

SUGAR MAPLE TREE.

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Examination of the Sap of the Sugar Maple Tree, the Acer Saccharinum of Linnaeus, with an account of the preparation of the Sugar. By GEORGE D. GIBB, M. D., Lecturer on the Institutes of Medicine, St. Lawrence School of Medicine, Montreal: Honorary Member Addisonian Literary Society of Montreal; Corresponding Member Literary and Historical Society of Quebec, &c.

One of the most noble trees, and one of the most common and well known in this country is the *Maple*. It may truly be designated the pride of our forests, contrasting strongly as it does with its variegated leaf, with the stately and lofty pine, which is equally abundant and numerous. The maple-leaf has not been inaptly chosen as the national emblem of the French Canadian, and is the badge worn by the members of the Society of St. Jean Baptiste, the Patron Saint of the Franco-Canadians.

A few observations upon the sap and sugar obtained from the maple, which were suggested by an experimental examination of the sap itself, I venture to hope may not prove uninteresting.

Professor Lindley mentions 3 genera and about 60 species, belonging to the natural order *Aceraceae*. They are spread over Europe, the temperate parts of Asia, the north of India, and North America. The order is unknown in Africa and the Southern hemisphere. "The species are only known for the sugary sap of the *Acer Saccharinum* and others, from which sugar is extracted in abundance, and for their light useful timber."

Canada and the United States (especially New York, Pennsylvania, Western Counties of middle States, and the banks of the Ohio,) abound in the greater number of the species mentioned, and they extend further northwards as far as the Hudson's Bay Company's territories.

In Canada, the hard, rock, or birds-eye maple, and the soft or curly maple are well known. The true sugar maple, the *Acer Saccharinum* of Linnaeus, is the tree that especially yields the largest quantity of sap, and furnishes the best sugar. This tree is the one commonly known as the hard maple, and is that which furnishes the best fire-wood. Large tracts of land in the Ottawa district are covered with it; it is found in great numbers in the Eastern townships, where large forests miles in extent contain nothing else, and in other places it is mixed with various trees; there is scarcely a spot in Lower Canada where it is not to be met with, and in every place is the manufacture of sugar known and practised.

* Lindley's vegetable Kingdom.

† Ure's Dictionary of Arts and Manufactures.

Captain Marryatt has stated that there were trees enough on the shores of Lakes Huron and Superior to supply the whole world with sugar.

Mr. James E. Campbell, who has had much experience on this subject, informs me, that the manufacture of a syrup from the maple tree, was known to the Indians at the time the country was first settled by the French; and it is supposed, on good authority, that the knowledge of its manufacture was first obtained from them. To this day, in the north-west territories belonging to the Hudson's Bay Company, this sugar is made by the squaws in the form of little round pallets, made from pouring the thickened syrup on chips, flattening them with the hand, and leaving the mark of the three fingers on its surface.

In the United States the manufacture of the sugar was first attempted about 1752, by some farmers of New England, as a branch of rural economy. This gradually spread wherever the tree was known. Now it forms an article of food throughout a large part of the country districts of the Lower Province, and even in many parts of the Upper, more particularly along the banks of the Ottawa. When travelling in that direction, I have been furnished with it, in a crushed form, for my tea; and on asking if muscovado sugar would not be cheaper and preferable, was told that almost every farmer prepares annually sugar enough for the year's consumption of his family, and often has a surplus quantity for sale. And as to its cheapness, it is sold from 2s. to 3½d. per pound, sometimes lower, whilst very common muscovado can never be bought for less than 4½d. to 5d. per pound. It has some advantages also over muscovado, of which I shall presently speak, and is superior to it when properly made.

In the month of March, I procured some fresh sap from a hard maple tree, and resolved to apply the various means for detecting the presence of sugar, and to estimate the amount yielded in a given quantity.

Its color was that of pure water, with the merest shade of opalinity. The taste was moderately sweet, and resembling the *eau sucrée* of the French. Its specific gravity 1.114, at the temperature of 60° Fahrenheit. Neutral, possessing neither an alkaline nor acid reaction.

Five fluid ounces, evaporated to dryness in a glass vessel, yielded 34 grains of residue, of a pale straw color and perfectly transparent, equal to 376 grains, or a little over ¾ of an ounce to the pint of 50 fluid ounces. The residue was almost entirely pure sugar, and contained traces of chlorides, phosphates, and sulphates.

From the lowness of the specific gravity in comparison to the fluid of diabetes mellitus, I did not expect that the results would have been marked in the application of rea-