WIRELESS TELEGRAPHY.

On arrival at San Francisco, the United wireless station on the outskirts of the city was visited. It was situated on elevated ground, with the two masts still higher up on the sloping hill. The power installed was 10 kilowatts, so arranged that it could be halved. In the night-time the full power was used, and communication was obtained with Honolulu at a distance of 2,100 miles. Ships frequently got into connection with this station at a distance of 1,500 miles and over at night. In the daytime, while there were wireless signals to be heard almost at any minute, no effort was made to attain distances beyond two hundred to three hundred miles. An operator was continually listening.

It was noticed that there was a large number of aerials scattered over the city. Some of the owners of these had power up to 2 kilowatts installed, and as there was no regulation of wireless it was found that from 7 p.m. until 10.30 p.m. there was a great deal of interference. The night before reaching port the officer in charge of the wireless on board the ship kindly permitted me frequently to listen. It was found that several stations were generally working at the same time, and, notwithstanding that, were managing to get along fairly well. To assist in reducing the interference and to expedite naval and commercial work, there was an unwritten understanding that one class of work was to be done during one half-hour and the other class during the next half-hour. This arrangement was of considerable advantage.

From the United wireless station another station was seen nearer to the sea. This was visited, and proved to be that of the Poulsen Development Company, which was operating the Poulsen arc system. Some time was spent investigating this system, which was found to be getting very good results in the daytime. The power was about 12 kw. The two masts were 300 ft. high, and a harp antenna of about forty wires was used. The system uses undamped or continuous waves. Communication could be obtained at any time with Los Angeles, about five hundred miles distant, and for many months for eighteen hours a day El Paso, one thousand miles distant overland, and with mountains 14,000 ft. high intervening, had been in uninterrupted communication.

Stockton, eighty miles north, with 4 kw., reached Los Angeles without difficulty in the daytime. A demonstration was given whereby the continuous waves were broken up so as to render it possible for signals to be received on a crystal or other detector suitable for receiving spark-waves. The communication with Los Angeles by this method was satisfactory. When continuous waves are radiated a " ticker " has to be employed. Telephonic speech to Stockton, eighty miles distant, was exchanged, and found to be fair.

Stockton and Sacramento both sent telegraphic signals simultaneously, and either could be easily cut out so that the listener was quite unaware that there were any signals arriving from the second station. This was effected by quite a small movement of the tuning condenser.

For several days during a breakdown of land wires the business of the Stock Exchange between San Francisco and Los Angeles was conducted by this system, and the manner in which the work was done received the written approval, which was read by me, of the authorities of that institution.

Honolulu, 2,100 miles distant, was reached sometimes at night, although the antenna there was small. A higher antenna was to be installed and 30 kw. used at San Francisco to cover the distance. Information has not reached me whether that was successfully done.

This system was giving great promise, and the company was erecting a station at Fort Worth, and was about to erect one at Chicago to engage in the commercial transmission of telegrams.

At Los Angeles there was a station similar to that at San Francisco. It was seen, and the writer chanced to be listening there when San Diego, at about 3.30 p.m., first attempted to speak to San Francisco. The result was satisfactory. San Diego had 4 kw., and is about 550 miles from San Francisco and 120 miles from Los Angeles.

The next wireless station visited was that of the United Wireless Company, on the Congress Hotel, Chicago. This was on the roof of the hotel, the masts being only about 60 ft. high and separated about 100 ft. The power was 2 kw. This station is used for communicating with vessels on the great lakes. There is no desire to attain long distances, as there are coast stations along the lakes. The next one was at Milwaukee, 100 miles distant. By not having too great a range there is much freedom from interference of stations with each other. There is a great deal of shipping on the lakes, and many ships are fitted with wireless, mostly of the United Wireless Company's system.

In New York the Telefunken system was installed on the roof of Trinity Building. The power was 2 kw. The masts were only about 70 ft. high, with about 120 ft. between them. Distances up to seven hundred or eight hundred miles were attained at night.

The Naval wireless station at Brooklyn Navy Yard was of 2 kw. The aerial was supported on two masts about 150 ft. high, and separated about 300 ft. The day range was about two hundred and fifty to three hundred miles. A man was continually listening. There were no special features.

At Washington Lieutenant-Commander Todd, of the Navy, was seen and spoken to upon wireless matters.

The Navy is building at Washington three masts 600 ft. high. It appears that Professor Fessenden, who had tendered for a high-power station to have a range of three thousand miles, for some reason or another did not undertake the work. The Navy is erecting the poles, and will use the Fessenden apparatus, which it is understood they now have. It was learned, but not from this source, that the Telefunken system in powers of from 2 kw. to 10 kw. is used to a considerable extent in the American Navy, and that it is found to give satisfaction.

The amateur in wireless is in evidence about New York just as he was at San Francisco, and is stated to be not any less troublesome.