Slag.

	Per Cent.
Silica	20·24
Titanic oxide	13·20
Alumina	8·63
Ferrous oxide	7·72
Oxide of manganese	0·97
Lime	32·40
Magnesia	16·42
Phosphoric anhydride	0·11

HEAT 10.

After the metal from heat 9 had been teemed the furnace was immediately charged again with a similar charge to that used in heat 9, except that the coke used was ground to pass an $\frac{1}{8}$-in.-mesh sieve. The composition of the two charges was as follows: Ironsand, 600 lb.; coke-dust to pass $\frac{1}{8}$ in. mesh, 70 lb.; coke-breeze, 40 lb.; lime, 50 lb.

The materials were again intimately mixed as in the previous heat. A second charge was put in after an hour's run. The reduction was completed and the slag tapped after 3 hours 36 minutes.

For carburization 40 lb. of coke-dust was used, and later 10 lb. carburite was added, and was complete in 1 hour 33 minutes, at which point 88 lb. of ferro-silicon was added, and the metal teemed after a total run of 5 hours 51 minutes.

Electrical Measurements.—Heat 10.

Date: 26th August, 1921.

Time.	Volts.	Amps.	Watts.	Units.		Remarks.
				No. 1.	No. 2.	
5·49	..	..	..	..	..	First charge.
5·52	..	..	..	..	..	Full tap.
6·00	150	2,500	360	494,055	504,232	
6·15	158	2,500	370	..	..	
6·30	154	2,350	370	..	..	
6·45	175	2,250	372	..	..	
6·50	..	..	..	494,216	504,400	Second charge.
7·15	160	2,500	373	..	..	Off for 17 minutes.
7·30	160	2,500	370	..	..	
7·45	170	2,500	375	..	..	
8·00	164	2,400	376	..	..	
8·15	170	2,600	377	..	..	
8·30	175	2,250	367	..	..	Off for 4 minutes; slag overflowing.
9·00	160	2,500	380	..	..	Off for 7 minutes; slag overflowing.
9·15	104	2,000	210	494,580	504,781	Off 25 minutes for additions and slagging.
9·50	120	2,800	230	..	..	Off for 15 minutes.
10·19	109	1,900	190	..	..	Off for 9 minutes.
10·37	100	2,250	210	..	..	Off for 5 minutes.
11·00	110	1,650	185	..	..	Off for 6 minutes.
11·15	109	1,900	180	..	..	
11·32	Off	..	..	494,657	504,862	Run terminated.

Total length of run		5 hr. 40 min.
Effective length of run		4 hr. 12 min.
Mean volts		144
Mean amps		2,315
Mean watts		311
Watts (= volts × amps)		323
K.V.A. (= watts × time)		1,388
Total units (K.W.H.) consumed × 1·25		1,540
Pig iron produced	(lb.)	831
Units (K.W.H.) per ton of pig		4,151
Slag made	(lb.)	836

$$\text{Ratio } \frac{\text{Slag}}{\text{Iron}} = \frac{836}{831} = 1{\cdot}006.$$

Metallic iron charged in form of sands	(lb.)	743
Metallic iron as ferro-silicon	(lb.)	69
Lime charged	(lb.)	110
Coke and breeze charged	(lb.)	260
Lime per ton of iron produced	(lb.)	297
Coke-breeze per ton of iron produced	(lb.)	702
Yield of pig iron per cent. of iron charged		102·34