

A shadowy majority even, it would seem, possesses more than a shadowy claim to this divine right to rule.

This temperance question is a dangerous one, and calls for prudent handling lest we be found lending aid to evil. Still, it is absolutely hopeless to "do evil that good may come." To deprive of liberty a minority who do not abuse their freedom, is to do evil—is to outrage the highest sense of justice in the hearts of those who are best fitted to guide themselves and their appetites, and is an attempt to substitute a reign of terror for the deeper, more powerful, lasting, and effective reign of moral suasion and mutual love and helpfulness each to each. From the commission of such an evil no good can result. An increase of hypocrisy and secret vice is all we can hope, by such means, to attain. One has only to reverse the character of the majority to perceive whither we are tending. Suppose a majority of wine-bibbers should insist that the temperate or abstemious minority shall each drink a pint of alcoholic fluid daily. Would the "Divine right" of a majority be then so loudly vaunted? or would there be a rebellion? or, would the minority aforesaid stop short at mere hypocrisy and fraud in the quantity and strength of their imbibings? Such measures are the product of faith in the "Divine right" of majorities; for only those who seek dominion for self by means of majorities could stoop so far as to pander to even well-meant fanaticism to gain their coveted ends.

The rule of majorities is "government from under—not government from over." The rule of Right—the law of God—is alone the "Divine right" so presumptuously and defiantly claimed by majorities. As God has left, and does to all eternity leave, the human soul He has created in freedom of will—free to exercise its will in that which regards itself alone, and to rise or fall in the scale of being according to its own desires—so human law, founded upon Divine, should also strive to grant the fullest possible freedom to each, preventing its exercise only in so far as is needed to preserve the freedom of all. This is a high aim to set before ourselves. The problem "how to will" and wish, and long for it, has hardly yet emerged from childhood in us, much less begun to seek "how to perform." But fuller manhood will come in due process of Divinely appointed development till the "perfect obedience to perfect law"—the law of perfect love which our Lord God and Saviour taught and lived—becomes the actual condition of existence, and "His will is done on earth as it is done in Heaven." This is the perfect law of liberty, and teaches plainly that majorities should cease to arrogate to themselves a divine right which sweeps away the equal divine right of minorities to respect and liberty.

BEET ROOT SUGAR.

No. IV.

We propose to dwell in this our fourth article on Canada and its opportunities, and we shall briefly indicate the quantity consumed. In sugar, melado, molasses and candies, Canada entered during 1868, 98,833,924 lbs.; 1869, 127,901,156 lbs.; 1870, 166,194,043 lbs.; 1872, 130,470,566 lbs.; 1873, 151,381,762 lbs.; 1874, 156,533,332 lbs.; 1875, 165,334,142 lbs.; 1876, 163,615,680 lbs.; 1877, 145,065,169 lbs.; 1878, 168,650,896 lbs.; 1879, 190,000,000 lbs. (estimated), or 95,000 tons.

Notwithstanding, while passing through an unprecedented crisis and adversity, our consumption in 11 years had doubled—and we strongly insist, that we are progressing, that we have all the elements of vitality and health; for if Canada should remain in that stagnant state of the last four or five years, we might apply the celebrated saying of Louis Napoleon, when an alliance with Austria was broached: "*Il ne faut pas s'attacher à un cadavre.*" Thus then, allowing a margin for a fair ratio of annual increase of consumption, of say 10 per cent., for the next 10 years, it would bring us—

In 1882 to	120,000 tons consumption
In 1885 to	165,000 " "
In 1887 to	200,000 " "
In 1889 to	245,000 " "

We shall now show, that we can and we ought to grow and manufacture our own supply of sugar, and we shall call on the critic to show cause, why we cannot make also sugar for export, and excel all the continent of Europe therein, and add to the list of Canadian produce—beet root sugar—and at the same time, and in the virtue thereof *four fold our cattle exporting capacity*. Most of our readers are aware that the Dominion Government some years ago sent Mr. E. A. Barnard, the able director of agriculture to Europe, to study and to report on the subject of beet sugar culture. We give here a synopsis of the result of his labours, thus the report is official and impartial and free from *coulour de rose*. In 1876 under Mr. Barnard's supervision beet seed was imported and distributed; the product weighed and analyzed both here and in Paris and Brussels. This was repeated in 1877.

Notably among the results stands the fact, that the crop of 1877 exceeded in quantity and excelled in quality the crop of 1876. This is more important than it may appear to the casual observer. More than 200 lots from the different farms have been analyzed with the greatest care. We find the weights per arpent from 30,000 lbs. to 58,000 lbs.; others, measured by bushels, report from 600 to 900 bushels. To corroborate this, we have before us the last

report of the Maine Beet Sugar Co. of Portland, Me., giving the names of a great number of farmers who gathered crops of full 20 tons to the acre, realising therefrom full \$100 per acre. The analysis showed in the most inferior lots 9.88 per cent. and in the best lots 13.82 per cent., or an average of 12.50 per cent. These analyses were repeated in Paris and Brussels, and an extract of the report from these quarters says:

"The degree of purity (81.05) is excellent, and the percentage of sugar (12.50) is also very good; and these figures show that Canadian soil is eminently fitted to the cultivation of sugar beet."

This is the Belgium verdict. The report from Paris says:

"The average saccharine quality of the Canadian beet is superior to that obtained in France (10.30 per cent. for France; 12.45 per cent. for the Canadian). In France, the head of the beet is thrown aside as refuse; in the Canadian, this refuse contains yet 10.22 per cent. of sugar in 100 parts juice."

This report shows that our beets are 20 per cent. richer than French beets, that the refuse-heads are almost as rich as the better part of the French beets. We bring yet one more testimony, that of Mr. Walkoff, well known as the most competent judge in all Europe on this matter. He says:

"Our beets, on the average, are richer than those of France and Belgium, and the return per acre is so extraordinary, that, if our statement were not official, the best authorities in Europe would hardly believe it; that while our yield was from 20 to 25 tons per acre from soil not well cultivated, the average in Europe, with all their art, is but from 10 to 15 tons. Such an enormous yield, if generally realised, would be more to this country than the finding of a rich mine of any precious metal. He points out that our climate is exceptionally favourable to the growing and to the preserving of sugar beets."

So much for the testimony of competent foreigners. Now let us speak for ourselves. We have searched for the causes of this extraordinary yield in quantity and quality, and after thorough scientific examination believe we have traced the causes. Many years ago Baron Liebig analyzed the ashes of sugar beet containing but 5 per cent sugar, and of another containing 12 per cent. sugar. The result taught the farmers to raise with a mathematical certainty the beets to the maximum of sweetness. They supply their fields with artificial fertilizers, as indicated by Baron Liebig; thus, as before stated, the maximum of sugar in beets has been brought in Germany to 17 per cent. Without resorting to scientific *exposés*, we will merely mention the two most important agents of artificial manure:—It is potassium and phosphoric acid. The first, the most expensive, is supplied in Germany in the article known under the name "Stassfurt Salts;" the other, the phosphoric acid, is supplied in the shape of superphosphates. Here we have discovered *one* of the reasons of the superiority of Canadian beets. The Canadian soil contains a superabundance, and over-supply of potassium, it being more or less constituted of the detritus of forest trees decayed or destroyed by fire. This overdose, in many cases, causes the beets to imbue this salt to such a degree as to hinder more or less the crystallization of sugar. Thus the third and fourth crop of beets on same field *must* be superior in quality to the first. So far as phosphoric acid is concerned, we all know, that our own Ottawa district will supply it at a lower rate than any other country. This is *one* of the causes. The next cause lies in *the climate, in the atmosphere*. We may take it for granted that on a belt country where a maple tree will yield sugar, there the beet will prosper to perfection. The *Journal du Fabricants de Sucre*, giving a careful record of average atmospheric changes in Lower Canada, says, that, ours is the very exact climate suitable for the production of sugar beet of best quality.

In fact, the fundamental rules for producing the beet crop in quantity and quality are, that the month of May should be humid, June warm, July and August warm with frequent rain; September dry with cool nights and if on the contrary May to middle of June be cold and wet, and to end of July dry with tropical heat, and a wet September, the beet crop will be poor in quantity and quality. We all know that with rare exceptions the former condition is with us the rule; chiefly a dry September is required. We will here give an analysis to show how gradually sugar is formed in the beet, as analyzed from same field during the season.

On the 30th June the young plants harboured 6 per cent. sugar; on the 30th July, 8.30 per cent.; 15th August, 9.50 per cent.; 30th August 10.75 per cent.; 15th September, 11.75; 1st October, 12.60 per cent.

We believe to have proved that Lower Canada's farms are fit to raise the article to perfection. We purposely to-day omit the dollar and cent question, whether it will pay the farmer and the investor. We have also yet to examine how the extreme cold acts on the beets and if we can safely preserve them during the *winter* months. We have to enquire into the question of fuel, into the use made of the secondary products; the pulp, the leaves, the molasses, and have to discuss the relation of labour, railroad freight—and chiefly the cattle raising business. We must defer this to our next.

We are confident that we shall prove that there is no industry which, like this, promises safe and rich returns to all concerned. We are confident we shall arouse our readers to a full realization of the great importance of this subject, the national bearing of which cannot be overestimated. It requires the vigorous and determined effort on the part of a few intelligent and earnest men to inaugurate an industry which will, more than any other, regenerate agriculture, industry and commerce amongst us.