

Mr. Spencer, of Manitoba, remarked that fruit can now be sent to Winnipeg, via Duluth, without any land carriage. If gentlemen present thought the price obtained for apples in Glasgow to be remunerative, he would tell them that at Winnipeg, instead of selling for twenty-seven shillings and six pence, ordinary apples found ready sale at twenty dollars per barrel, and one had to be sharp to get them at that.

Sheriff Davidson stated that there was a time when at Berlin there was no sale at all for what little fruit was then raised there, but now the best prices were paid for good fruit. He mentioned also that he had found dry leaves an excellent material in which to pack apples.

Mr. Haskins complained that the Hamilton market was very poorly supplied with good fruit, that in fact the most of it looked as though the best had been taken out and sent to some other market, and expressed the hope that fruit raisers would at least be able to supply Hamilton with what fruit it needed.

Mr. Osborne exhibited to the meeting some fine bunches of Isabella grapes which he had kept, remarking that a considerable quantity of these grapes could be sold at this time, at prices varying from fifteen to twenty-five cents per pound, and said that if fruit-raisers would take the trouble to preserve those fruits that were abundant in the autumn, until this season of the year, they would secure good prices and be well repaid for their trouble. On being asked how he had preserved these grapes in such fine condition, he stated that he allowed the grapes to remain on the vine until they were perfectly ripe, then when they were quite dry he cut them from the vine, handling the clusters carefully by the stem, and laid them in shallow boxes, first placing in the bottom a layer of dry leaves, and upon these a layer of grapes. In this way he filled the box with alternate layers of grapes and leaves, closing with a layer of leaves. The boxes were then nailed up tight, and buried in the ground in a dry spot in the garden not sinking them very deep, but rigging the earth up over them. This morning he had dug them out with a pick, the ground being frozen, and found the grapes to be all in as perfect a state of preservation as those he now exhibited. He had been led to try this method from finding grapes on the ground in spring, which had been covered during the winter with leaves, in a very fair state of preservation, and thought he would try the method he had just now described, and which in this instance had been so very successful.

Mr. Grey stated that one fruit dealer in Toronto had, last fall, imported over two tons of grapes, which he thought might as well be grown in Canada. For the past thirty years prices had been good in that market, and he believed they would continue so.

Mr. Woolverton thought it might be possible to exceed the demand for summer apples, but in winter fruits there was no danger.

Dr. Cross thought there was danger of growing too many of the small fruits. He had sent strawberries to Toronto for which he realized nothing, and last year was unable to sell his Bartlett pears, the dealer in the city telegraphing to him not to send them.

Mr. Caldwell thought the demand for first-class fruits was continually on the increase; of these the supply would never be too great.

Mr. Graham said that at Fort Erie there was a constant demand for fruit, especially for apples, pears, &c., the Buffalo market taking everything they could raise. Cider apples were bought up, at very good prices, for the manufacture of vinegar.

Mr. Allen, of Kingston, would discourage the production of any but the choicest varieties of fruit, and the sending to market of any but choice samples. A gentleman near Poughkeepsie, N. Y., sent annually to Europe several thousand barrels of apples, each apple very nicely wrapped in silver paper, and for these he obtains high prices. The wrapping of each apple secures a careful examination of each, and the rejection of all that are imperfect. He believed that the very production and sending to market of choice fruit of itself created a demand, and that the more abundantly consumers were supplied with good fruit the more they would consume.

DISTANCE OF PLANTING.

The second question was taken up after recess—At what distance apart should apple and pear trees be planted?

There was a very general expression of opinion, the burden of which seemed to be that about thirty feet apart each way was a suitable distance for apple orchards, but twenty

feet each way was quite sufficient for standard pear trees.

Some of the members thought that some varieties of apple, those that did not make great spreading heads, such as the Early Harvest, Duchess of Oldenburgh, Northern Spy, &c., might well be planted at twenty feet apart each way.

Mr. Caldwell remarked that it was found to be desirable to plant trees much closer together in the northern districts—say in Minto, Garafraxa, &c.—than in the Niagara district. The trees in the northern sections suffered so much from cold that it was necessary to plant with reference to the peculiarities of that climate. When planted close together, and trained low, the trees protected each other, so that while a distance of forty feet each way would be very suitable in the warmer and more southern parts, in the northward he would advise planting apple trees not more than 25 feet apart each way. From his own observation he could say that long-stemmed trees in that part of the country were not the thing, and that those who had tried the experiment of low training and close planting had been much more successful.

Mr. Grey, of Toronto, fully coincided with Mr. Caldwell. The planters in the northern sections were enquiring for low-headed trees, having become convinced of the superiority of such trees for their locality over the old-fashioned style of long trunks. It might also be well, he thought, to plant the pear trees between the rows of apples.

Mr. Morden advocated planting the trees further apart than the distance recommended by Mr. Caldwell, on the ground that when planted so near together, the roots of the trees would soon interlace and exhaust the soil of the requisite fertility. On this account he advocated planting trees at considerable distance apart. He spoke of an orchard which he had grown in the county of Hastings, where he had pursued the plan of wide planting and high training, and believed the orchard had been a success, comparing favorably with any.

Mr. Morse was partial to the quincunx form, planting the trees in rows thirty-three or forty feet apart each way, and then planting an intervening row by placing a tree in the centre of each square formed by four trees. He thought that in this way the desired protection was secured, while at the same time the distance was so increased between the individual trees that no evil effects would arise from interlacing of roots or branches.

Some remarks were made upon the correspondence existing between the form of the top and the form of the root, some maintaining that those trees which formed a broad spreading top also threw out wide-spreading roots; while those having a fastigate top sent their roots more perpendicularly into the earth. To this it was replied that as our trees were grafted upon some seedling stock, it was probable that the roots would assume the style of growth natural to the seedling stock, and not that of the inserted grafts. This led to some discussion upon the influence which the scion exerted upon the growth of the stock. Some instances were mentioned where it was manifest that the root growth was affected by the scion, but the instances that are well authenticated did not seem to be sufficiently numerous to admit of any general conclusions on this point.

PLANTS FOR DISTRIBUTION.

The meeting having been asked to state what trees or plants the members desired should be sent out for trial, it was suggested by Mr. Ball, of Niagara, that it would be well to give some nut-bearing trees a trial, such as the Filbert, which he believed had done well in some localities.

The President remarked that he had succeeded in raising them in Hamilton.

Mr. C. Arnold, of Paris, stated that he had grown the English walnut (*Juglans Regia*) and that last year they ripened nicely.

Other members remarked that they had succeeded in growing the tree, but not the nuts.

The President then announced that any suggestions with regard to the kind of tree to be distributed hereafter would be acceptable from any member, and that suggestions might be addressed either to the President at Hamilton, or to the Secretary at St. Catharines.

MEETINGS.

The places of holding the succeeding general meetings of the Association for this year were then discussed, and it was decided that the summer meeting should be held in Guelon, at the call of the Secretary, and the fall meeting in Toronto. The annual meeting for the elec-

tion of officers, &c., will be held in the city of Hamilton during the week of the Provincial Exhibition.

FORMING HEADS FOR ORCHARD TREES.

The third question was taken up—At what distance from the ground should orchard trees be made to branch?

Mr. Martin favored low heads. He thought these shielded the trunks of the trees from the heat of the sun in summer, and that on such heads the fruit ripened earlier and was more easily gathered.

Mr. R. N. Ball thought that six feet from the ground was a very suitable height, answering well for all purposes. The ground could be cultivated under such trees, the fruit could be conveniently gathered, and when the trees acquired size they sheltered each other sufficiently.

Mr. Caldwell advocated low heads as necessary in the colder sections, and thought that ploughing and deep cultivating in the orchard was very injurious to the roots; also that when the trees branch low the weeds are unable to make any luxuriant growth, being too densely shaded by the tree tops.

Mr. Morden was opposed to low heads; he believed that in practice it only amounted to growing three or more trunks instead of one. He thought, from his own experience in the county of Hastings, that there was nothing gained by training trees low.

Other gentlemen stated their views, the majority of whom were in favour of forming the head at about six feet from the ground. If the branches came out lower than this, the weight of fruit and leaf soon bent them to the ground, so that great inconvenience was experienced from these pendant branches sweeping the ground. There is a just meaning in this matter, which may be varied by the habit of growth of the particular variety, or by the peculiarities of climate and exposure to winds.

The discussion was enlivened at this stage by the reading of a carefully-prepared paper by A. Macallum, M.A., on "Some of the meteorological conditions that obtain at Hamilton." His essay was received with thanks, and referred to the Committee on Publication.

CROPPING ORCHARDS.

The fourth question was then considered namely—Should any crops be grown in the orchard?

Mr. R. N. Ball thought it was well to cultivate the orchard while young with crops which did not exhaust the soil, as peas, beans, &c.; but that after the trees have come fairly into bearing, no crop whatever should be grown in the orchard.

A large number of members expressed their opinions, but the prevalent opinion was strongly in favour of growing only such crops as those mentioned by Mr. Ball, or other hoed crops, as turnips, &c., while the trees are young; and that in no case should crops of grain, as rye, wheat, &c., be grown in the orchard.

VARIETIES OF APPLE—WHAT PROPORTION?

The fifth subject was—In planting orchards, what should be the proportion of summer, fall, and winter apples, in every hundred trees?

Mr. R. N. Ball would plant all winter fruit, if planting for market. Would plant no more summer and fall fruit than was needed for home use.

Mr. Arnold thought that some summer fruit might be safely planted for market such as the Bononi and Summer Strawberry. There was but little demand for fall apples. At that time grapes, pears, and sometimes peaches, filled the markets, and when these could be had in abundance the demand for apples would be light.

Mr. Allen thought that by far the larger part should be winter sorts.

Mr. Caldwell advised that two-thirds of the apple orchard be of winter varieties, the other third to be made up of summer and fall sorts. This arrangement was about what each required for family use, and would meet the requirements of the market.

Mr. Watson remarked that for six weeks in the fall, after the early apples were gone, there were no good table apples to be had in the Toronto market at any price, and that good dessert apples would there command a ready sale.

Mr. Smith thought that orchardists had made a great mistake in confining their planting exclusively to winter varieties; that there was a considerable demand for summer apples, much greater than the present supply.

Mr. McGill would plant one quarter of his orchard with summer apples.

DECAY OF BARK ON APPLE TREES.

Mr. Morden enquired what was the cause of the loosening and decay of the bark on apple trees? He said that this decay of the bark occurred on the trunk and main branches, and generally on the south-west side of them. It sometimes extended for a considerable length on the trunk of the tree, and even below the snow line. After a time the bark becomes discolored at the affected place, gradually becoming dry, dead and black, quite down to the wood.

Mr. Beadle remarked that he had noticed this disease in his own part of the Province. It was usually in the form of a black spot, of variable size, sometimes on the trunk of the tree, sometimes on the large branches, and always on the south and south-west side, where the surface was exposed to the direct rays of the sun. When the tree inclined to the north-east or the branches extended horizontally to the north or north-east, and were exposed to the full power of the sun, there these injuries to the bark were found. He had never seen them on those branches which extended southward, or that grew nearly upright, nor on the trunk of a tree that stood perpendicularly, or that leaned towards the south or south-west. When the branch of the tree or the trunk inclined so that the sun's rays fell on them at right angles to their surface, or nearly so, then these black spots appeared. He believed they were due to the action of the sun, perhaps the joint result of frost and sun-heat. It might be that the mischief was done in the later days of winter, when the sun has acquired considerable power, and the nights are very cold with severe freezing, and the air remaining frosty during most or all of the day, while the unclouded sun is shining with full power on the bark of the tree. He had never seen any such injury on any other side of the tree, nor on any trunk of a tree not thus inclined, nor on any where the trunk or limbs were screened from the sun's rays. An examination of the injured spot revealed no cause, but presented an appearance as though the injury had begun in the inner bark, next to the wood of the tree.

He suspected that a careful examination of the trees spoken of by Mr. Morden would show that they were thus exposed to the action of the sun, and that the only remedy was protection in some way from the sun's rays. The fact mentioned by Mr. Morden that he had never seen the Northern Spy thus affected, strengthened Mr. Beadle's views, as this tree is remarkable for its perpendicular habit of growth, in both trunk and branches.

Mr. Allen was of the opinion that this affection was due to solar heat. It was well known by woodmen in the neighbourhood of Kingston that forest trees decay chiefly on the south side.

The President had seen this disease, but never where the trunks of the trees were shaded. Apricots and nectarines will thrive well on the shaded side of the house, but fail when planted the sunny side.

Mr. Bagwell had caused a new wood to form over these injured spots by carefully cutting all the dead parts away, quite down to the wood.

The President had also succeeded in causing such a growth, and believed it had been greatly promoted by covering the wound with a thick plaster of mingled clay and cow-dung, which had shielded the injured part from sun and air.

Considerable discussion ensued as to the action of frost and sun upon the cells when filled with sap. Intense frost, crystallizing the sap, and so causing it to expand, might rupture the cells in which it was contained. And perhaps when not ruptured by the crystallization of the sap, but considerably distended by this cause, the sudden increase of heat from the sun's rays might so expand the air contained in the cell, before it had melted the sap, as to rupture the walls of the cell, and in this way cause the destruction of the tissue.

SUBJECTS FOR DISCUSSION AT NEXT MEETING.

The following subjects were suggested for discussion at a future meeting:—

What system of drainage should be adopted for orchards?

What is the cause of trees being raised out of the ground during winter?

Is mulching beneficial?

What is the best time for pruning?

Is it profitable to the country to raise grapes for wine?

What is the best method of cultivating indoor grapes?

DISPLAY OF FRUIT.

There was a very considerable collection of fruit, principally apples, but including some

nice pears and w table. The Com ful examination to the meeting. in the annual tr

The meeting evening. Due by circular, of the meeting at Guel

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