

RESULTS OF EVAPORATIVE TESTS AT THE AUCKLAND SUGAR REFINERY, AUCKLAND, NEW ZEALAND,
FROM JULY 1885 TO MARCH 1886, BY MR. E. C. STABLES.

To supplement his Paper entitled "Some Remarks on Combustion," contained in Proceedings, Vol. II.

Description of Fuel.	Lbs. Feed Water @ 168 deg. F. actually evaporated per lb of fuel (add .045 lbs to each quantity if from 212 deg. F.)	Gallons of Water @ 168 deg. F. evaporated per ton of Fuel.	Weight of Fuel to evaporate 100 gallons from 168 deg. F.	Normal rate of Evaporation in gallons per hour by one boiler.	Lbs. Feed Water evaporated per ea. sq. ft. of (600 sq. ft.) heating surface in lbs per hour.	Coal burnt per ea. sq. foot of (20 sq. ft.) grate-bar surface in lbs. per hour.	Percentage of Ash and Clinker (Dry.)	Price per ton of Fuel in Stokehole.	Gallons of Water evaporated from 168 deg. for £1.	Value per ton of Fuel, compared with Co-operative <i>Round</i> , @ 23/3.	Value per ton of Fuel, compared with Co-operative <i>Small</i> , @ 16/3.	Value per ton of Fuel, compared with <i>Westport Small</i> , @ 18/3.
West Moreton Coal Co. ...	6.434	* This coal contained 4½ per cent. water (mixed coal, large and small as taken from pit.)	1519.6	147	315	5.25	23.2	13.5	1665	22/6½	16/8½	15/11
Brisbane (Q.) ...	6.784											
New Lambton <i>Small</i> ...	5.911	This coal contained 8 per cent. water.				
Newcastle, N.S.W. ...	6.512		1458.6	153.5	255.5	4.258	19.9	14.4	1793	21/7½	16/-	15/3¼
Graymouth, N.Z., Gas Coal, not "damaged by weather," dry, and in best condition ...	7.57		1695.7	132.1	270	4.5	17.7	5.35	1458	25/1½	18/7½	17/9

* The correction given for water in the coal, owing to prevailing wet weather, was made by drying three samples of each kind and deducting the per centage indicated from the coal and adding the same to the water evaporated in the boiler. The "West Moreton" is the best Queensland coal I have ever seen; it is fairly rapid—four boilers giving as much steam as five when burning Newcastle slack.

NOTE.—The "price per ton" includes 2/- per ton Harbour dues and 3d. per ton cost of landing and trimming. I always estimate the coal to be worth 2/6 per ton for each time it evaporates its own weight, or 3d. for each 0.1 lbs difference in comparing coals.—E.C.S.

November, 1887.