

which will be lost to the revenue by his products. The loss will be just as great if beet sugar is allowed to go into consumption temporarily, free of duty, and when the time comes for putting on an excise tax there can be no doubt whatever that there will be intense public discontent. The manufacturers will forthwith reduce the price of beets, which will create dissatisfaction among the producers, who will consider themselves ill-used, and all the parties interested will clamor for the continued exemption of beet sugar from any tax. Time will prove whether these views are correct.

#### CATTLE RAISING.

The partial failure of the hay crop in the United States last year, and the suddenness with which winter set in upon wild grass sections both in Canada and that country, created an unusual demand for feed and forage during the winter. Agents and speculators in hay, were to be found all over the country, and farmers in some sections sold their hay delivered in the market town, early in the winter as low as \$6 per ton. We sounded a note of warning on the subject last fall in referring to the short-sightedness of certain Bruce County (Ont.) farmers in selling their hay at such prices, and considerable money has been made in various sections of the country by those who took the hint and entered upon the purchase of Canadian hay for the American markets.

The growth of our cattle trade with Great Britain, promoted in some degree by the embargo upon American beeves—which notwithstanding every endeavor, public and private, continue to be afflicted with the foot and mouth disease—renders it important that some means beyond distillery feeding be devised whereby a larger number can be fattened for spring shipments. The present condition of affairs cannot last; as soon as the European markets are open without reserve to the cattle trade of the United States, our people will find a difficulty in competing with "raisers" who can command open field pasturage all winter, as in Texas with its enormous area, or with those some degrees farther north, where only a few days in the winter are too severe for outdoor feeding.

Some recent American experiments based upon an old idea derived from the French, to whom in this respect, as well as in the sugar beet industry, the world is mainly indebted, tend to show how cattle can be economically kept and fattened during our long Canadian winters. It is

not alone in cattle raising that the new departure commands itself; the products of the dairy can be very materially enlarged and extended, and with the low temperature, the quality of dairy and store-packed butters can be improved after the methods adopted in Denmark and other countries of Europe, formerly described in the columns of the JOURNAL OF COMMERCE.

The new system is called Ensilage. As applied to grass, Ensilage is much older than the experiments of M. Goffart, the Frenchman to whom the agricultural world is indebted for the development, if not the origin, of the ensilage of maize. The following is from a work published by Grieswald in 1842:

"A curious mode of preserving grass for forage, instead of making it into hay, has been tried in Germany, in East Prussia; and it is this: Pits are dug in the earth, ten feet or twelve feet square and as many deep. They are puddled with clay, and lined with wood or brick. Into these pits four or five hundred weight of grass, as it is cut, are put in, a layer at a time, sprinkled with salt at the rate of one pound to one hundred weight, and if the grass is dry, that is free of rain or dew, two or three quarts of water are sprinkled over the layer. Each layer is trodden down by five or six men, and rammed firm, especially round the edges, with wooden rammers, the object of which is the exclusion of air. A little straw is then scattered over the layer to mark its dimensions afterwards. Layer is placed above layer till the pit is filled to the top, when the topmost layer is well salted, and the pit covered with boards, or a well-fitted lid, upon which is put a covering of earth of one and a half feet in thickness. Such a pit will contain five layers of grass, and should be filled in two days. The grass soon ferments, and in about six days subsides to half its original bulk. The lid is examined every day, and every crack in the earth filled up to exclude the air, which, if allowed to enter, would promote the putrefactive fermentation in the grass. When the first fermentation has ceased, the lid is taken off, and fresh grass put in, trodden down, and salted as before. The pit will now contain about ten tons of grass, equal to two or three tons of hay. The pits should remain shut for six weeks before being used, and then are used in succession. The grass thus treated has the appearance of having been boiled, and its sharp acid taste is very agreeable to cattle; and twenty pounds a day with chopped straw will keep a cow in good condition all winter, and twenty-eight pounds will cause a cow to give a rich and well-tasted milk."

The system as at present in vogue in New Jersey is due to a New York grain merchant, and is the result of experiments with the view of improving the size and quality of the native corn by an admixture in alternate rows of a species of luxuriant Southern corn. This did not ripen in time, but was twice as tall as the local species. In order to preserve it for feed he tried the Ensilage system, with satisfactory results, which is simply by pressure and by exclusion of the air. The experiment referred to was on rather a large scale. It all seems simple enough when seen, but the simplest things are always those which one arrives at after matured thought. On entering the barn

two deep pits are seen, sunk right into the floor of the barn. The exact dimensions are, for each, length, forty feet; width, thirteen feet; depth, twenty feet. These pits are lined with concrete made of rubble and Rosedale cement. They are solid and substantial. These are the silos, which hold the ensilage.

The corn is planted in May, and cut about the middle or end of September, when it is some eight to ten feet high. The product is about sixty tons per acre, of green stalks and leaves. In the case referred to thirteen acres were planted; and from the yield, 780 tons gross of green stuff cut, 120 cattle were fed. It is perhaps possible that a yield of 60 tons per acre can be had from the corn referred to, but we observe that 22 tons are given as the average crop of Corn Fodder at the Agricultural College Farm, near Guelph, where brain and muscle go hand in hand. The very small amount of land used for this purpose, as in the New Jersey experiment, seems wonderful. Just as soon as the corn is ready, which is distinguishable by the tasseling and the formation of a few nubbins, in go the men, who lay it low. It is at once carted to the barn where are the silos. The green stalks and leaves are submitted to the action of ordinary cutting-machines, the only precaution necessary being that the knives be kept as sharp as possible, so that the green stuff shall not be bruised, as by rough handling the juices are expelled, and to that extent air takes its place in the cells of the plant—a thing to be avoided as much as possible. Two cutting-machines are used, which make the fodder into lengths of one-half and one inch.

Now as to the method of filling the silos. The cutting-machines deliver the green stuff into the cement-lined pits, the capacity of each being 300 tons. As the material goes in it is not trodden on, but worked evenly into the silos by changing the direction of the delivery. When the pit is full, level with the floor, a wooden case is placed like a fence around the pit, which case is seventy-five per cent. in height of the depth of the pit, for the ensilage by compression sinks about this much. The pit being twenty feet deep, when it and the fifteen-foot case are full, then the whole mass of green material is covered over with stout wooden planks, made in sections. These sectional covers are among the most important adjuncts of the silos, and in their proper construction a great deal of the success of the operation depends. These covers are made of two-inch-thick spruce plank, tongued and grooved, and firmly battened together, four feet wide, and one inch less