

New Zealand Coal.

Date of Test.	Name of Mine.	Weight of Sample tested.	Quantity of Gas produced from sample, in cubic feet.	Quantity of Gas per Ton of Coal, in cubic feet.	Power Illuminating of Gas in standard Candles.	Weight of Coke per Ton of Coal, in lbs.	Remarks.
1871.							
Apr. 30	Grey Coal, Test No. 1 ...	7 lbs.	35.5	11,360	} 14½	1,590	{ This is not a guaranteed sample; it was obtained from the s.s. "Luna," and may possibly have other coal mixed.
"	" " Test No. 2 ...	7 lbs.	31.3	10,016			
July 10	Grey Coal	112 lbs.	550	11,000	20 to 24	1,820	The quantity registered is doubtful.
July 17	Grey Coal, Slack	112 lbs.	430	...	21 to 25	...	
July 18	" " "	112 lbs.	510	10,200	Average 22½	2,020	
July 20	" " "	112 lbs.	550	11,000	Average 22½	1,880	
July 24	" " "	112 lbs.	530	10,600	Average 20	1,800	
Mar. 23	Collingwood Coal (Nelson)	7 lbs.	...	About 5,000	18½ to 19	...	Retort at only a dull red, about 1,000°.
Mar. 31	" " " (3 tests about equal)	7 lbs. each	28.27	9,811	18 to 19	1,280	Illuminating power ascertained after gas had been stored some time, perhaps two or three days.
June 30	Collingwood Coal (Nelson)	tons cwt. 8 4	76,960	9,300 nearly	19	1,780	This gives illuminating power after storage, and as was supplied to consumers.
July 25	" " "	112 lbs.	500	10,000	25 and above	1,500	
July 8	Bay of Islands Coal (Kawa Kawa)	112 lbs.	530	10,600	18 to 19	1,328	
July 17	Mount Somers, Ashburton River, Canterbury	84 lbs.	200	5,300	None	A small quantity of light breeze only left after working off the gas.	

B.—FOR STEAM PURPOSES.

Mr. Kebbell's trials were made by burning half a ton of coal, and ascertaining the time a stationary engine was kept at work with the consumption of this weight of coal. Care was taken in each case that the height of water in the boiler, the pressure of steam, the work being performed by the engine, and all other circumstances, should in each case present exactly the same conditions when the trials were commenced and completed.

						h. m.
No. 1.—English steam coal	...	...	...	worked engine		4 25
No. 2.—Newcastle, N.S.W.*	...	...	...	" "		4 39
No. 3.—Collingwood coal, No. 1 trial	...	...	...	" "		4 55
No. 4.—Collingwood coal, No. 2 trial	...	...	...	" "		5 0
No. 5.—Grey River coal	...	...	...	" "		5 5
No. 6.—Bay of Islands, Kawa Kawa Mine*	...	...	...	" "		5 11

No. 1 gave about the same quantity and description of coke as the New South Wales coal.
No. 2 made 114 lbs. of waste on the half-ton.
Nos. 3 and 4. This coal cokes sufficiently to prevent it running through the bars. If the fires are fed regularly, they require no stoking, and the least attention of any coal ever used by Mr. Kebbell. The clinker is similar in quantity and quality to the New South Wales coal.
No. 5, Grey River coal, is a good coking material, and cakes very much in furnaces with a moderate draught, requiring a good deal of attention. The quantity of clinker and waste was so small as not to be worth mentioning.
No. 6, Bay of Islands. This coal made 28 lbs. of clinker, which is injurious to the furnace bars, adhering to them very strongly, and can only be removed by allowing the bars to cool down. If it were not for this fault it would be a good steam coal.

In these trials all the New Zealand coals give a better result than either English or New South Wales coal, in work performed with an equal weight.
For household purposes, all who have tried the Grey River and Collingwood coal prefer them to any coal imported into the Colony, as being cleaner and burning more freely and pleasantly.
All the expirements made and information that I have been able to obtain tend to show that New Zealand possesses superior coal for steam purposes, when worked with stationary engines, at a moderate draught, and for household and gas purposes, to that of New South Wales; but that for steamers' boilers, working at a strong draught, the heavier coals of England and New South Wales have the advantage. It is to be hoped that the further development of the mines will ultimately remove the last named defect.

* Computed from a previous series of experiments, the value of the English coal being taken as the same in both.