

sions of loyalty to Canada and our Sovereign Lady the Queen from Grit and Tory alike without any preconceived plan? Why, simply the talk of a few disgruntled people about annexing Canada to the United States. The principal speakers were His Excellency the Governor-General, Sir John Macdonald, Hon. Oliver Mowat, Hon. G. E. Foster, Senator Macdonald, President Van Horne, Canadian Pacific Railway; General Sir Fred Middleton, Hon. George Drummond, President Board of Trade, Montreal; President Fairgrieve, Board of Trade, Hamilton; and Mayor Clarke, Toronto. Hon. Mr. Foster made the speech of the evening and he struck a responsive chord in the hearts of all present at the conclusion of his brilliant peroration when he said: "Gentlemen, with a future before us which can only be bounded or restricted by our own efforts, I cannot have sympathy with the intimation that we are prepared to sacrifice the traditions of the past—the historic links which bind us to those that have gone before, full of glory and grandeur, as they are. We are not prepared to sacrifice our future and hand ourselves over to any but the Sovereign and the sovereignty that has so long ruled, and the sovereignty which, we hope, will long sway the destinies of this the Gem of the British Crown."

THE *Scottish Leader*, published in Edinburgh, in an article reviewing the agriculture of Aberdeenshire and the North of Scotland for the past year, says:—"Another feature of Aberdeenshire agriculture that merits attention is the system that has been adopted by a number of prominent agriculturists of bringing cattle by specially chartered steamer direct from Canada to supply the demand for store stock. The want of the class of beast referred to at one time threatened to prove a very serious difficulty to Aberdeenshire and northern farmers, but it may be said to have been satisfactorily surmounted by the importation of the native-bred Canadian bullocks. A number of cargoes of these brutes have been imported from time to time during the twelve months (about 3,000 head in all), the animals fetching in the sale-ring at Aberdeen an average of about £13 per head. While no profit has been made on the importation considered from the point of view of a trade, it may be at once admitted that no profit was at the outset looked for. Judged of as a means of keeping up the diminishing supply of store stock, the experiment must be regarded as a success, and feeders, it may also be borne in mind, are willing to admit that, as beef carriers, the Canadian bullocks are, all things considered, satisfactory." This is cheering news, as the farmers of the north of Scotland supply the London markets to a considerable extent with beef, and a large and increasing trade will no doubt be opened for Canadian cattle. Alberta stockmen are also to send a carload of horses from Calgary to England as an experiment, there being a great demand in the old country for horses for army and other purposes. If the experiment should prove successful another important market will be opened for stockmen in the northwest who have embarked in the business of breeding horses.

THE third session of the Sixth Parliament of the Legislature of Ontario was opened on January 24th, with the usual ceremonies. In the speech from the Throne the following appears: "I am glad to know that the agricultural industries of the country have been fairly prosperous during the past year; that though the early part of the season was unfavorable, and in some localities crops and pastures were badly affected by drouth, yet that, over the greater portion of the province, cereals, roots, and fruits have been abundant and of superior quality. The extensive areas of land brought under cultivation during the last decade in India, South America, the United States, and our own Northwest, make economy in production more essential to the farmers of Ontario than ever before; and emphasize the importance of giving increased attention to the best means of promoting the agricultural interests of the country. Increased efficiency has been given by the legislation of last session to the Department of Agriculture throughout all its varied services; and experience is already justifying the policy of assigning to the department a Minister free to devote to it his whole energies." There we have the plain unvarnished

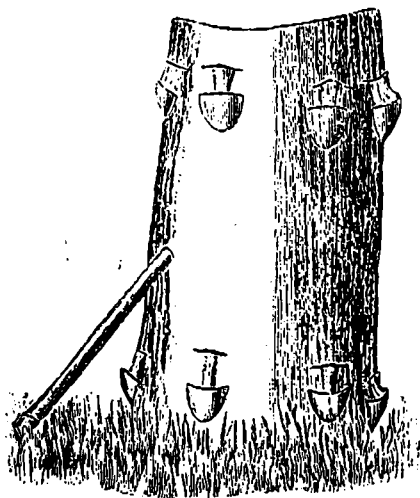
truth. Now what about the exodus of farmers from Ontario to the United States which we so often read about in a certain section of the daily press. Is it a fact that it has attained such proportions as to call for a special commission to enquire into its causes? We are not in a position to answer that question. But why Ontario farmers should prefer the United States to Canada is what we are puzzling our brains to find out. It can't be the want of productiveness of the soil. Last year the yield of fall wheat in Ontario was 16.7 bushels per acre, and the average yield in the United States, according to the report of the Department of Agriculture was only 11.6 bushels per acre; while of spring wheat the yield in Ontario was 17.5 bushels per acre, and in the United States the average was 10.3 bushels. Then in oats the yield in Ontario was 35.4 bushels per acre, while in the United States the average yield was 26.2 bushels. To emphasize these facts more distinctly, a writer recently in the Chicago papers in an article on "Decline of the Farms," shows that in the past twenty years the yield of wheat has decreased in New York State from 13 bushels per acre to 10.3 bushels and the corn yield from 29.3 to 23 bushels per acre. Taking the Southern States for a period of ten years past the decline was in North Carolina, wheat from 8 bushels to 5.9 bushels per acre, corn from 16.41 to 11.5, oats from 12.9 to 8.7. In Georgia the wheat yield decreased from 7.3 to 5.1 bushels per acre, corn from 11.1 to 8.7, oats from 10.2 to 9. In Mississippi, wheat from 9.2 to 5, corn from 13.8 to 13.5, oats from 14.5 to 11.5. In Texas wheat decreased from 15.5 to 8.5 bushels per acre, corn from 19 to 18.5, oats from 27.2 to 22.8. Kentucky, between 1864 and 1884, registers a decrease in wheat yield from 10.2 to 7.7 bushels per acre, corn from 28.5 to 24, oats from 24.2 to 16.3 per acre. In Indiana the decrease in the wheat yield was from 14.3 bushels per acre to 10.4 bushels per acre, corn from 29 to 27. In Illinois wheat went down from 14.3 to 10, and corn from 33 to 25 bushels per acre. The reasons given for this marked decrease are loss on the cost of production, deterioration of the soil, introduction of the landlord and tenant system, and ravages of insects. He believed that "soil deterioration is not so much a prime cause of agricultural decline as are our methods of farming, and we may yet discover that in our land system we have imitated too much England's methods and too little those of France." These are facts for farmers in Ontario to digest.

Simple Studies on Interesting Subjects.

No. II.—India Rubber.

We have selected for the second article on "Simple Studies on Interesting Subjects," the subject of India Rubber.

Although it might be said its use is almost universal, very few know anything of its source, the means of gathering it, methods of preparation for market, processes of manufacture, etc. We will in this article endeavor to explain all these points in as plain a manner as possible. In India, Africa,

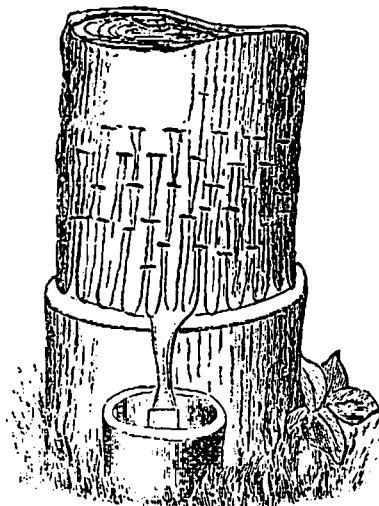


and South America there are numerous plants that yield a milky juice which becomes an elastic fibre by coagulation resulting from exposure to the air.

The most prevalent method of gathering it is here illustrated. The tapping is done at the beginning of the dry season. The collector places at the base of each tree a number of small cups of burnt clay with one side flattened; with an axe he makes an upward cut as high as he can reach across the trunk, penetrating through the bark and into the wood an inch or more. The breadth of the cut is also about an inch. One of the cups is immediately placed beneath the bruise and fastened there with a bit of moistened clay, when the sap begins to exude, continuing about three hours. After the same manner another incision is made at the same height and separated from the first by four or five inches, and so on till a girdle of cups is formed around the tree.

On the following morning the same operation is performed, only on a level about six inches lower. After several days' work the last tier reaches the ground. In due time the collector makes his rounds and empties the contents of the small cups, fifteen of which hold a pint, into a larger vessel called a calabash.

A very different mode of procedure, however, is pursued in some parts of South America. To a height of three feet the loose outside bark is stripped off. Near the ground a trough enclosing one-half the circumference of the tree is made by pasting clay to the trunk and shaping it as shown in the illustration. A series of cuts are then made



which allow the juice to run into the improvised gutter, whence it is drawn off into a vessel below. The milky juice thus collected is moulded in a wooden instrument resembling the paddle of a canoe, over which soft clay is rubbed to prevent adhesion. It is then well warmed in the smoke of the fire and new layers are added as the process proceeds. It soon becomes solid, and when dried is ready for the market.

As the rubber comes to the manufacturer it is full of foreign ingredients, and must be washed, which is done by boiling in water for several hours, and then passing through a wringing machine, very much resembling the one used in the laundry, from which it emerges in long sheets with rough surfaces. It is then dried by steam heat in 90° Fahr., care being taken to keep it out of the direct rays of the sun. It is next passed between fluted rollers in what is called a masticating machine. Finally it is moulded and compressed into compact blocks and put into ice houses to cool, where it remains until required for use.

It is used for various purposes. Some of them are:—As an eraser of pencil marks; cut into thin strips it serves as a brace to the bands of cotton, woollen, and silk gloves; mixed with sulphur it becomes vulcanized rubber, when it serves as ink erasers, elastic bands, door springs, gas tubes, balls, etc.; mixed with pitch it is made into combs, watch-chains, and pen-holders; in solution and mixed with shellac it is used as a cement by ship-builders, and is also used to insulate wires. Such are some of the uses of this important article which will be found to be soft to the touch, flexible, tough, elastic, impervious to water, inflammable, emitting a strong odor, and giving off dense smoke; whose elasticity is augmented by moderate warmth and diminished by cold; which will melt in very hot water or when subjected to 250° Fahr., and whose freshly cut edges are easily joined by pressure with the assistance of a little heat.