

Modern Sugar Refining

Improved Process by Which Sparkling Lantic Sugar is Made of The Pure Juice of The Tropic Cane.

WITH the increasing interest in pure foods everybody wants to know how things to eat are made. Food factories which the average person formerly shunned now entertain streams of interested visitors to see how the products are made and packed.

Sugar refineries are visited less often than canneries, biscuit bakeries and preserving kitchens because the processes of refining require large and complicated plants so that the number of refineries is relatively small. Economy requires that a sugar refinery shall be located on the seaboard or on the banks of a navigable stream so that the raw sugar may be shipped all the way by water. Sugar refineries are less accessible to the general public than food factories or other sorts which are distributed throughout the country.

The Atlantic Refineries at St. John, New Brunswick, are typical of the best modern type of refining plant. Ships of heavy draught bring the raw sugar directly to the refinery docks where it is put rapidly through the various processes which convert it into the sparkling white crystals we find in the family sugar bowl.

Before reaching the refinery the sugar has already undergone part of the process of manufacturing. Sugar cane is very bulky to transport so the processes of crushing and extraction are performed on the plantation. Sugar cane is a large tropical plant like an exaggerated corn-stalk in appearance. Its average height is twelve to fifteen feet but under very favorable conditions it grows as tall as twenty.

It flourishes only in warm moist climates but with suitable soil and temperature it is a very luxuriant and trustworthy product. Cane is planted and harvested entirely by native labor. In large plantations tram cars run directly to the field whence the cars carry the cane to the centrals for the extraction of the juice.

The cane is first thrown upon broad belts which carry it to the top of huge cutting machines composed of two or three giant rollers revolving together. The freshly cut cane is dropped into these merciless jaws and caught by a multitude of tiny teeth covering the surface of the rollers. The juice is so thoroughly expelled that the cane is caught below as a dry pulp, so dry that it can be used as fuel to generate the steam which drives the machinery. Further below in the receiving tanks we find the sugar juice freed from the cane by the enormous pressure of the rollers. It is a murky liquid full of tiny particles of fibrous cane very unlike the sparkling white sugar of commerce.

The juice is led by pipes to huge vats with bottoms full of tiny holes through which streams of bubbles are constantly pouring. These little bubbles of sulphur gas perform the first process of purification. As they come to the surface they collect the yellow scum which is carefully skimmed off by watchful attendants. These are the cellulose particles of cane from the original crushing. When all have risen to the top and been removed the liquid is piped to evaporators where it is thickened by steam heat which boils the water out.

The crystallization takes place in large vacuum pans where the liquid can be boiled at a lower temperature so that the sugar will not burn as it crystallizes. Every housekeeper who knows how quickly white sugar will brown in moderate heat will appreciate the necessity of this precaution. As the liquid approaches crystallization it is dumped into centrifugal machines which whirl the sticky mass about at great speed, allowing the remaining fluid to be driven away from the center. The result of this process is crude molasses. As further rapid rotation eliminates still more moisture the remainder crystallizes into dark-brown crystals.

This is raw sugar. It contains all the sweetness of the sugar cane in its essence but it also contains considerable foreign matter which can be removed only by the modern process of refining.

Refined sugar is pure, clean and white. It is one of the most attractive of all foods to the eye. These qualities of refined sugar brought it into quick demand over a hundred years ago. Today the insistence for pure and attractive food products keeps the demand alive and growing. Let us examine this refining process which supplies the people with what they want.

Outside the plantation mill upon the dock bags of raw sugar are waiting shipment to the Atlantic Refineries or to other plants. Following this raw sugar to St. John, New Brunswick, we come upon a busy looking place. The great chimneys of the Atlantic Refinery emit quantities of smoke and plumes of hissing steam pour from them. The sugar is taken direct from the hold of the vessel into the warehouse by machinery, thence into the refinery, where the visitor gazes with mute wonder at the maze of pipes, valves and tanks and spinning machinery all working to satisfy the "sweet tooth" of Canadian children and Canadian grown-ups. The processes of sugar refining are many and precise but they are simple in theory.

The raw sugar is dumped into heated vats and melted. This molten mass contains both vegetable and mineral impurities that must be separated from the pure sugar, so it is carefully filtered not once but again and again.

The improved filtering medium used today is boneblack, a cleanly material thoroughly sterilized before it is used. Sugar was formerly filtered with ox blood, clay and alumina but the modern equipment of bag filters and presses have lifted the standards of refinery practice to thoroughly appetizing levels. The refining processes at the Atlantic plant would please the most fastidious housewife.

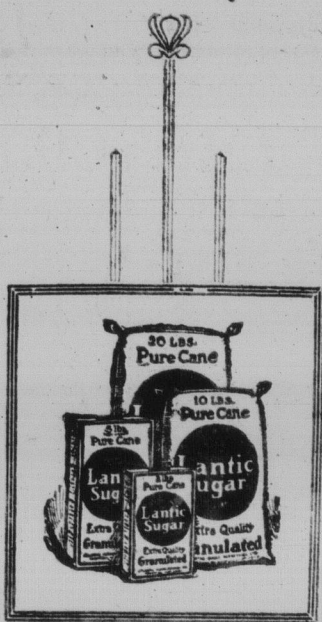
When the many careful processes of filtration and clarifying have been completed the raw sugar emerges in the form of pure syrup, a clear brilliant water white liquid. Again it is led to vacuum pans where boiled until crystallized into the familiar forms of ordinary sugar. When the process of crystallization is completed it is diverted to the granulating machines which turn out the standard coarse, medium and fines of commerce, or the rolling and crushing machines which produce the several grades of powdered and confectioners' sugar.

The final step in the preparation of sugar is packing the product ready for delivery. Automatic machinery measures out the sugar with the regularity and rapidity of a trip hammer and with perfect accuracy. Tons of it are poured into bags and cartons with the Lantic red ball. Fairy fingers of metal snap back and forth and with the effect of magic a thousand packages are filled correct to the tiniest fraction of an ounce and swiftly sealed without a human hand to aid in the process.

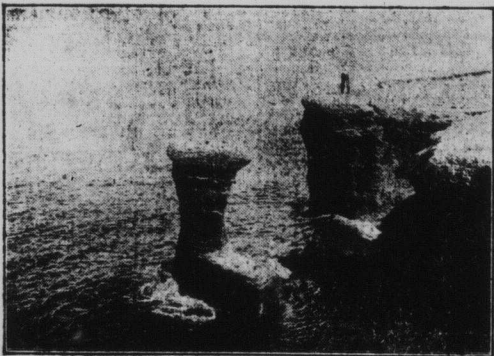
Compare this automatic packing with the work of the swiftest clerk you ever saw. In the time that a single package could be wrapped and tied a whole battery of cartons is filled and sealed, making a strong convenient sanitary package easily handled in the store or in the home pantry. Packing by machinery is so much more safe, cleanly and economical than packing by hand that there is no doubt that all sugar will shortly be sold in the package form.

Packing by automatic machinery is one of the latest of a long series of economies in refining and handling sugar. The first white sugar cost the consumer of a hundred years ago about twenty cents a pound. Refineries were then able to get about fifty pounds of white sugar from one hundred pounds of raw sugar. Improvements in refining now enable them to get a much larger per cent of refined sugar from one hundred pounds of raw, making white cane sugar the cheapest, purest and most delicious of all the energy giving foods.

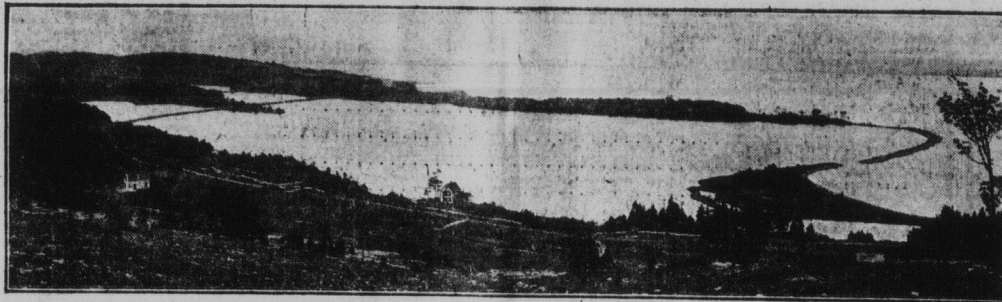
Lantic Sugar



BRAS D'OR LAKES



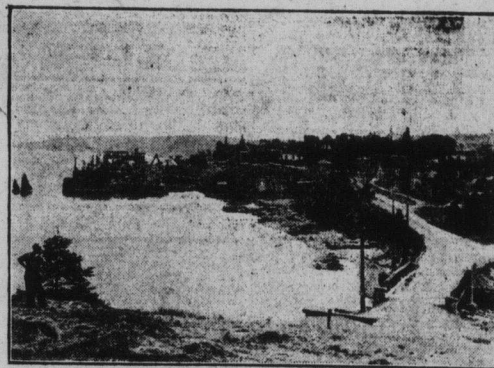
A ROCK—LINGAN BAY.



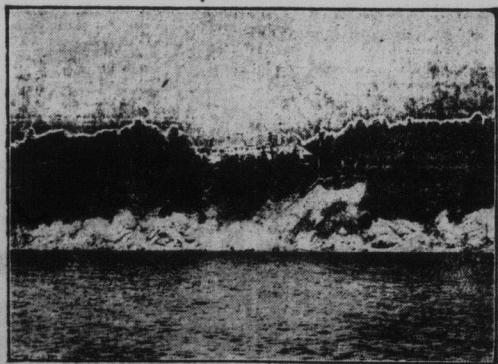
BRAS D'OR LAKE.—CAPE BRETON.

The Cape Breton of to-day is a land of summer loveliness, a vast island wherein are other isles innumerable. Its shores are washed by the billows of the Atlantic, and by the Gulf of St. Lawrence. The shining waters of the Bras d'Or Lake divide it in twain, and provide a spacious waterway, through the interior, while there are numerous rivers, streams, and fresh water lakes. To this variety Cape Breton owes much of its charm; nothing is tame and on every hand the scene is calculated to fill the mind with emotions of the keenest pleasure. The shores of the island are rugged and mountainous. The coast scenery to the Northeast is sublime in its grandeur, while to the South the Atlantic surges around numerous islands and pours its waters into many bays. Cape Breton is a country of heights and depths, with mountains, hills, valleys, rivers and lakes. Nature has made it the ideal land for the summer pleasure seeker.

CAPE BRETON



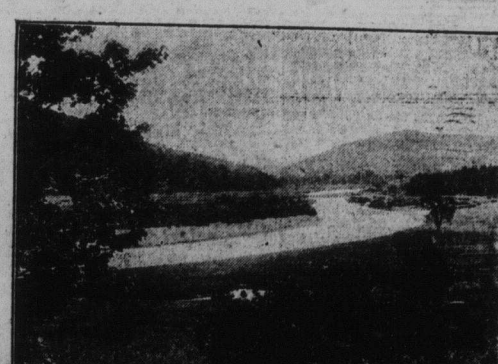
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Three Hundred Years
Established Along
Has Been

Newcastle, the rapidly growing town situated at the head of deep water, an important divisional point of the 3,500 people, a very substantial thriving suburbs of Nelson, Dougl nearly as many more.

The history of the town and Though the French inhabitants at recently, the first settlers were of the but that of La Belle France was the governor of Acadia, assigned the island and all the coast from Canso to Gas

Soon afterwards Denys opened establishing posts on different parts by D'Aulnay, who had just taken the dominions on the death of D'Auln end of the seventeenth century M hamlets.

By the year 1725, a strong fort houses, was established on Beaubar branches of the Miramichi. Another end of Newcastle, the cove where it

The French settlers, who were in possession till 1758. In that year from Louisbourg, swept away the settlement. In 1759, it is said, a British vessel be stress of weather over thirty miles Henderson's Cove, opposite Chatham Mimams and massacred. In revenge along the river, whether of Indian perpetuates the memory of this un all fled from the district, and, according, in the year 1764 there was no now Northumberland county, and of the French had been destroyed by

In the summer of 1764 a new island of Scotland settled in what is now British government a grant of 100 sides of the southwest branch, the was accompanied by settlers from year. Settlers also came up from sprang up in fish and furs.

In 1786 the erection of two saw industry of the Miramichi. Then and population grew rapidly. In several public buildings erected. two members to the newly consti

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