

How Sugar Cane is Produced

By Elizabeth Atwater.

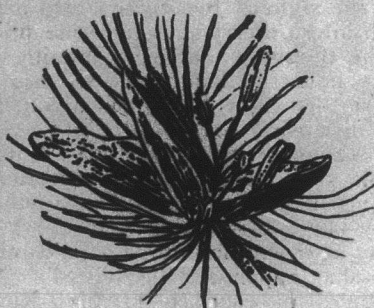
It is gratifying to know that the quantity of cane sugar used in Canada is yearly increasing—due it is said to the surtax on beet sugar, which is produced in Germany and France. Cane sugar being preferable to the beet sugar, it is surely more patriotic to use a better article when it is a natural product of sister colonies; most of our cane sugar being grown in the West Indies.

The sugar cane (*saccharum officinarum*) is a member of the gramineae family. It was brought to Europe at the time of the Crusades and is now grown in all warm countries. There are large plantations in the West Indies, Gulf States, Hawaiian and Philippine Islands.

It grows to a height of from ten to twelve feet when properly cultivated. The root is fibrous, and the stem, which is from one to three inches in diameter, is jointed and covered with a thick, fibrous skin, inside of which is a sweet juicy substance. Long grass-like leaves grow

Louisiana only one. A large plantation covers from nine hundred to fifteen hundred acres.

In some of the West Indian Islands,



Blossom.

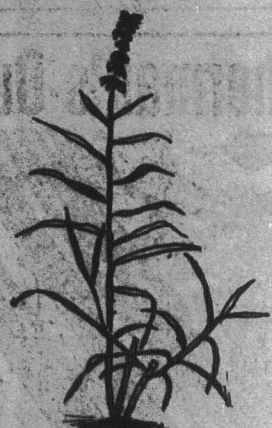
notably Barbados, the land rises abruptly from the valleys, sometimes to a considerable height, and during the wet season the water percolates the soil to a stratum of rock (carbonate of lime) on which the soil—in some places not over four feet in depth—rests. During one of the wet seasons a few years ago, in the island of Barbados (not "Barbadoes"), a small field of cane on the side of a steep hill slid down to a less abrupt slope, on which it rested, giving rise to a lawsuit as to the ownership of the cane crop, which, with the ground on which it was growing, had passed over the line to another estate.

When the cane is ready to use, the negroes are set to work to cut it before it blossoms. They move down the field in even lines, at regular distances apart. The tool used in cutting is the machete, which is the typical tool of Jamaica. These are made in Europe, and have heavy sword-like blades, clumsy handles and wooden grips. The purchaser has to take it to a blacksmith to have the handle made smaller, the blade sharpened and the sharp point cut off in case of accident. After putting lighter grips on it and winding a stout cord tightly and evenly around the handle, he has a general purpose tool at a total cost of about two shillings. Two blows with this will slash off the cane leaves and one more cuts off the stalk.

The canes are hauled to the mill in ox wagons. In many places in the British West Indies neck-yokes are used on the oxen, and the wagon wheels are made of mahogany. A peculiarity of these wagons noticeable in some places is that the box rests entirely on the hind axle, the front of the box resting on the middle of the reach, because they "have always had it that way."

After being emptied from the carts the cane is piled carefully lengthwise in a long trough made of slats and moved by the power of the engine. From this carrier it goes through heavy horizontal rollers, which crush the cane between them and the juice falls into the receivers below. Small plantations often use windmills and vertical rollers. Accidents sometimes happen of a very serious nature, attended with loss of life, especially when the canes are hand-fed to the rollers or cylinders. On one estate not very long ago a negro was drawn in between them and crushed before the mill could be stopped. As the crushed cane falls on the other side of the mill it is gathered into baskets by the negroes and spread in the fields to dry for fuel for the engine.

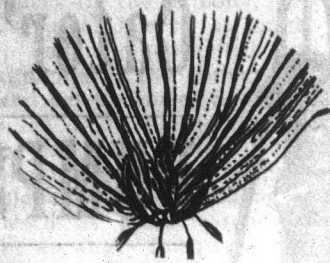
From the receivers the juice runs into large open vats called defecators. These are heated by the exhaust steam of the engine, which is sent through them in pipes. The heat purges the scum off to some extent.



Sugar Cane.

alternately from the joints. It has small sessile flowers arranged on a common peduncle, which form a light green spike about a foot long on the top of each cane. The sugar cane is perennial and therefore would grow up from the roots every year. These crops are called ratoonings (a corruption of the Spanish word *retono*, a shoot) and are not in favor with planters, who prefer to have the roots dug up and plant fresh sets every year.

The first step in preparing the soil for a cane crop is to subsoil plough it eighteen inches deep. The surface is then worked all over with hoes, and holes two feet wide are dug to the depth of the ploughing, at intervals of three feet. These are filled with manure compost and covered with earth. The negro laborers walk down the rows carrying crowbars, with which they make a hole in each

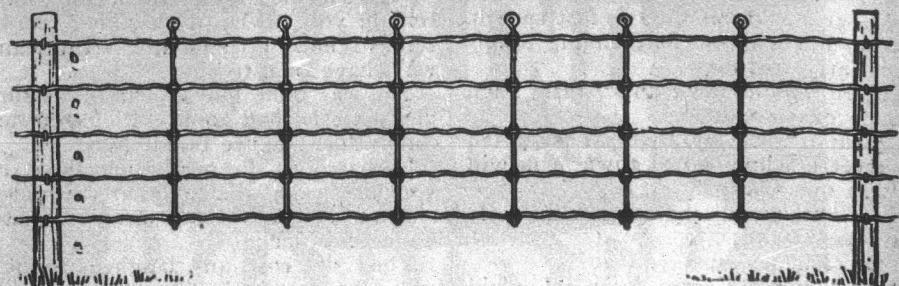


A Spikelet.

of the pits and more negroes follow carrying baskets of sets on their heads; placing one in each hole and pressing the earth over it with their feet. These sets are prepared by cutting the tops off of plants about a year old.

In the West Indies the planting is done in December, and when the young plants are about a foot high they are carefully mulched by having dried cane leaves from the previous crop placed on the ground around them to a depth of six inches. This is to conserve moisture. It takes cane just fourteen months to mature in these islands, but in the Hawaiian Islands it takes two years and in

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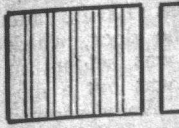
After passing the last defecator the juice runs through a trough into the first caldron. The caldrons, of which there is a number, are deep, copper vats, heated hot. In them the juice boils, and as the scum rises, a negro skims it off with a long heavy skimmer, and it is given to the hogs. The juice is ladled from one caldron to the next, and after leaving the last one it is put into large shallow pans or trays, called oscillators. In them it is completely crystallized and cooled. After it is cooled it is brown sugar and molasses, but it is still raw. The workers shovel it into hogsheads which have holes bored in the bottom and the molasses drains through them. Strips of cane are placed in the hogsheads with their ends in the holes to drain more easily. Underneath are large copper receivers placed on an inclined plane, so that the molasses will be caught and carried off.

In the mills in most of the British West Indies, while different grades of sugar are made, according to the process, no refining is done; refined sugar being imported, at least until very recently. Muscovado sugar is the coarsest kind, the common brown. Of this there are several qualities, and even from the same mill, at least two grades, the dry sugar in hogsheads, from which the molasses has drained, and the damp sugar, exported

in coarse sacks—the scrapings and cleanings of the sugar troughs. Vacuum pan sugar is a much finer quality, and sweeter than the common brown sugar of commerce, from the refineries. In short, different processes produce different varieties, such as Aspinall's pan and the centrifugal.

An article might be written on the refining process in our refineries in Canada, but space will not permit me to enter into it. Briefly, the raw brown sugar is melted again and chemicals are mixed with it which separate all the impure matter from the sugar and make it pure and white. It is poured into moulds and hardened, some of it is cut into cubes and sold as loaf sugar; the rest is ground into granulated sugar. Ground very fine, it is called powdered sugar.

No more healthy, happy looking children can be seen anywhere than the negro children of the West Indies, who not only eat sugar-cane constantly, but also sugar. They rarely drink pure water—there is none—but invariably dissolve a tablespoonful of sugar in a tumbler of water to drink. The white children of the plantations also drink sugar and water. I fear, however, that although sugar is healthful, they would not thrive on much of the cheap candy manufactured in Canada—not because sugar is unwholesome though.



They had finished barley that day so that seven of their shack with over. Tea, it could only edible that against the seed quently had to m pork, baker's b dried apples. T tea did not at five o'clock affair ful to the eye, l aggravation; no teas the dear ol have where on again regardless one never forge

It were worth of Andy's gran tea table that knew and her k ed a sigh.

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