

2. When you have got that length, what do you propose doing with it?—[Witness produced a quantity of ironsand from Onehunga, which contained a large percentage of foreign matter, and made an experiment upon it, showing a certain amount of residue. He also exhibited a piece of iron made from the separated sand.]

3. What do you propose doing with that material?—The next thing I want to do is to make a commercial success of it by forming a company with sufficient capital to make a thorough commercial business of the thing. I have made myself acquainted with the costs of the different courses that this material would have to go through before it comes to the final stage. I find it can be made with very great profit in New Zealand—in fact, with extraordinary profit. I think I am right in right in saying that, under this process, you could manufacture pig-iron in New Zealand for £1 2s. 10d. a ton.

4. *Mr. Earnshaw.*] At Onehunga?—No, I could not go to Onehunga; I should have to go to Taranaki.

5. *The Chairman.*] That is the estimate per ton?—Yes, delivered at the works.

6. *Mr. G. J. Smith.*] What is the ordinary cost of pig-iron?—£4 7s. 6d. per ton.

7. *The Chairman.*] Is that the net profit?—I allow 9d. per ton for carting the sand off the beach to the works. I separate it for 1s. a ton by passing it over the drums, which feed themselves. The briquettes cost 1s. 6d. per ton; fuel, 9s.; flux, 4s.; labour, 6s. 7d. These figures were supplied me by the manager at the Onehunga works. That is what they estimate the cost per ton for puddling pig-iron. At Onehunga a shift of one man would produce 10 tons a day. One man is put down at 16s. a day; coal, £1 5s.; shingle, 2s. 9d.; roller, 3s.; bulldogger, 1s. 9d.; cropping, 1s. 9d.; driver, 1s. 6d.; oil, &c., 1s. 6d.; incidental expenses, 2s.; total, £2 15s. 3d. That is for puddling. Now we come to the actual cost for finishing the iron. The one man's product would be 10 tons per day, at £1 2s. 10d. per ton, which amounts to £11 8s. 4d. Add to that the £2 15s. 3d., and the finishing would cost £28; and the total cost for 10 tons of pig-iron would be £43 3s. 7d., or £4 4s. 5d. per ton for finished iron, as against £7 15s. for imported material, which would not be of such good quality.

8. *Mr. Earnshaw.*] What amount of capital would you require?—£25,000 to start with.

9. What would be the interest?—6 per cent. 2s. 6d. per ton would be ample interest on the capital. That would represent £1 5s. a day for one set of hands. This includes wear-and-tear. I think that would be a fair allowance to make.

10. Is the 2s. 6d. to cover loss by deterioration of plant, or is it only for the interest?—I include the deterioration as well. A plant costing £25,000 ought to produce 60 or 70 tons a day.

11. What do you put down per ton as interest and deterioration on £25,000 for plant and wear-and-tear?—Well, I thought 2s. 6d. per ton would cover the whole.

12. *Mr. Graham.*] What would be the maximum production?—I am not quite in a position to say; but I calculate that with two shifts they would turn out probably 120 tons a day.

13. *Mr. G. J. Smith.*] You must know what the interest per ton on £25,000 capital for plant would be?—No; I do not.

14. *Mr. Earnshaw.*] It would take 32 tons a day to pay interest on capital?—Yes. Now, I have to ask the Committee to extend to me some reasonable amount of help; and if I were to put in print everything I have said to you, and demonstrate, which I am prepared to do more fully than I have now, I do not care whose name was at the bottom of the prospectus, people would doubt whether it could possibly be done. Therefore, it becomes necessary for me to travel round, and demonstrate practically as I go along the process in which I thoroughly believe. That, of course, entails larger expenditure, and, I being a poor man, I think, with the prospects of an industry such as we ought to establish in Taranaki with a process of this kind, I deserve some little help from the country. In order to give me a start to thoroughly establish the works, I was going to ask the Committee if they would recommend a vote of £200 towards my expenses in floating the company. That becomes necessary. Nobody would believe, unless I showed them practical illustrations, that the Taranaki ironsand can be treated in the way described. At Onehunga, where there is the best talent in the business, they are of opinion that this sand will not require even the cupola process. It is of such a kindly nature they can smelt it in the ordinary furnace.

15. You cannot get pure ironsand, there is some admixture of foreign matter?—There is some foreign substance in it. The sand will not stand up in the furnace. At Blenheim, with a small cupola furnace, the metal can be produced at 7s. 6d. a ton for smelting to pig.

16. *Mr. E. M. Smith.*] Do you firmly believe this electric-magnet machine is required for separating the sand, and that it does so?—Yes.

17. Are you aware that Edison and other electricians have patented the same process?—No.

18. And that it is to be seen in any work on electrical engineering?—No, I have not seen it. On the 19th October there appeared a report in the *Marlborough Daily Times* to the effect that Edison was about completing an invention for treating magnetic ironsand, by which he expected to manufacture iron. I understand that Edison has no patent at present. I say so distinctly.

19. Are you aware that in the New Zealand Patents Office there are more than a dozen patents of the same process?—No.

20. Are you aware that foreign matter, such as silica, can be separated by passing through a sieve of 2,500 meshes to the inch?—Certainly not, for the simple reason that if you put the sand under a microscope you will find each grain equal in proportion; there is no difference in the size of the grains of the foreign matter than of the pure iron portion.

21. Did you ever try it?—No, I did not. I cannot see the possibility of it.

22. Would you be convinced if you saw the process to prove it?—Yes.

23. In regard to the solution, you are aware that a solution of glue has been used with the sand to make emery paper and puffsticks?—You could not make emery paper or puffsticks without it. It does not matter to me whether it has been used or not.