

## Enclosure 2 in No. 15.

EXPERIMENTS made on the Bluff Harbour and Invercargill Railway with Coal from the Nightcap,  
5th June, 1868.

	Newcastle Coal.	Thompson's Coal.	Capt. Howell's Coal.
Mean temperature of water during experiment...	57°	47°	50°
Economic value, or lbs. of water evaporated by 1 lb. of coal	8·38	3·87	4·67
Rate of combustion, or lbs. of coal burned per hour, per square foot of fire grate	39·01	87·26	101·23
Rate of evaporation per square foot of fire grate per hour, in cubic feet of water.	5·24	5·42	7·59

W. CONYERS,  
Permanent Way and Locomotive Manager.

## No. 16.

The DISTRICT ENGINEER, Wellington, to the ENGINEER-IN-CHIEF.

SIR,—

17th September, 1877.

I would suggest having a more complete report, giving alterations to engines, for comparison with Auckland results, and grades on which trials were made, without which it is of no use trying to make a reliable comparison. In event of more promising results from further trials, the Canterbury owners must be prepared to guarantee supplies at a lower rate than the majority are prepared to supply for, if the use of native coals is to be economical.

The Engineer-in-Chief.

I have, &c.,  
J. P. MAXWELL.

## No. 17.

The SUPERINTENDING ENGINEER, Christchurch, to the ENGINEER-IN-CHIEF.

(Telegram.)

Christchurch, 18th September, 1877.

*Re* coal trial, Class G, 10½-inch cylinder, four wheels coupled, double bogie; Class G, 14-inch cylinder. The funnel was altered to the tracing supplied for the first experiment, but engine was found to steam better with the straight one, so that form was adopted in the succeeding experiments; the air-spaces in fire-bars were contracted to ⅓ inch, but some trials were made with the bars rather wider; the road was practically level for the purpose of this experiment, the ruling grade on the main line being 1 in 100, and in the branch 1 in 107.

The Engineer-in-Chief.

W. CONYERS.

## No. 18.

The SUPERINTENDING ENGINEER, Christchurch, to the ENGINEER-IN-CHIEF.

(Telegram.)

21st September, 1877.

THE result of a preliminary trial of Shag Point coal, made yesterday with 14-inch cylinder tender engine is so far very satisfactory. Plenty of steam, no clinkers, and consumption much lower than in previous experiments. Will report fully after further trials.

The Engineer-in-Chief.

W. CONYERS.

## No. 19.

Mr. R. J. UNDERDOWN to the RAILWAY MANAGER, Auckland.

*Trial of Christchurch Coal at Auckland.*

SIR,—

Wellington, 13th October, 1877.

I am directed to inform you that ten tons of native Christchurch coal will be sent you, and that it is desired you should give it a careful trial under the same conditions as the Waikato coal, in order to test the relative values, and when you have done so to furnish the Engineer-in-Chief with a detailed statement of the results obtained.

Mr. Macdonald, Auckland.

R. J. UNDERDOWN.

## No. 20.

The SUPERINTENDING ENGINEER, Christchurch, to the ENGINEER-IN-CHIEF.

(Telegram.)

Engineer-in-Chief's Office, 15th October, 1877.

*Re* Malvern coal. Have given instructions to forward ten tons Parker, Springfield coal, to address of Storekeeper, C.R., Auckland.

The Engineer-in-Chief.

JOHN MENZIES,  
(For Superintending Engineer.)