

ITALIAN NAVY NOW USES WIRELESS TELEPHONE AS MEANS COMMUNICATION

Instrument Quietly Developed by Marconi Within Past Few Months--British Admiralty Plans to Adopt Similar Method--Wireless Now Plays Important Part in Great Struggle.

The Italian navy entered the European conflict with a better equipment for communication than have any of the other belligerents. An Italian admiral is able to transmit his orders orally to the captains of ships within a certain range by means of a wireless telephone which has been quietly developed by Marconi within the past few months. The Italian navy has officially adopted this new instrument. The British admiralty is preparing to do so. One of the instruments has already been brought to the United States and wireless telephonic communication established between New York and Philadelphia.

The facilities for direct and rapid communication in the present war are among its most striking developments. The advantages of wireless messages over the older systems of telegraphy and telephony are obvious, and this method of communication is likely to be greatly improved during the present year. Marconi has already expressed to the kings of Britain and Italy his confidence in being able ultimately to transmit audible speech across the Atlantic ocean by multiplying the power and slightly modifying the design proved practical on the Italian ships. The development of this system will do away with the tedious processes of coding and recoding the messages, as in wireless telegraphy, invaluable as that system is proving under the present conditions.

Germans Cut Cables.

The unrecognized advance in wireless telegraphy, which had been quietly wrought during the past four years, rendered the action of Germany in severing the sea telegraphic cables, within twenty-four hours after the declaration of war, of comparatively little importance. The cutting down of interior telephone and telegraph wires, which was so tremendous a factor in shutting off the advancement of troops in former war, has had little influence in this one. Wireless messages are being used everywhere. The control of the wireless stations of the world is now more important than the supremacy of the sea. In fact oceanic supremacy depends almost entirely upon complete wireless connections.

Germany recognized this fully, and at the beginning of the conflict seemed to have established herself firmly in lines of communication which enabled her to be in daily contact with even her most remote possessions. The cutting off of these outlying stations by the allies is believed to have been a more important conquest than the destruction of the strongest vessels of the German navy. Six months ago a perfect network of wireless communications, centring in the great wireless station at Nauen, kept Germany in touch with conditions in South Africa, South America, China and the South seas.

The communications with Africa were by way of a station located in the Cameroon mountains in Africa to Windhuik in German Southwest Africa, and to Dares-es-Salaam, in German Southeast Africa. It is claimed that the rebellion was started in Africa by messages passing through Windhuik. Plans for the invasion of Rhodesia and Uganda were being formulated through the station in Dares-es-Salaam and this station also enabled Germany to keep in touch with conditions in South America. The Anglo-French invasion of the Cameroons severed this communication, and have checked the Germans in Africa.

Asiatic Station.

At Tsingtau and in the Bismarck archipelago Germany had other powerful stations which kept her in communication with China and other foreign centres. The capture of Tsingtau by the Japanese and the conquest of the Bismarck archipelago by the Australian forces have interfered with direct communication in this part of the world. Germany had also erected a powerful wireless station upon Nantucket Island, which was designed to facilitate communication with this country. To save political complications the United States has assumed charge of this station, and permits the transfer of neutral messages only.

Notwithstanding these drawbacks, Germany still preserves a powerful system of wireless communication, which has made possible her daring victories on the ocean and her bold aerial exploits. It is understood that her interior wireless system of Ger-

many was the most completely organized in the world. A few months ago plans were made for constructing a wall of wireless stations around her entire boundaries, which is now believed to be completed. These boundary wireless stations have aided materially in directing the attacks of the great Zeppelins.

Aerial warfare is made more effective by wireless communication. Wireless transmission between aeroplanes is hindered by the fact that even the most compact apparatus now in use is bulky and therefore an impediment upon an aeroplane. Still, most of them are prepared to send messages for a mile or two. The question of the antennae, which catch the Hertzian waves conveying the message, is now receiving attention. Stretching wire between the wings has been tried unsatisfactorily. The latest development is a spool of wire which can be quickly unreeled to trail behind the machine like the tail of a kite. The German Zeppelins have the advantage of most other flying machines in the fact that additional weight does not impede their progress, and they can therefore carry powerful instruments capable of transmitting messages over long distances. This facilitates their control from boundary stations, even when out some distance.

Lack of Secrecy.

The greatest drawback to wireless telegraphy is its lack of secrecy. Every nation and many departments maintain secret codes, but the possibilities of leakage always exist. Furthermore, when a message cannot be interpreted it can be greatly hindered by a hostile party. The operator who desires to intercept a message tunes his instrument to a level with it. He is usually able to determine whether the cypher used is in letters or numerals, and can then send out from his own machine a jumble which will greatly confuse the message into which it is thrown.

Notwithstanding these difficulties, the wireless is performing a wonderfully effective service. It is now being used almost exclusively in the conveyance of diplomatic communications. Even the messages between Germany and the United States, some of which have exceeded 10,000 words in length, have been first put into the wireless code used by the State Department, then recorded in the code of the German Department of State and translated into the German language, or vice versa, without any important error being made.

All of the operations of the British fleet are directed by wireless. No person outside of the British Admiralty knows just where his fleet is, but the movement of every vessel is directed daily by Admiral Jellicoe. He issues his orders through the large force of wireless operators who are engaged day and night in transmitting messages from the admiralty offices. Each ship is also able to hold wireless communication with the other vessels of the fleet.

Wireless communication between vessels is aided by the submarine signal service recently invented by Prof. A. R. Fessenden, of Boston. This is a steel disk, twenty-one inches in diameter, attached to the side of the vessel. It is connected with a small electric battery, the instrument being really an enlarged electric "buzzer." When used above the water the sound would be unbearable, but when submerged only the faintest whisper like a far-away siren is audible upon the deck of a vessel equipped with it.

Sound Travels Miles.

This instrument transmits messages dependably for two or three miles, but inventors are working upon a system of sound magnifying which, it is believed, will at least double its power. Most of the United States submarines have been equipped with this new device. During a test given recently outside of Newport harbor, the boats were able to exchange signals for thirteen miles, and to hear, distinctly at seven miles.

Wireless telephony, or radio-telephony, as used in the Italian navy, is still in its infancy, but tremendous developments are to be expected within the next few months. It is now being experimented within France, and is expected soon to direct the army manoeuvres which are now controlled by wireless telegraphy.

Every French army division is now

equipped with its own instruments for setting up a wireless station upon the field. The equipment includes transmission apparatus and an aerial tower. Some of these towers are small enough to be carried by a human porter, while the larger ones are transported by specially designed motors. These aeriels send the accounts of the daily hostilities to some other communication station, which transmits them along the necessary relays to the Eiffel tower in Paris, the most powerful wireless station in the world. Return messages are flashed back from the war-controlling centres, and little effort would be noted if every wire in the world shared the fate of the German cables. The wireless message covers the globe, enabling the lonely operator on the antarctic circle to keep as closely in touch with the army upon the Russian frontier as if he were receiving every war "extra" published.

Public Asked To Save Coal

What are you doing to save coal for the nation?

A special Home Office Committee reports that the loss in production for the last year beginning in August last will probably be 36,000,000 tons. But 24,000,000 tons can be saved by restrictions on exportation, and between 13,000,000 and 14,000,000 more avoidable absenteeism.

could be produced if there were no coal, as the Committee suggests, by such economies as savings in public and private lighting--gas or electricity--and the manufacture of luxuries which require coal.

Because nearly 200,000 miners have enlisted, the coal output has dropped 13 1/2 per cent. It is therefore suggested that miners should not be recruited for the Forces. Co-operation between masters and the men is urged, and the Committee appeal to all miners to work every day they can pointing out that the voluntary limitation of the Easter holiday meant more than 1,000,000 tons extra output.

The War Trade Committee is exercising stricter control of coal exports to secure precedence for the Allies, with the result that the freight rates to Italy and France have fallen heavily.



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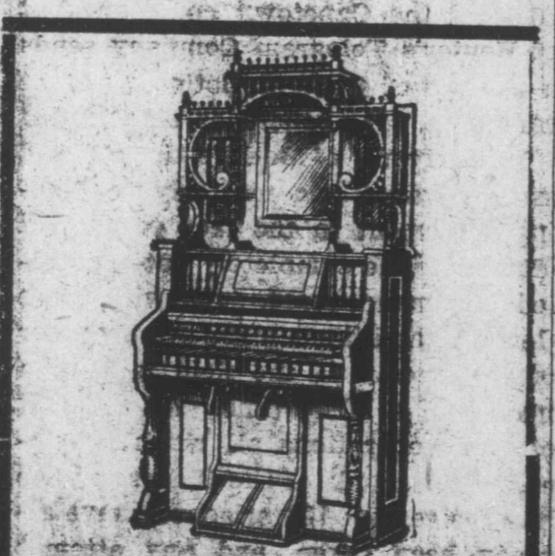
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