

briquetting has to be adopted, which adds to the expense, and moreover does not enable the blast furnace to work at its best advantage, so that both the size and the nature of the ore in this case are not suited for blast-furnace reduction, whilst, on the other hand, its quality is such as to command a higher price, which will justify the electric process.

I confidently anticipate important developments in the utilization of the Taranaki ironsands as soon as electricity from water-power is available, but I do not think much will be done in the absence of these facilities. We have an example in several different directions of the result of providing electricity in Christchurch and neighbourhood, and, to mention only one result, I anticipate that before very long electric steel furnaces for foundry purposes will be in use in Christchurch. Manufacturers are satisfied as regards the price, and are simply awaiting an investigation which I have undertaken into the adaptability of the electric furnace for dealing with the various types of material available for foundry purposes. As soon as we are definitely assured which type is best suited for New Zealand conditions, two or three electric furnaces will be procured forthwith. This is only one instance of the result of providing facilities in the way of electric power, and the extension of these facilities throughout New Zealand would practically revolutionize production.

As regards the production of basic slag, this is a by-product of the basic process when treating highly phosphatic ores, which are to be avoided in steel-manufacture if possible—that is to say, no one cares to treat an ore high in phosphorus if he can obtain purer ores; but if, as is the case in Germany, a producer has no other ore available and wishes to develop his local sources at an additional cost to the country generally, such ores can be reduced, provided that the phosphorus is in excess and the pig iron converted to steel by the basic-lined converter or the basic open-hearth process as distinct from the acid Bessemer process or the acid open-hearth process. It should be understood that ores containing a medium proportion of phosphorus are not marketable at the present day: either the phosphorus has to be so very small in amount—*i.e.*, less than 0.05 per cent.—or must be fairly high—in the neighbourhood of about 3 per cent.—when it lends itself to the basic process.

E. PARRY,
Chief Electrical Engineer.

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