

COOK STRAIT CABLE.

This important portion of the telegraph system maintains its good working condition, as will be seen from the insulation tests shown in Table G. In the last report, it was said that if the work of the department continued to increase, a second cable would probably soon be required. This costly necessity has, however, been obviated by the successful introduction of the Duplex system of telegraphy, the adoption of which has rendered the cable capable of nearly double the work it has hitherto done. As will be seen from the appended tables, the work has been so rapidly increasing, that its continuance would speedily have necessitated the laying of a second cable, but for the successful introduction of the Duplex system. At present, that system is only worked on one wire, but, when necessary, it will be applied to the other two wires of the cable. This will in all probability make the cable equal to the work for some years to come. The system will also be applied to land lines wherever it becomes necessary and can be used to advantage.

For the introduction of the Duplex system, New Zealand is indebted to the scientific skill and the great perseverance of Mr. C. Lemon, the General Manager of the department, who has perfected very effective apparatus, which differs in some important details from all arrangements for a similar purpose yet worked out in Europe or America. The Commissioner has pleasure in appending the following correspondence on the subject; especially as he can thus put on record the thanks of the Government to Mr Lemon and his assistants:—

"SIR,—

"New Zealand Telegraphs,
"Head Office, Wellington, 18th June, 1874.

"I have the honor to inform you that my efforts in establishing the Duplex system of telegraphy in this colony have now been crowned with success.

"1. The No. 3 wire in the Cook Strait cable is now being worked by the above system, and messages sent simultaneously from either end without the slightest difficulty.

"2. Last night, for the first time, the Duplex instruments were placed in circuit, and an average speed of 64 words per minute obtained out of one wire, the Wellington operator sending 106 words in three minutes, and the Blenheim operator 87 words in the same time, making a total of 193 words sent on one wire in three minutes.

"3. This test of the capabilities of the Duplex system is not likely to be exceeded—in fact, at ordinary working a rate of from 20 to 26 words per minute each way will be all that will be looked for, and at that rate double the amount of work the cable now carries can be accomplished in the same time.

"4. The introduction of the Duplex system is doubtless one of great importance to the colony, and has practically doubled the value of the Cook Strait cable, for every wire in it may now be looked upon as equal to carrying the work of two single wires worked in the ordinary manner.

"5. As opportunity offers and occasion requires it, it is intended to apply the Duplex system to the land lines of the colony. Experiments in this direction have already been made on circuits of 20, 86, and 196 miles respectively, and have been crowned with perfect success.

"6. Before concluding my letter, I would beg to mention that my labours have been greatly lightened by the great assistance rendered me in the course of my experiments by Mr. Macalister, the assistant officer in charge of the Wellington station, and Mr. Smith, the mechanician to this department. The latter gentleman has made all the apparatus now in use.

"I have, &c.,

"C. LEMON, General Manager.

"The Hon. the Telegraph Commissioner, Wellington."

"SIR,—

"General Government Offices, Wellington, 30th June, 1874.

"I have submitted to my colleagues in Cabinet your letter of the 18th instant, in which you inform me that your efforts to establish the Duplex system of telegraphy in the colony have now been crowned with success.

"2. I have much pleasure in conveying to you, on behalf of the Government, the expression of their recognition of the service you have been able to render the colony, and their thanks for the same.

"3. I desire also to request that you will convey the thanks of the Government, for the assistance they have rendered in this important improvement in the system of telegraphy, to Mr. Macalister, the assistant officer in charge of the Wellington station, and Mr. Smith, the mechanician to your department, by the latter of whom all the apparatus now in use was made.

"I have, &c.,

"JULIUS VOGEL.

"C. Lemon, Esq., General Manager,
"Telegraph Department, Wellington."

SCHEDULE OF TABLES.

- Table A.—Cash Revenue and Expenditure, Signals Department.
 " B.—Number of Telegrams sent for every 100 Letters.
 " C.—Numbers of Telegraph Money Orders issued and paid.
 " D.—Comparative Quarterly Return, years ending June, 1873 and 1874.
 " E.—Annual Comparative Progress of the Department.
 " F.—Cost of Maintenance of Lines.
 " G.—Insulation Tests, Cook Strait Cable.
 " H.—Total Cost of Lines.
 " I.—Value of Government Telegrams.
 " K.—Debtor and Creditor Statement.