

For an 8-per-cent. carbon product at 90-per-cent. recovery.....5,730 lb. of ore.
 For a 5-per-cent. carbon product at 70-per-cent. recovery.....7,380 lb. of ore.

The power figures of Beckman and Linden are based on the statement that each pound of ferro-chromium needs 3 kilowatt-hours for its production. This may be correct with high-grade ores and in large furnaces. In Keeney's experiments, using furnaces of about 200 kw., the power-consumption was about 3.4 or 3.5 kilowatt-hours per pound, and this at 85 per cent. load factor corresponds to 1.4 horse-power years.

Beckman and Linden in their original estimate state that 1,100 lb. of petroleum coke would be needed per long ton of the product, and I converted this into 1,200 lb. of coke and charcoal. Keeney used coke in his experiments, and the amount varied from 0.5 to 0.75 lb. per pound of ferro. Taking 0.6 lb. as a mean value, we find the consumption to be 1,344 lb. per long ton of the product.

For the production of ferro-chromium in a small furnace of 300 kw. it will be safer to take the more conservative figures of Keeney, and using, as before, the remaining items from Beckman and Linden, which I have already increased a little on account of the smaller scale of operation, we obtain the following estimate:—

Cost of Production of One Long Ton of 65-per-cent. Ferro-chromium with about 6 per Cent. Carbon from an Ore of 40 per Cent. Cr_2O_3 in a Furnace of 300 Kw.

Chromite ore, 6,000 lb. at \$36 per net ton	\$108 00
Steel turnings, 100 at \$11 per gross ton	50
Coke, 1,350 lb. at \$ per net ton	5 40
Power, 1.4 horse-power years at \$15 per horse-power year	21 00
Electrodes, 100 lb. at 7 cents per pound	7 00
Labour	12 00
Maintenance	5 00
Supplies	2 00
Plant, general expense	10 00
Office, general expense	6 00
Total	\$176 00
If the power cost 0.5 cent per kilowatt-hour, the charge for this item would be:—	
7,700 kilowatt-hours at 0.5 cent	\$ 38 50
And the final cost per ton of ferro would be	194 40

FERRO-SILICON.

The following estimate is given by Messrs. Beckman and Linden for the cost of making 1 ton of the 50-per-cent. ferro-silicon. The output of a 300-kw. single-phase furnace would be 400 tons per annum, or 1 ton daily.

Cost of making One Ton of 50-per-cent. Ferro-silicon with \$15 Power in a Large Furnace.

Power, 1 horse-power year at \$15	\$15 00
Quartz, 2,400 lb. at \$3.50 per net ton	4 20
Coke, 1,200 lb. at \$8 per net ton	4 80
Turnings, 1,500 lb. at \$10 per net ton	7 50
Electrodes, 60 lb. at 7 cents per pound	4 20
Labour	16 00
Supplies	1 50
Plant and office, general expense	5 00
Interest and depreciation, 20 per cent.	10 00
Total	\$68 20

If power were to cost 0.5 cent per kilowatt-hour, the power item would be \$27.80, and the whole cost \$81.

PRICES OF FERRO-ALLOYS.

For comparison with the figures of costs given above, I add the present and the pre-war prices of some ferro-alloys.