Owing to the experimental station at Nauen being dismantled for alterations, it was not possible to get an exhibition of high-power working: only working over limited distances was available. There is a high-power station at Pola, on the Adriatic. This is of 20 kilowatts primary energy, and operates with about 10 kw. in the aerial. The company very kindly arranged for Pola to send. An officer of the company accompanied me to Copenhagen, and arranged with the Danish naval authorities that access be given to their station to listen to Pola. The distance is about seven hundred miles overland and across the Alps. The two masts at Copenhagen were about 200 ft. high, separated about 300 ft. They have three aerials on these masts. There was no difficulty in picking up the signals from Pola, which were clear but not very strong. Pola did not, however, hear Copenhagen, the power at that station being only 2 kw. We were informed that it is not unusual for Pola to pick up the Copenhagen station signals.

Very good accounts were given by the Danish officers of the working of the Telefunken system. There are twenty-two installations in Denmark, most of them ship stations. The Copenhagen station reaches out seventeen hundred to two thousand miles often at night, and hears ships at similar distances. They have the spark-gap system as well as the quenched spark gaps, and they find they can reach Marconi ships better with the former, although they find the quenched sparks better for working to ships fitted with Telefunken apparatus.

Opportunity was taken of seeing the Poulsen system in operation at Lyngby, about ten miles out of Copenhagen. Dr. Poulsen very kindly arranged for a demonstration to be afforded me. The corresponding station is at Cullercoats, near Newcastle, England, and the distance over water about 560 miles. There are two masts, about 200 ft. high and 350 ft. apart. The simplicity of the equipment was a striking feature. There is no noise when sending. This system operates with continuous or undamped waves generated by an arc in a magnetic field and a hydrogen atmosphere. The arc was easily struck, quite manageable, and burned with evenness. At one time carbons used to consume too quickly. That difficulty has been overcome, and by a simple treatment of the carbon it is found it will last for hours. An ordinary key can be used when sending, as the current into the aerial does not pass through it. On each depression of the key a few turns of coiled wire constituting inductance are short-circuited. This variation of inductance in the circuit alters the wave-length, and as the receiving station is tuned to this wave-length response is made to these signals only. The reception was by a tellurium-galena detector. Signals were quite freely exchanged at about twenty-five words a minute at 3 p.m. A switch was arranged by which the usual telephone-receiver was cut out and a receiver with a trumpet mounted on it—a sort of amplifier—was cut in. The signals could then be heard about 3 ft. distant from the trumpet.

This company has worked out devices by which high-speed wireless working has been accomplished. The transmitting-apparatus of this system was shown and explained. Tape perforated similarly to that used for submarine cable transmitting, on being passed through the apparatus, controls pins so that contacts are made round the edge of revolving discs, and vary the wave-length just as the depression of the key does. A string galvanometer is used for receiving. The vertical wire of this instrument is in a strong magnetic field. The received currents deflect the wire slightly. The shadow of the wire is then projected by a powerful electric lamp through a microscope, which magnifies its movements. These movements cause a wavy line to appear upon a vertically moving strip of photographic-paper. The paper is developed and fixed while the apparatus is working, and emerges with the signals distinctly impressed upon it. This was not seen in complete operation. The string galvanometer was at the works at Copenhagen. Lyngby, however, sent some signals, and the galvanometer movements were quite clearly discerned.

Some experiments were recently made between Tralee, Ireland, and Lyngby, 950 miles, at speeds varying, according to atmospheric conditions, from 65 to 145 words a minute. Forty horse-power was available for transmitting purposes. Sometimes signals were not got through by the automatic methods, but hand working was at all times possible. The results indicate that high-speed wireless work is practicable, and there can be little doubt that a few years will see useful development in that sphere. Other companies are working in the same direction. Considerable power would appear to be required.

The wireless station at Schevingen, which is a Government station of Holland, was seen. There is a first-class brick building, large and well equipped. This place is only three or four miles from The Hague, and the station is amongst the sandhills, a little back from the sea-beach. The two wooden masts are about 330 ft. high, 350 ft. apart. A harp antenna of twenty-one solid bronze wires is employed. This is one of the best-known wireless stations in Europe. The staff is always on duty, and they cover distances up to two thousand miles at night. It cannot be said to be any particular system. The officer in charge has been associated with wireless from its beginning, and has made use of the best of the different systems. In a large room they have three or four separate sets. They use spark-gaps of zinc, a somewhat flattish surface is employed, and the distance between plates is about $\frac{1}{4}$ in. The voltage reaches 40,000. The maximum power is 9 kilowatts. To get power they drive a dynamo from the town supply at 220 volts D.C. With this they drive a D.C. motor, which is coupled to the alternator. As a standby they have a set of accumulators of 100 ampere-hours capacity and 220 volts, from which they drive the motor-alternator should the town supply not be available. The battery will last about three-quarters of an hour continuously running, and this has been found to be sufficient. Some distance away in a small shed they have an oil-engine and dynamo, which can be started up if all other sources of supply fail. They leave nothing to chance in having a supply of energy available. Electrolytic, crystal, and valve detectors are used. Greenwich "time" for shipping is sent out daily at noon from this station. This was heard on one occasion at the Telefunken station at Messrs. Siemens Bros.' works at Woolwich. The signals were excellent at that distance.