

THE GROWTH OF BEET-ROOT AND MANUFACTURE OF SUGAR.

BY JAMES BARNARD.

Acting upon the desire expressed by the Royal Society, on the occasion of my reading a short paper on the manufacture of beet-root sugar, I have been in communication with a gentleman in New South Wales with a view to procure further information, and have now the honour to submit the results.

Accordingly, I have the pleasure to place at the disposal of the Royal Society a small bag of the seed of the Sugar Beet, of the variety known as the White Silesian, and considered to be the best, which I have procured from Sydney; and although the quantity is small, being only enough to sow an acre and a-half of land, it may prove sufficient for the purpose of experiment. Distribution of this seed should, I suggest, be made, as far as it goes, to such persons as take an interest in the subject, and who would engage to sow a patch of ground and register the results.

Very valuable information is contained in a short elementary treatise, on the importance, cultivation, and management of the Sugar Beet, of which I present to the Society two copies that I received from Sydney, and suggest the desirability of its being republished in its transactions *in extenso*.

An article in the accompanying Bathurst *Free Press* will also be found not without interest, as announcing the intention of a gentleman in that district, Mr. J. F. Clements, the successful exhibitor of a sample of the beet sugar at the recent Intercolonial Exhibition in Sydney, to devote his best energies in the prosecution of this most important industry; and I am informed that Mr. Clements has obtained the services of an experienced practical man, in order to put the matter thoroughly to the test.

Connected with these efforts, I have it on the authority of the Secretary of the Agricultural Society of New South Wales, that it is Mr. Clements' intention to publish the full results of his operations in the journal of that Society, which will consequently be available to our agriculturalists in due course, as that publication is now regularly placed upon the table of the Royal Society.

Among the implements and machinery shown at the exhibition before alluded to, in class 201, was exhibit 871 a., Youngman's Patent American Sugar Evaporator and Refiner. The price was £47 10s., and the exhibitor was Mr. Robinson, of George-street, Sydney. It is described as "consisting of

defecating, evaporating, finishing pans, and filters, with furnace, registers, dampers, and chambers, which enable the whole operation, from the strained neutralised juice to the refined syrup, (in which state it is the best possible for granulation), to be carried out in one continuous operation, with a capacity of from 8 to 10 gallons per hour, and with a consumption of fuel exceedingly small."

It must be a source of satisfaction to learn that Dr. Coverdale, the Principal of the Queen's Asylum, has determined to initiate the cultivation of the sugar beet, and its subsequent manufacture, at the New Town Farm; and no better employment could be given to the band of juvenile workers placed under that gentleman's control.

The same enlightened views which led to the circulation in the community of an abridgment of Baruchson's instructive pamphlet, will, doubtless, influence the Government to give encouragement to the proposed experiment, and sanction the purchase of the requisite machinery, to be obtained at such moderate cost, for the different processes of the manufacture.

A few figures here may serve to show the national importance of this useful industry. It appears, then, from *Nowell's Statistics of Tasmania for 1868*, that the annual consumption of sugar in this community averages about 70lbs. per head of the entire population. This makes a total of say 7,000,000lbs., or 3500 tons yearly, and exceeds in value £100,000 sterling. Hence it is apparent that there is ample scope for the most extensive operations, and that no apprehension need be entertained of over-producing this article of prime necessity.

Adverting now to the specific question of cost, which was put to me in reference to the adoption of this as a domestic manufacture upon a limited scale, I have not been able to procure data to show this with sufficient precision; and I apprehend that, after all, it could only be arrived at approximately, as it would evidently vary in almost every family, according to the degree of skill and experience brought to bear in the culture of the root, and its subsequent manipulation.

Comparison with the home manufacture of bread and beer, as well as with the products of the dairy, best illustrates, I think, the question—"Will it pay?" Many people, we know, bake their own bread, and brew their own beer, as well as make their own butter and cheese, irrespective altogether of the mere question of cost, but simply because it suits them to do so, either from living at an inconvenient distance from the usual distributors of these necessaries of life, or from the possession of the requisite means and appliances, or for other reasons. So, with regard to sugar, it might fall in with family arrangements, in some instances, to apply any available

domestic strength to the prosecution of this valuable industry.

Taking up the inquiry, however, upon broader grounds, it may suffice to point out the fact that the beet-root contributes more than one fourth of all the sugar now used in the world, having in many European markets nearly supplanted the sugar-cane, as affording convincing proof of its being a paying industry. Hence, the conditions of success being the same, there can be no reason to doubt that, once introduced into these colonies, the extraction of sugar from beet would soon grow into a staple manufacture of the first magnitude. Much, of course, would depend upon the Legislature, in the recognition of its national importance by sanctioning only such fiscal measures in relation to the undertaking as should have the effect of imparting a direct stimulus and encouragement to this most important manufacture.