

No. 30.

New Zealand, Dominions No. 317.

SIR,—

Downing Street, 27th May, 1927.

With reference to my despatch, Dominions No. 231, of the 21st May, 1926, I have the honour to transmit, for the information of His Majesty's Government in New Zealand, copies of the Report of the Committee on Transatlantic Wireless Telephony (Cmd. 2858).

I have, &c.,

L. S. AMERY.

Governor-General His Excellency General Sir C. Fergusson, Bart.,
LL.D., G.C.M.G., K.C.B., D.S.O., M.V.O., &c.

Enclosure.

REPORT OF COMMITTEE ON TRANSATLANTIC WIRELESS TELEPHONY.

Committee on Transatlantic Wireless Telephony.—Admiral of the Fleet Sir HENRY B. JACKSON, G.C.B., K.C.V.O. F.R.S., R.N., Chairman of the Radio Research Board (Chairman); Major-General Sir FREDERICK H. SYKES, G.B.E., K.C.B., C.M.G., M.P.; R. A. DALZELL, Esq., C.B., C.B.E., Director of Telegraphs and Telephones, General Post Office; W. H. ECCLES, Esq., D.Sc., F.R.S., President of the Institution of Electrical Engineers; F. GILL, Esq., O.B.E., M.Inst.C.E., Past President of the Institution of Electrical Engineers; E. H. SHAUGHNESSY, Esq., O.B.E., M.I.E.E., Assistant Engineer-in-Chief, General Post Office; Lieut.-Col. A. G. LEE, M.C., M.I.E.E. (Secretary).

REPORT.

Terms of Reference.

1. We were appointed by the Postmaster-General in March, 1923, with the following terms of reference: "To consider in the light of recent progress in wireless science the possibility from a technical standpoint of transatlantic wireless telephony of sufficient reliability for commercial use, and to advise what practical steps, if any, can at present be taken to develop this means of communication."

Progress in Wireless Science.

2. The development of the thermionic valve and its application to wireless transmission and reception had opened up possibilities of transoceanic wireless telephony which had been beyond practical attainment previously. In 1915 the American Telephone and Telegraph Co., by connecting together a large number of small valves which were then available, succeeded in transmitting speech across the Atlantic from Arlington, U.S.A., to Paris, and between 1915 and 1923 developed what is known as the "single-side-band suppressed-carrier" method of working in wireless telephony, an invention which is designed to reduce the number of wave-lengths required for telephonic communication and at the same time offers very considerable advantages in the utilization of power required for transmission. Attention was also paid to the development of a large-power valve, and to the production of a water-cooled valve of 10 kilowatts continuous and reliable output. These advances, together with a large number of other important improvements, opened up possibilities of long-distance wireless telephony.

With larger valves and improved technique the company again achieved one-way transatlantic telephony, and on the 15th January, 1923, a large audience at the works of the Western Electric Co. (now Standard Telephones and Cables, Ltd.) at New Southgate, London, heard the voices of the speakers in New York quite clearly and loudly, speaking at predetermined times over a period of two hours.

Preliminary Experimental Work.

3. The preliminary work of the committee was devoted to obtaining data for outlining the problem upon which it was engaged. It was known that wireless signals across the Atlantic varied in strength from hour to hour and day to day, and that the disturbance due to what are known as atmospherics varied also at different times of the day and at different seasons of the year.

The American Telephone and Telegraph Co., the Radio Corporation of America, the International Western Electric Co. (now International Standard Electric Corporation), and the Post Office Engineering Department offered their co-operation in the necessary experiments.

To obtain the required data it was decided to make measurements in this country of the strength of signals from America, and the strength of the atmospherics, each week-end, over a complete twenty-four hours in each case. These measurements were continued to the end of 1926, and numerous records of the conditions likely to be met in giving a commercial service were thus obtained. At the same time the Post Office wireless stations, Leafield, Northolt, and latterly Rugby, transmitted signals to America, where similar measurements on signal strength and atmospherics were also being made. The special signals from America were sent from the Radio Corporation station at Rocky Point, Long Island. Speech was also transmitted from this station, and measurements of the deteriorating effect of atmospherics on the intelligibility of speech were made in this country.

Arrangements were also made concurrently for the Post Office Engineering Department to install at Chedzoy, Somerset, a receiving antenna, seven miles in length, for the purpose of gaining experience of the value of this type of antenna in combating atmospheric disturbances.