

port regarding this industry for 1893, shows that the amount of beet sugar produced in that country had increased from 600,000 pounds in 1887 to 43,453,264 pounds in 1893. The record is as follows:—

1887.....	pounds	600,000
1888.....	"	4,000,000
1889.....	"	6,000,000
1890.....	"	8,000,000
1891.....	"	12,004,838
1892.....	"	27,038,288
1893.....	"	43,953,264
Total.....	"	101,641,390

of which California's output for 1893 was 35,888,969 pounds. The total amount of beets manufactured into sugar in 1893, in the United States was 200,353 tons; the average price paid growers was \$4.50 per ton. The value of the crop to beet farmers was, therefore, worth \$900,000, and the sugar produced was worth 3c per pound giving a value of \$1,320,000 for the product, besides the government bounty of \$860,000; making the whole amount of money received for sugar and beets a little over \$3,000,000.

The output in the last three years shows a large and steady increase. This undoubtedly was due to the bounty offered by the government.

In 1893 the United States imported 543,288,489 pounds of beet sugar, valued at \$17,331,343, the total imports of sugar of all kinds costing something like \$200,000,000. Three factories in California, in 1893, produced beet sugar as follows:—

Alvarado.....	pounds	4,186,572
Watsonville.....	"	14,500,000
Chino.....	"	15,039,867
Total.....	"	33,726,439

This quantity was about one-seventh the quantity of raw sugar imported into Canada during the same year.

There are four other beet sugar factories in the United States, with production last year as follows:

Staunton, Virginia.....	pounds	36,458
Grand Island, Nebraska,	"	1,835,900
Lehigh, Utah,	"	3,750,500
Norfolk, Nebraska,	"	4,000,000

Total..... " 9,622,858

The amount of capital invested in these seven beet sugar factories is about \$2,000,000. Tributary to these factories, under cultivation in beets, are about 20,000 acres of land. The value of this land has greatly increased since it has been used for beet-growing, especially near Chino, Cal., where the price per acre has become very high, as much as \$200 having been paid in some cases. The cost of cultivating this land in beets is considerably more than \$500,000 a year. The production of beet roots for sugar-making purposes in the United States during the past year approximated 200,000 tons, and the average price paid to the farmers for this raw material was \$4.50 per ton.

It will be seen that a large investment of capital in land and machinery, and a large outlay of money for labor are needed to produce 22,000 tons of sugar per year; and it is not difficult to foresee the large amount of capital that would be required, the immense amount of labor that would be employed, and the great extent of land that would have to be appropriated to this purpose if the Canadian

Government were to enter heart and soul into the building up of the industry in Canada to a point where the production would be sufficient to meet such a demand as even now exists. This would mean the investment of some \$14,000,000 in factories; 140,000 acres of land under cultivation in beets; the great enhancement in value of these lands, the expenditure of some \$3,500,000 per year for their cultivation; the production of 1,400,000 tons of beets for which the farmers would be paid at \$4.50 per ton, \$6,300,000.

In a paper written by H. W. Wiley, published in the Engineering Magazine, we are told that the production of the sugar beet is in itself an art, and that the ordinary forms of agriculture cannot be used for the purpose. Sugar beet culture is intensive, not extensive farming. High priced lands can be used for sugar beet culture on which it would be impossible to profitably grow staple crops. Intensive culture and scientific care characterize the successful culture the world over. The establishment of the industry in a community affords an object lesson in the highest art of agriculture. It acts reflexively upon every other branch of agriculture, so that in countries in which sugar beets are grown there are better crops of wheat, barley, hay, etc.; there are better classes of live stock, finer horses and cattle, and in general the whole tone and character of agriculture are elevated by reason of the influence, direct and reflexive, of the culture of the sugar beet.

The manufacture of beet sugar also represents the foremost advancement in mechanical improvement. It is a science of itself. It requires special machinery and apparatus, and its practice is a benefit not only to those immediately engaged in it, but, reflexively, to the whole community.

An ordinary beet sugar factory should have a capacity for the consumption of about 300 tons of beets per day, and should make from 200 to 240 pounds of sugar per ton. In Europe much larger factories are quite common, capable of working from 400 to 600 tons of beets per day. In central factories there are large numbers of diffusion batteries situated at different points, in which the juices are extracted, and which are delivered to the central factory by means of pipe lines usually laid under ground. A central factory of this description would have capacity to work up the juices from 1,000 tons of beets per day.

We have shown the large demand of Canada for sugar; that the article is not produced to any considerable commercial extent; that millions of dollars are sent out of the country every year for sugar; that a few monopolists, because of an improperly arranged tariff, have become millionaires through the abnormal profits of their refining industry; that the refining industry in Canada gives employment to less than a thousand persons; that the soil and climate of Canada are excellently adapted to the cultivation of the sugar beet; that sugar beets grown in Canada are quite as rich in saccharine matter as those grown anywhere else in the world; that the whole country abounds in locations and natural and artificial advantages unexcelled for the purposes of manufacture, and that all the capital necessary to place the industry on a good footing is ready for investment and will be forthcoming just as soon as the government offers the necessary encouragement, to be extended through a proper period of time.