From another analysis which Mr. Doherty was demonstrating at Garston in England, the figures were as follows:---

Charge.					(10	n	te	ii	n	in	19	1	5	0	1	0.C	. phosphorus.
Cleveland pig																,		121 per cent.
Hematite				•												,	•	$12\frac{1}{2}$ per cent.
Scrap	• •		*		• •			*		• •		*	•	0		1	*	75 per cent.
The castings contained	ed	:-																0.04
Combined carbon					•	• •			•	• •	• •	•	•	• •			•	0.24
Graphite carbon		• •		•		• •	•	*	•	• 1	1	•	* 1	•	*	1	*	1 03
Silicon	• •	• •		*	*	• •	*	*	•	•		1	*	1	•	1	۰.	0.19
Sulphur	• •	• •		*	1	1		*	•	1	• •	•				1		0.64
Phosphorus	1. 1	* *	• •			•		. *	*	*	• •		•	•		1	1	

Thus emphasizing Mr. Doherty's claim of reducing the sulphur and phosphorus, uniting the molecules of the metal in a closer relation, thereby giving tougher, stronger and more ductile castings than otherwise could be obtained at so low a cost.

PHYSICAL QUALITIES.

The metal produced by the process possesses some remarkable features. In appearance the fracture is close grained. uniform and of silvery grey color, and does not present that crystallization in the centre, shading off to a finer grain at the edges, such as may be observed in ordinary castings. In fact, the homogenity of the metal is most marked. Tests for strength by means of test bars have been numerous, and always well above the average of ordinary cast iron tests. Bars resting on bearings 3 feet apart and 2"x1" on edge seldom failed below a gradually applied weight of 30 cwts. in the centre, and frequently stood up to as high as 34 cwts. I have also known these bars frequently leave the testing machine unbroken at 30 cwts. with a permanent set of 1" to 11" off the straight at the centre; and of a ductility approaching that of malleable cast iron, evidenced by a short bar 1" square when placed in a vice and hammered at one end, being upset to the extent of 25 per cent. increase of its section, and when heated to a cherry red, roughly forged and expanded to a chisel point. Its strength and ductility also is particularly instanced in very thin castings being readily punched in an ordinary press without fracture. The grain and ductility also renders it of great value in machining where it may be cut like very soft malleable cast iron at a quicker speed than ordinary castings could be treated, and it is capable of high polish and finish.

COST OF PROCESS.

Apart from the initial outlay of pipes and connections to the nearest steam supply which, of course, is variable, costs