reports from Suva has proved of great value to shipping and to the Islands in range of Suva Station, especially during the hurricane season.

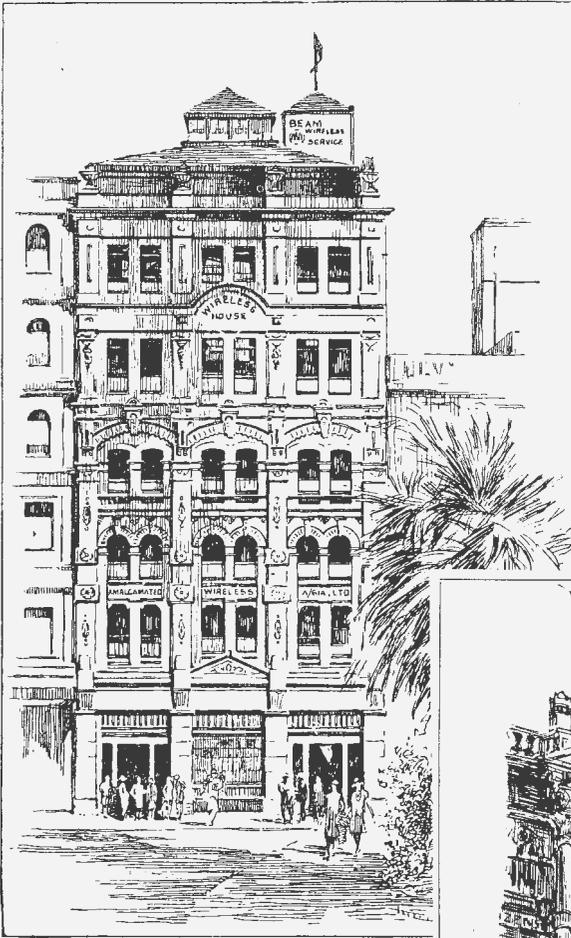
The second centre is in the Mandated Territory of New Guinea, where the Company's chief station is located at Bita Paka, near Rabaul, on the island of New Britain. This modernly-equipped station not only maintains direct radio communication with A.W.A. Radio Centre, Sydney, but also is in constant communication with the following A.W.A. owned stations; Aitape and Madang, New Guinea; Manus, Admiralty Islands; Kavieng, New Ireland; Kieta, Bougainville Island; Marienberg Radio on the New Guinea Oilfields, and Bulolo and Salamoa on the New Guinea Goldfields. The Rabaul Station also communicates with the Gilbert and Ellice Islands, the Solomon Islands, and the Santa Cruz Islands.

The third important centre is at Port Moresby, in Papua. This Station is in communication with Samarai, in Papua, and also with Thursday Island, and the Australian Stations at Cooktown and Townsville. In addition, there is a private station at Popo, on the Anglo-Persian Oilfields.

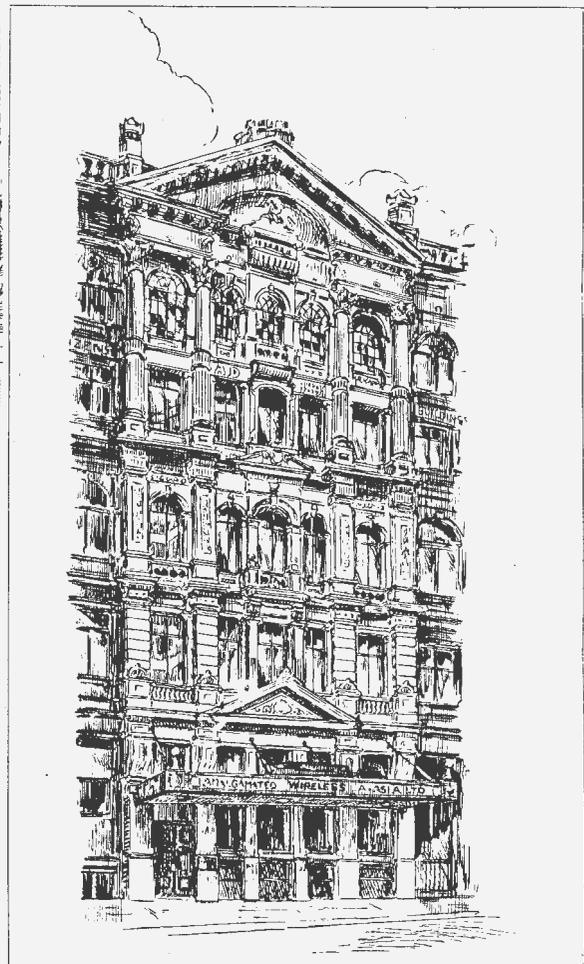
The development of these Australian-owned stations in the Pacific, is largely due to Mr. E. T. Fisk, Managing Director of A.W.A., who, in 1922, interviewed the Rt. Hon. L. S. Amery, then First Lord of the Admiralty, and suggested that A.W.A. should take over from the Imperial Government all the British wireless stations in the Pacific, with the object of modernising them and connecting them direct with the Australian wireless network.

As a result of negotiations an Agreement was completed between the Imperial Government and A.W.A., and on January 1st, 1928, the Company took over the wireless stations in the Fijian group.

The development of this network of commercial wireless stations in time of peace gives assurance that they will be up to date and available for defence purposes in time of war; and that a trained personnel and equipment will be available on short notice for the extension of the services, or for the replacement of existing equipment that might be damaged or destroyed.



"WIRELESS HOUSE"
47 YORK STREET
SYDNEY.



"WIRELESS HOUSE"
167-169 QUEEN ST
MELBOURNE



*Staff Quarters
Beam Station Rockbank*



*Section of Sydney
Sales Department*



*AWA Receiving Station
La Perouse Sydney*

*A Few
of the Many
Activities
of AWA*



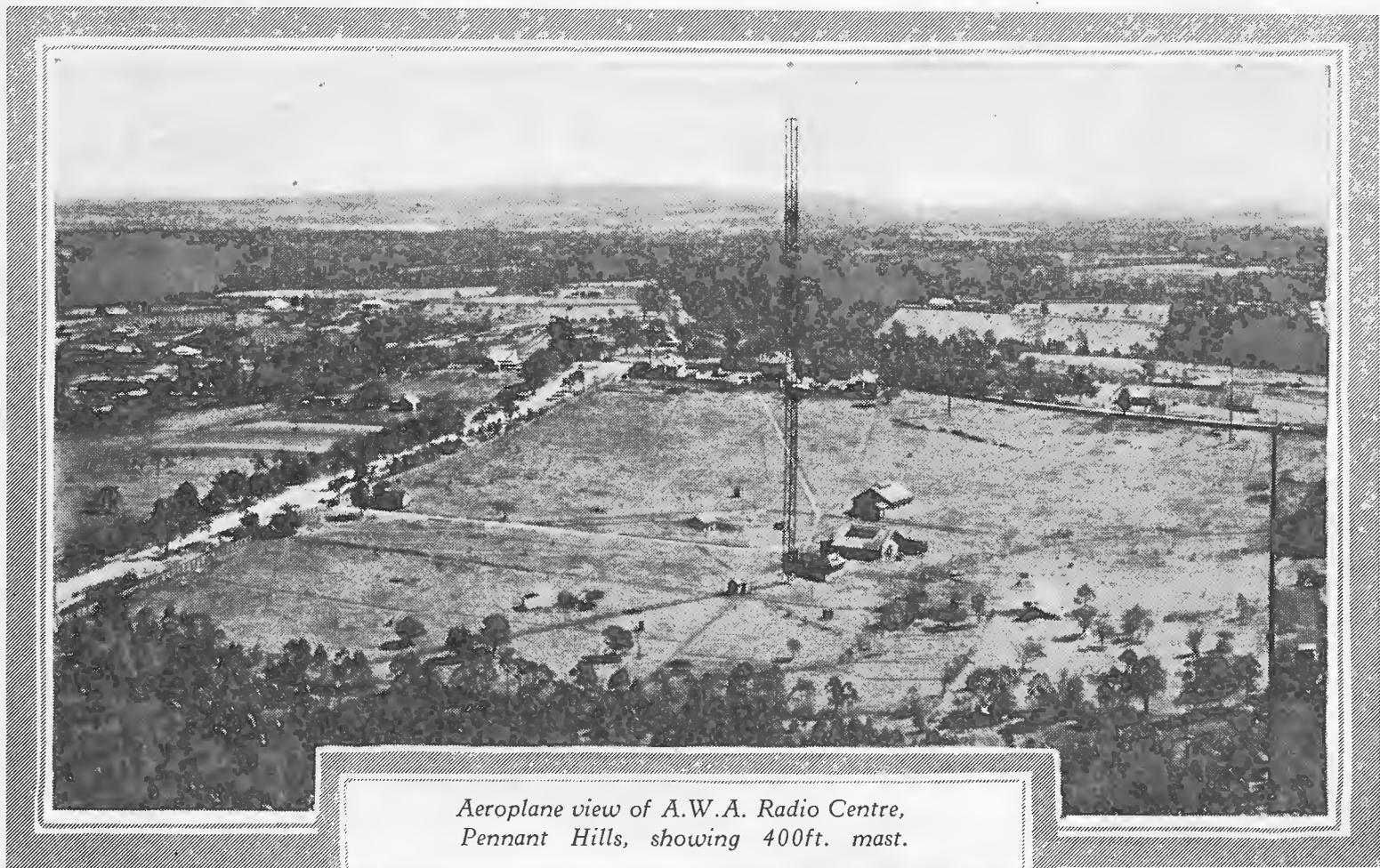
*AWA
Transmitting Centre
Suva Fiji*



AWA Radio Centre Penrith Hills Sydney



*AWA Overseas
Broadcasting Station
Braybrook Vic.*



*Aeroplane view of A.W.A. Radio Centre,
Pennant Hills, showing 400ft. mast.*

A.W.A. Radio Centre, Sydney.

One of the earliest commercial wireless stations in Australia, A.W.A. Radio Centre, Pennant Hills, near Sydney, is to-day the largest and most modern of its kind in the Southern Hemisphere.

The chief functions of the Centre comprise the Beam Feeder Transmitters, operating with Melbourne; the Coastal Radio Transmitters, communicating with Rabaul, Fiji and Noumea, and also with Adelaide, Perth, Townsville and Brisbane; Sydney Radio short-wave long-distance transmitters communicating with ships at sea; the ordinary 600 and 800 metre marine transmitters; the N.S.W. Police Transmitter, keeping police headquarters in touch with the Police Patrol Cars; the 5 k.w. Broadcast Transmitters of Broadcasting Station 2FC; the Trawler Transmitter for communication with trawlers operating on the N.S.W. coast. In addition, A.W.A. Radio Centre, Pennant Hills, houses the short-wave broadcasting transmitters for overseas broadcasting to England, Canada and the United States, for relaying in those countries.

While the whole of the above transmitting functions are carried out by A.W.A. Radio Centre, Pennant Hills, the actual operating of the various units is actuated by "remote control" from various parts of Sydney, and also from La Perouse.

The A.W.A. designed and manufactured 20 k.w. oil-cooled transmitter used for Empire and world-wide short-wave broadcasting and overseas telephony, is also installed at Radio Centre, Pennant Hills.

The whole of the transmitters at this great station were designed and manufactured by A.W.A.

A.W.A. Receiving Centre, at La Perouse, Sydney.

On the heights of La Perouse, overlooking Botany Bay, is located the Sydney Receiving Centre of A.W.A.—the most important and the largest receiving station in the Southern Hemisphere.

Wireless traffic is here received from a network of stations throughout the world. Messages from ships' stations in the Pacific and Indian Oceans and from the Coastal Radio Stations on the south-eastern seaboard of Australia. Two-way wireless telephony conversation is maintained between La Perouse and the trawlers operating off the N.S.W. coast; the latest news of the world is received from the English high power station at Rugby, while reception is effected of broadcast programmes transmitted from English, American, and Continental high power Broadcasting Stations. The enormous ranges to-day attained by short-wave working is demonstrated by the reception at La Perouse of experimental communications from short-wave stations in Great Britain and Europe, the United States and Canada, Africa, Asia, and the Dutch East Indies.

The La Perouse Station maintains communication with all the short-wave

A.W.A. Receiving Centre—Continued

stations in the Pacific, including Rabaul, New Guinea; Suva, Fiji; Noumea, New Caledonia; and San Francisco, while effective communication is also maintained with ships' stations equipped with short-wave apparatus, crossing the Pacific and Indian Oceans.

The system of centralising wireless activities as conceived and developed by Mr. Fisk, Managing Director of Amalgamated Wireless (A/asia.) Ltd., has resulted in there being three large wireless centres in N.S.W.—the Transmitting Centre at Pennant Hills, the Receiving Centre at La Perouse, and the Control Centre at A.W.A. Headquarters, 47 York Street, Sydney.

The following nine services are operated at La Perouse:—

The Beam Feeder Service from Melbourne.

The Coastal Radio Service communicating with the Coastal Radio Stations at Brisbane, Adelaide, Perth, and Townsville.

Radio Service with Suva, Fiji.

Island Radio Service communicating with New Guinea and Papua.

Marine Wireless Services with ships at sea.

Short-wave long distance Marine Services.

The Trawler Telephony Service for communicating with trawlers operating off the N.S.W. coast.

The reception of press messages from the British high power station at Rugby, and from stations in other parts of the world.

The reception of broadcast programmes from Great Britain, the Continent of Europe and America, for re-broadcast by Australian Broadcasting Stations.

Messages from the Company's Island Radio Station at Rabaul, New Guinea; the A.W.A., Suva, Fiji, Station and the Beam Feeder Transmitting Station at Braybrook, Melbourne, are received at La Perouse and automatically relayed to Wireless House, York Street, where they may be automatically recorded by mechanical means or aurally received.

The Receiving Station at La Perouse has become famous throughout the world for the many noteworthy interceptions carried out there. From the time Squadron-Leader Kingsford-Smith left San Francisco until he reached Australia, operators at La Perouse were in touch with the 'plane, and in this achieved a record in 'plane to earth communication.

During the flight of the "Southern Cross" from Australia to England messages were received at La Perouse station from the time the 'plane left Sydney until she was passing over France. On another occasion A.W.A. operators at La Perouse were in two-way communication with the German steamer "Bremen" when she was establishing a record run across the Atlantic. Messages transmitted by Commander Byrd's Antarctic Expedition have been regularly heard by A.W.A., and, by way of reciprocity, the company transmitted a special programme to the Polar explorers.

A.W.A. Receiving Centre—Continued

The telephony tests between Sydney and Schenectady, New York, and between Sydney and Java, and between Sydney and London, carried out by Mr. Fisk, were effected through the La Perouse station so far as concerned the reception of the voices at the Sydney end.

The whole of the modern wireless equipment at both La Perouse and Pennant Hills was designed and manufactured by Amalgamated Wireless (A/asia) Ltd.

A.W.A. Radio Centre, Melbourne.

At Braybrook, Melbourne, is situated Radio Centre, Melbourne, owned and operated by A.W.A. This is the second largest Radio Centre in the Southern Hemisphere, and its Australian manufactured equipment is of the very latest design.

The transmitters comprise a 5 k.w. broadcasting installation for the transmission of programmes from Broadcasting Station 3LO, a 3 k.w. transmitter for communication with ships at sea, and A.W.A. coastal radio stations. There are also two 5 k.w. short-wave transmitters used in connection with the Beam Feeder service. These are the latest transmitters designed and manufactured by A.W.A., and though not in full service as yet, a highly satisfactory service is carried out daily between Melbourne and Perth, Adelaide and Brisbane.

The broadcast programmes emanate from the studio of Station 3LO in Melbourne; the Marine transmitters are operated from the A.W.A. Receiving Station, VIM, in the Domain, while the feeder transmitters are operated by "remote control" from the Company's Beam Offices in Queen Street, Melbourne. Messages from ships at sea are intercepted at the A.W.A. Receiving Station in the Domain, where the operators by means of "remote control" actuate the marine transmitters at A.W.A. Transmitting Centre, Braybrook.

Broadcasting.

A.W.A. were pioneers of broadcasting in Australia. As early as August, 1920, Mr. E. T. Fisk gave a public demonstration of wireless broadcasting in Sydney to an audience of more than 100 at a meeting of the Royal Society of N.S.W. In October of the same year, he arranged a complete public broadcast concert in the Queen's Hall, Federal Parliament House, Melbourne, to an audience of some hundreds of people. This was the third large public demonstration of broadcasting that had taken place in any part of the world. In January, 1921, a weekly broadcast programme was transmitted from Melbourne by A.W.A. and was heard by experimenters and others at distances up to 1000 miles.

Broadcasting Station 2FC was opened on December 23rd, 1923, and this was followed by the inauguration in 1924 of Broadcasting Services at Station 3LO



Front and rear view of the grounds and buildings comprising the new Radio-Electric Works of Amalgamated Wireless at Ashfield, near Sydney.

Broadcasting—Continued

Melbourne and Station 6WF Perth, while in the following year Broadcasting Stations 4QG Brisbane and 5CL Adelaide came into operation. All the above stations were designed by the engineers of A.W.A. Ltd., and the highly technical equipment manufactured at the Company's Radio-Electric Works, Sydney.

The high standard of transmission maintained by the principal Australian broadcasting stations to-day is primarily due to the research and experimental work carried out by the engineers of A.W.A. The manufacture of broadcasting transmitters is a highly technical phase of industry, and the Company is to-day producing broadcasting transmitters which compare more than favourably with those manufactured overseas, which demonstrates what can be done in the field of wireless when a definite policy of Australian manufacture has been laid down.

Overseas Broadcasting.

Experiments in wireless telephony have been carried out by Mr. E. T. Fisk for over a period of five years, and during that time many records have been achieved both in regard to overseas wireless telegraphy and overseas broadcasting. To further develop overseas broadcasting and telephony, the Company designed and manufactured at its Radio-Electric Works the 20 k.w. Short Wave Transmitter now installed at Pennant Hills, and it was by means of this transmitter that many of the overseas records since established have been effected.

To Australia fell the honour of transmitting the first Empire Broadcast Programme. On September 5th, 1927, the transmission was effected through A.W.A.'s overseas experimental station VK2ME, Pennant Hills. The reception in Great Britain was remarkably successful, and the programme was re-broadcast by the British Broadcasting Corporation to crystal users and other listeners throughout Great Britain. It is estimated that over one million listeners-in heard the programme.

This was followed on October 17th, 1927, by the second and what might be termed the first world-wide programme through Station VK2ME, the programme being arranged by Station 2FC. This was the first occasion on which programmes were transmitted on dual wave lengths—the normal wave length of Station 2FC, 422 metres for local reception, and that of the special experimental Station VK2ME, 28.5 metres, for overseas reception and re-broadcasting by the British Broadcasting Corporation.

The world-wide interest occasioned by the Eucharistic Congress in Sydney was increased by A.W.A. transmitting the proceedings to England and America through the Company's Experimental Station VK2ME, and the successful re-broadcasting in the latter country.

Overseas Broadcasting—Continued

Another notable transmission was effected on January 10th, 1930, when the singing and talking portions of the Paramount "talkie" film, "The Love Parade," starring Maurice Chevalier, were transmitted from the Prince Edward Theatre, Sydney, to Commander Byrd. The transmission was effected on the 20 k.w. overseas transmitter designed and manufactured in Australia by A.W.A.

About half an hour after the transmission, Commander Byrd signalled back via San Francisco and A.W.A. Radio Centre, Pennant Hills:—

"2ME, Sydney. As Paramount's most southern representatives, at Antarctica, we are pleased to report your fine broadcast of the Paramount Sound Picture, 'The Love Parade,' enjoyed and greatly appreciated. This is the first sound reproduction received here. Admiral Byrd and inhabitants of the Antarctica join us in thanking you for your programme and best wishes.—Joseph Rocker and Willard Van De Veer, Paramount's Cameramen in Byrd's Antarctic Expedition."

Short Wave Telegraphy and Telephony.

The successful development and application of short-wave wireless telegraphy and telephony has revolutionised long-distance wireless communication.

In 1922 the Wireless Research Engineers of A.W.A., working under the guidance of Mr. E. T. Fisk, commenced experimental work in Sydney in connection with short-wave wireless communication, resulting in the achievement of many long-distance records. In January, 1924, the first successful transmission of low-power short-wave signals was effected from England to Australia from the Marconi Station at Poldhu, Cornwall, to Mr. Fisk's Experimental station at Vaucluse, Sydney.

During 1924, the Company installed a specially designed short-wave transmitter on the S.S. "Niagara," trading between Sydney and Vancouver, and at A.W.A. Radio Centre, Pennant Hills, near Sydney. So successful were the results that the S.S. "Niagara" was in touch with the Radio Centre regularly throughout the voyage to Vancouver and return, a distance of 7,000 miles, which constituted a record in Marine Wireless communication.

Another notable achievement by A.W.A. in short-wave low-power wireless communication was the record distance attained by the short-wave transmitter installed on the Commonwealth liner the "Jervis Bay" in September, 1926. During the whole of the voyage from London to Sydney and return, the "Jervis Bay" was daily in communication with A.W.A. Radio Centre, Pennant Hills. This is the longest distance worked by a merchant ship, and it is worthy of note that the short-wave apparatus was wholly designed and manufactured in Australia at the A.W.A.'s Radio-Electric Works.

Transmission of Pictures.

The successful transmission of pictures by wireless from Australia to England by Amalgamated Wireless during the later part of 1929 attracted much attention. The first pictures transmitted were those of Mr. Scullin (Prime Minister of Australia), Mr. Ramsay MacDonald (Prime Minister of England), and Mr. E. T. Fisk.

Experiments are being continued, and the time is approaching when the transmission of pictures by wireless will be the regular procedure. The distance covered by A.W.A. in these achievements is about treble that of any previous wireless picture transmission.

Overseas Telephony Experiments.

Radio history was made on November 1st, 1928, when Mr. Fisk added still another achievement to the many brilliant pioneering demonstrations of the Company. Representatives of the leading Sydney newspapers and Mr. Lawton, ex-Consul-General for America, took part in the first demonstration of two-way wireless telephonic communication between Sydney and New York. At the same gathering telephonic communication was also effected with Java, the voices from both New York and Java being as clear as if the speakers were talking in Melbourne or Brisbane.

The test was in every way an undoubted success, representing probably one of the most remarkable wireless achievements that have been carried out in Australia, or indeed in the world.

On December 19th, 1928, a successful wireless telephone test was carried out between Sydney and Amsterdam, Holland. On that occasion, the Secretary of the British Peace Delegation spoke with Sydney. During the following week, experiments were carried out between Sydney and Berlin, and conversation was successfully exchanged.

On September 1st, 1929, the first wireless telephone conversation between an Australian and English Minister of the Crown was carried out, when the Prime Minister of the Commonwealth, Mr. Bruce, carried on an easy and lengthy conversation by wireless telephone from A.W.A.'s Offices at Sydney with Lord Passfield, Secretary of State for Dominion Affairs, at the latter's home, fifty miles distant from London.

Sydney Town Hall lit from Genoa via Beam Wireless

One of the most spectacular wireless demonstrations of recent years was that achieved by the Marchese Marconi in collaboration with Mr. E. T. Fisk, on the occasion of the opening of the Radio and Electrical Exhibition at the Sydney Town Hall on March 26th, 1930. Aboard his yacht, the "Elettra," in Genoa Harbour, Marchese Marconi pressed a key, and one-seventh of a second later a festoon of 3000 coloured lights blazed forth in the Sydney Town Hall.

During the few weeks prior to this event, Amalgamated Wireless' and Marconi's engineers were in constant communication by wireless telephone, and every detail was scheduled.

At the time fixed, Marconi was informed by a Beam message from the Sydney Town Hall that all was in readiness. He immediately depressed a switch, thereby transmitting the necessary signals from his yacht. These were received at the Marconi receiving station at Dorchester, England, passed by landline to the Beam station at Grimsby, England, and thence flashed round the world to Australia. The signals were received at Amalgamated Wireless' Beam station at Rockbank, Victoria, and thence conveyed by 600 miles of landline to the Sydney Town Hall.

Up to this time the lighting in the Exhibition Hall was dim, but at the instant Marconi released his signals in the far away Italian Mediterranean, the switches operating 3000 lamps came into operation and the Sydney Town Hall was flooded with light. The success of the experiment was greeted vociferously by the large audience at the Town Hall. Marconi was at once notified by Beam Wireless of the successful lighting of the hall, and immediately replied, "Very best congratulations to all concerned."

This experiment is one of many that have been conducted between Marchese Marconi in Europe and Mr. Fisk in Sydney. In 1918 Marconi transmitted to Mr. Fisk the first direct wireless message between England and Australia. In 1927 they established a direct Beam wireless service between Australia and Great Britain.

Automatic Wireless Distress Transmitter.

A remarkable demonstration was given by Amalgamated Wireless recently of a radio transmitter invented and designed by the Company and manufactured in Australia, for sending out distress signals from small coastal vessels not equipped with wireless. The device is known as the Automatic Wireless Distress Transmitter, and is contained in a cabinet 3ft. 6in. high by 15in. square; it is thus easily placed in the chart room of even a small steamer.

In a moment of emergency the captain or any member of the crew, by operating a switch, causes the appliance to send out the International Alarm Signal, followed by the S.O.S. Within 30 seconds any person, though completely ignorant of wireless or of the Morse Code, can transmit an arrangement of letters which causes the position of the ship—latitude and longitude in minutes and degrees—to be transmitted.

The signals may be picked up by any vessel equipped with wireless, and, without any attention, the transmitter continues for 20 minutes to send out the distress signals together with the name of the ship and her position.

By winding a spring the device will continue in action for another 20 minutes if required, and as long as the spring is kept wound up, the transmitter will work continuously for 10 hours before the battery is run down.

An arrangement is also available by which a signal can be transmitted indicating that no further help is required.

There are 168 vessels in the interstate trade on the Australian coast, none of which is fitted with wireless, the chief reasons being the cost of maintaining an operator and the value of the space necessary for his accommodation. The Automatic Wireless Distress Transmitter occupies practically no space yet meets all the requirements of the ordinary small coasting vessel, several of which have foundered within recent times without even being able to send out a message stating the cause of the disaster.

The device has been tested by the Commonwealth Navigation Authorities and the signal has been received by shipping and land stations on 7,272 occasions and for distances up to nearly 2,000 miles, although the actual range of the transmitter is nominally 100 miles. It is understood that the Navigation Authorities regard the Automatic Distress Transmitter as generally satisfactory.

The Lisk Series RADIOLAS



A.W.A. Duoforte Ninety



A.W.A. Radiola Forty



Radiola Console Model

Designed and Manufactured in Australia by
Amalgamated Wireless (A/asia) Ltd.

A.W.A. Radio-electric Works.

A.W.A. could not have made such headway had it not early taken the opportunity of establishing efficient manufacturing facilities in Australia. To such proportions have its manufacturing activities developed that to-day the Company's Radio-Electric Works at Knox Street, Sydney, replete as they are with the most modern production machinery specially laid out for the mass production of wireless apparatus, are inadequate to meet the production demands made upon them.

In pursuance of the Company's policy of expansion, it has recently completed the purchase of a new site and buildings on Parramatta Road, Ashfield, five miles from Sydney, for the development of its manufacturing activities.

The land, laid out in attractive lawns and gardens, contains an area of approximately four acres, with a frontage to the Parramatta Road of 303 feet. There are three modern factory buildings containing 75,000 square feet of floor area, and there is ample room for future extension of the existing buildings and for the erection of additional buildings as required.

This is not a sudden growth of manufacturing activity, but the outcome of seventeen years' steady development in the design and production in Australia of all classes of wireless apparatus.

The wireless equipment in use on most of the ships of the Australian Mercantile Marine was produced at the Company's works, as well as such highly technical apparatus as the Beam Feeder Transmitters, installed at the A.W.A. Stations in the capital cities of Australia; the wireless apparatus installed at the Coastal Radio Stations dotting the seaboard of Australia, and the Company's Stations at New Guinea, Papua, Fiji, and at the various islands in the Pacific.

The principal Australian Broadcasting Stations are equipped with A.W.A. Transmitters, while the 20 k.w. Transmitter at A.W.A. Radio Centre, Pennant Hills, used for the Wireless Telephone Service to Great Britain and the Continent of Europe, and for overseas broadcasting, was designed and manufactured at the A.W.A. Radio-Electric Works.

Amalgamated Wireless is one of the few Australian companies which has found both a home and an export market for its products. As far back as 1916 complete wireless transmitting and receiving stations from the Company's works were shipped to New Zealand, East Africa, China, Japan, and the



*Aerial view of the new A.W.A. Radio-Electric Works
at Ashfield, near Sydney.*

Pacific Islands, and during the last few years a considerable quantity of Australian-made wireless apparatus has been sent abroad by the Company.

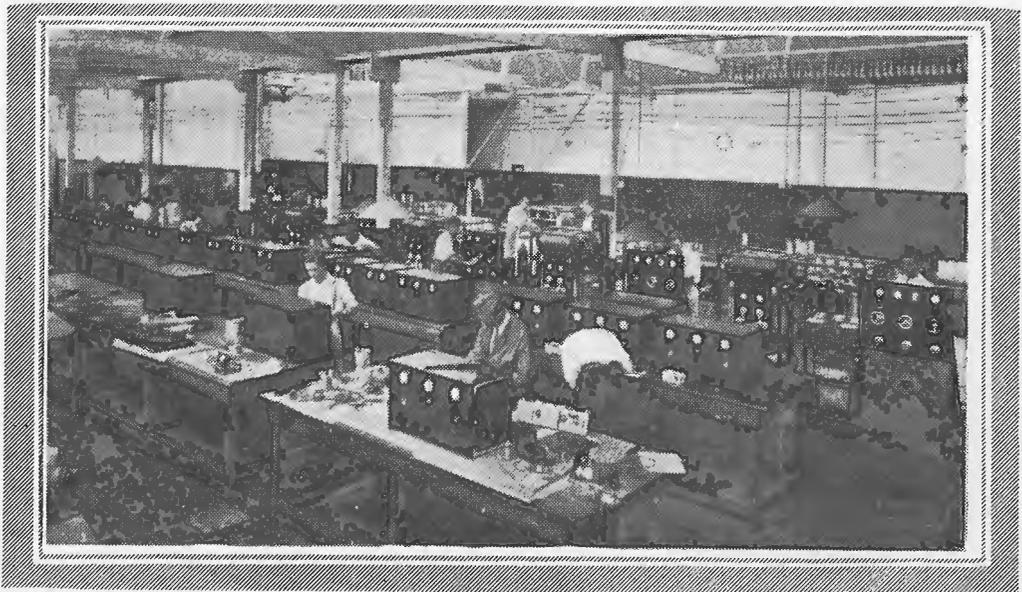
A modern 5 k.w. short wave telegraph transmitter and receiver was recently manufactured for the New Zealand Government, for installation at Tinakori Hills, Wellington; while modern A.W.A. transmitting equipment was lately installed at Lord Howe Island, thereby effecting economical communication between Lord Howe Island and Australia.

Modern wireless equipment has been installed at Suva Radio, while a $\frac{1}{2}$ k.w. short wave transmitter was installed at Apia (Samoa). A short wave transmitter is now in course of manufacture for installation at Nukualofa, in the Tongan Islands.

The Company's Australian manufactured apparatus is everywhere recognised by experts as being the equal in design and performance to apparatus produced overseas.

Thousands of "Radiola" Broadcast Receivers have been manufactured during the last six years, and such satisfaction have they given that to-day throughout Australia the "Fisk Series" Radiola is regarded as the finest Australian broadcast receiver.

The training of a specialised staff and the building up of Australian wireless manufacturing facilities are in keeping with the national aims of A.W.A., and should prove of value to Australia in times of both peace and war.



Manufacturing Transmitters at A.W.A. Radio-Electric Works, Sydney.

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Australia's National Wireless Organisation.

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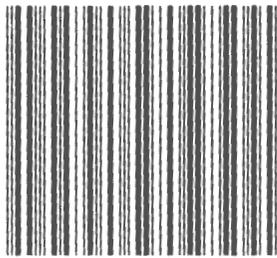
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