

*Conclusion.*

In conclusion we may repeat what Wm. B. Phillips said in the discussion of our Montreal paper: "The verdict against titaniferous ores has been based on insufficient ground."

1. As anybody who may desire to make the experiment can verify, titanic acid can form definite compounds, perfectly fusible, if properly fluxed, containing as much as 35 to 40 to 50 per cent of titanic acid, with alumina, lime and magnesia as bases, and admissible as slags in blast furnace work. Larger percentages still, such as 65 per cent can enter into a compound, and it remains fusible. The objections to the smelting of titaniferous ores on account of the refractory character of the slags are not sustained by our practice, or that of others, or by direct experiments on the properties of these compounds.

2. In running a furnace under special conditions of temperature and pressure of blast, no trouble has been experienced from titanium deposits. We never observed any in our blast furnace tests, and none are mentioned by Dr. Forbes in his practice in England and Norway.

3. If these special conditions of the lower heat, considered more favourable in smelting these ores, are held to imply against them a waste of fuel, it is a question whether this is not offset by the smaller amount of cinder to melt, the lesser quantity of fluxes necessary and their indirect effect on the productive capacity of the furnace, as well as the greater value of the pig metal obtained for specific and numerous applications. This is without taking into account the possibility of not submitting to it by a rapid driving and forcing the production, conditions which, to judge from our tests, could be easily realized with these ores.

The most economical results are obtained by the introduction of magnesia to an important extent into the composition of the slag, with alumina and lime. Many objections raised against the use of these ores have proved, when practically examined, of as little value as those brought forward against the use of magnesia in a blast furnace.

We have tried in the above to present the facts as we have observed them, and to state, as near as possible, the conditions in which we have conducted our experiments. We hope that enough has been accomplished to induce others to help us in our efforts to rehabilitate a class of ore, Bessemer in character, which could furnish to the metallurgists materials of excellent quality, and available in many districts where others prove costly.