No. 211.—Kawa-kawa Coal.

During the past year active steps have been taken to work this mine, and the coal is now supplied to the market in considerable quantity. The following analysis is that of a specimen taken at random from a heap of several tons as sold in Wellington:—

$\frac{211}{L}$ Analysis.

Water	5·70
Fixed Carbon	41·53
Hydro-carbon	46·23
Sulphur	5·00
Ash	1·54
	100·00
Relative percentage of Fixed Carbon	44·77
„ „ Volatile	55·23
	100·00

	Average of four samples from same locality approximating to each other in quality.		Analysis of an earthy kind, probably corresponding to sample 2 in Mr. Loder's report.
Water	4·05		3·20
Fixed Carbon	53·66		47·20
Hydro-carbon	33·02	}	22·40
Sulphur	5·10	}	
Ash	4·17		27·20
	100·00		100·00
Relative percentage of Fixed Carbon, deducting water and ash	57·67		67·82
Do. of Hydro-carbon do.	42·33		32·18
Specific Gravity (cakes strongly)	1·287	(scarcely cakes)	1·301

The additional geological information respecting these mines, which I acquired in a recent visit to the locality, will be found in another Report, but I may here state that, under proper management, there is no reason to doubt that they can be worked to a profit.

I had repeated opportunities of seeing the coal tested as a steam fuel, and excepting in a few cases where, through bad management, inferior coal was allowed to mix with the better parts of the seam, the results were of the most favourable character.

The following is an abstract of the report of a series of very careful experiments, for the purpose of comparing the amount of work done by Kawa-kawa coal, with that by Australian coal used on board the Colonial Government p.s. "Sturt," which were made by the Chief Engineer, Mr. W. Lodder, by order of the Government, and forwarded to me for publication:—

"The following table gives the results showing the averages arrived at from four experiments in different places on the days named, together with the results of trials of a fair sample of Australian coal for comparison. Taking thus the means of the four experiments made with the Bay of Islands coal, it appears that the Kawa-kawa coal has a superior evaporating power to the extent of 29·68 per cent. over the Australian coal, and that the consumption per actual horse-power is less by 30·7 per cent., or 14·18 per cent. less in the total consumption per hour.

"The difference between the two coals is very considerable, there being a saving of 32·4 per cent., or twelve shillings per ton, in the price of the coal; this, added to the saving in the consumption, makes a very material difference in the working expenses of a steamship. It was found by practice that the close and lighter description of fire-bars are not so liable to destruction by burning, which hitherto seems to have been the principal cause of complaint against the Kawa-kawa coal.

"Taking, then, into consideration the small percentage of waste in the Kawa-kawa coal, and the large percentage gained in the consumption and evaporating power of this coal, as well as its relative bulk being only about 6·5 per cent. greater than the Australian coal, the result leaves no doubt of a marked superiority of the Kawa-kawa coal over the Australian coal for use in this vessel.

"William Lodder,
"Chief Engineer,
"Colonial Government p.s. 'Sturt.'"