

letter was published by order of the Central Board of Agriculture. The Committee on Agriculture of the House of Assembly reported upon it as follows.

A circular from Julius L. Inches, Esq., of Fredericton, New Brunswick, in connection with the Dominion Exhibition for 1883, to be held in that Province, was considered by us. The necessity for providing means to send exhibits to this Exhibition was urged and conceded. We, therefore, recommend a grant of \$500.00 for this object.

In this connection, the subject of the selection of stock and other exhibits for said Exhibition was brought to our attention. In order to save the Committee that may be appointed to examine and make such selections, much trouble and expense in going to the different parts of the Province, we recommend as very desirable that these examinations and selections, as far as possible, be made at the time of the Provincial Exhibition to be held at Truro, from exhibits there made.

THE Board of Agriculture of Manitoba offers prizes of \$50 and \$25 respectively, or medals of equal value, at the option of the successful competitors, for the best and second best essays on the most judicious method of farming in Manitoba, either by rotation of crops, or otherwise, so as to produce the largest yield of crops annually from the soil.

The greatest possible conciseness compatible with explicitness is expected. Essays must be written on paper of the size of foolscap and on one side of the paper only. Each essay must be marked in the left hand upper corner of the first page with a distinctive motto. The same motto, together with the writer's name, must be enclosed in a sealed envelope and forwarded with the essay. This envelope will not be opened till after the award of prizes. Essays will be received by Board of Agriculture, Winnipeg, until 6 p. m. on Saturday, September 29th, 1883.

NOVA-SCOTIA APPLES.

We obtain some interesting information relative to the growth, keeping and marketing of apples, from the report of the recent meeting of the Nova-Scotia Fruit-Growers' Association, given in the Halifax Morning Chronicle. That province, on account of its sea surroundings, appears to possess some distinct advantages, not unlike those of Owen Sound in Canada, and the Grand Traverse region in Michigan, which are about the same in latitude, and which are particularly adapted to render fruit long-keeping.

T. S. Whitman related an experiment in keeping a keg of winter apples in perfect condition from February to October, in an ice-house, at a temperature near freezing. Half a dozen kegs of the same kind were spoiled in a few days at a tem-

perature of 55°. He said that the proof that apples after being frozen could be gradually thawed back to good condition, was furnished by the fact that perfect fruit has been picked up from the ground in spring after lying there all winter. Inexperienced people are apt to condemn the quality of good apples through their own carelessness in this respect. A steamer took in a load of fruit at Annapolis in January when the thermometer in her hold stood at 26°, and that cargo was landed in London in the best condition of any ever sent from this side, the whole selling at more than four and a half dollars a barrel. Apples could never be taken out of a cool temperature and put in a ship's hold when the thermometer was 55°, and kept there without spoiling. Hence the importance of special conveyance and special warehouses. He had found that apples kept well at 32° and better at 30°, and that they could not freeze at 25°. Carelessness in shipping sometimes reduced the price two dollars on a barrel, by the bad appearance presented after landing. There is every stimulus for raising the best fruit in connection with careful assorting and shipping. Within ten days from shipping there is a market on the other side of the water, which consumes between four and five million barrels yearly—the city of London alone using a million and a half barrels—all of which has grown up in a very few years. All fruit from this side of the water was at first called American. Then "Canadian" began to make its mark. Now it is classified as Nova Scotian, Canadian and American.

Dr. Robert Burnet, late president of the Ontario Fruit-Growers' Association, gave an excellent address on the management of orchards, including selection of soils, drainage, good cultivation, top-dressing, thinning the fruit, careful handling, selection, and shipping in neat packages. Among varieties, he recommended Golden Russet and Ribston Pippin for Nova Scotia. Mr. Whitman placed the Nonpareil first, then Ribston Pippin and Roxbury Russet. Northern Spy was condemned. It appears that the Gravenstein has stood high as an autumn fruit, from the fact that one man in Kings county had raised over 500 barrels of this sort. Mr. Dickie said that Nova Scotia apples had lately acquired a good reputation in the London market. He took 3,000 barrels just before Christmas last, and sold them all at auction between 11 o'clock that night and 1 in the morning. —From the Country Gentleman, Albany, N. Y. State.

On 10th March the thermometer went down to 3 degrees below zero in Somersetshire, England, and one Florist lost two thousand pounds worth of violets.

A NOTE ON SAP.*

Beneath a white Birch tree growing in my garden I noticed, yesterday evening (April 3), a very wet place on the gravel path, the water of which was obviously being fed by the cut extremity of a branch of the Birch about 1 inch in diameter and some 10 feet from the ground. I afterwards found that exactly fifteen days ago circumstances rendered necessary the removal of the portion of the branch which hung over the path, 4 or 5 feet being still left on the tree. The water or sap was dropping fast from the branch, at the rate of sixteen large drops per minute, each drop twice or thrice the size of a "minim," and neither catkins nor leaves had yet expanded. I decided that some interest would attach to a determination both of the rate of flow of the fluid and of its chemical composition, especially at such a stage of the tree's life.

A bottle was at once so suspended beneath the wound as to catch the whole of the exuding sap. It caught nearly 5 fluid ounces between 8 and 9 o'clock. During the succeeding eleven hours of the night 44 fluid ounces were collected, an average of 4 ounces per hour. From 8.15 to 9.15 this morning very nearly 7 ounces were obtained. From 9.15 to 10.15, with bright sunshine, 8 ounces. From 10.15 till 8.25 this evening, the hourly record kept by my son, Harvey, shows that the amount during that time has slowly diminished from 8 to a little below 7 ounces per hour. Apparently the flow is faster in sunshine than in shade, and by day than night.

It would seem, therefore, that this slender tree, with a stem which at the ground is only 7 inches in diameter, having a height of 39 feet, and before it has any expanded leaves from whose united surfaces large amounts of water might evaporate, is able to draw from the ground about 4 litres, or seven-eighths of a gallon of fluid every twenty-four hours. That at all events was the amount flowing from this open tap in its water system. Even the topmost branches of the tree had not become, during the fifteen days, abnormally flaccid, so that, presumably, no drainage of fluid from the upper portion of the tree had been taking place. For a fortnight, therefore, the tree apparently had been drawing, pumping, sucking—I know not what word to use—nearly a gallon of fluid daily from the soil in the neighbourhood of its roots. This soil had only an ordinary degree of dampness. It was not wet, still less was there any actually fluid water to be seen. Indeed, usually all the adjacent soil is of a dry kind, for we are on the plateau of a hill 265 feet above the sea and the level of

* Read by Professor Atfield, F.R.S., at an evening meeting of the Pharmaceutical Society, April 4th, 1883.