

RESULTS.

Whilst Mr. Doherty was tabulating results at Garston, I was arriving at similar (but not exactly identical) results in Rangoon as follows:—

	<i>Garston.</i>		<i>Rangoon.</i>	
	<i>Ordinary.</i>	<i>D. Process.</i>	<i>Ordinary.</i>	<i>D. Process.</i>
Average loss on iron melted.....	6%	2.7%	10%	5%
Average rate of melting per hr..	4 tons	5 tons	2 tons	2½ tons
Average consumption of coke per hour.....	3.35cwts	2.74 cwts	3 cwts.	2.15 cwts

I obtained much better coke consumption results in Rangoon than I found possible later on in Garston, the extreme heat and dry climate of the former being, no doubt, accountable for the difference and not the excellence or the smaller capacity of the cupola in Rangoon. One pound of carbon burning to carbonic acid develops 12,906 units of heat, and one pound of cast iron requires 511.2 units of heat to melt it at 2,190° Fah., and allowing coke value to be .82 of carbon; we would, therefore, require to melt one ton (2,240 lbs.) of iron

$\frac{2240 \times 511.2}{12906 \times .82} = 108.2$ lbs. of coke or nearly 1 cwt. Since the best results obtainable are a little over 2 cwts. in actual practice, we arrive at some idea of the actual waste of heat incidental to the operation of melting iron in a cupola and if any apology were needed for the endeavor to economize the gifts of nature in the useful arts and manufactures, we have it right here, apart from the superiority of the resultant product claimed by this process. The brands of cast iron used in foundries for ordinary castings are Nos. 1, 2, 3, and 4, which are grey cast irons. The quality of the iron can be judged by inspecting the fracture. When the color of the fracture is a uniform dark grey, mottled and without lustre, it is very weak; when the color is lightish grey with high metallic lustre, the iron is tough and hard; but when the color is light grey without metallic lustre, it is hard and brittle. No. 1 has a dark grey fracture with high metallic lustre; it is more fusible and more fluid than the others, but being deficient in hardness and strength, it is only suitable for very light castings.

Nos. 2 and 3 are used for ordinary castings, the color being a lighter grey, with less degree of lustre than No. 1.

When melting in the cupola without the Doherty process, I used for ordinary castings