



The "Baldwin House" at the Apple Show.

leaving a profit of \$1,560. The mineral constituents seem to have an important influence on the flavor of the fruit, and have been thought, also, to affect the color, though Professor Harcourt does not consider that the data on this latter point are conclusive.

ORCHARDING FOR PROFIT.

"The weakest part of farming to-day is the failure to keep books," said B. J. Case, President of the New York State Fruit-growers' Association, and himself an extensive commercial fruit-grower, of Sodus, N. Y. Mr. Case has 170 acres of all kinds of fruit, except berries. He does not want these among his trees. The time has passed, he explained, when we can grow fruit as our fathers grew it. To-day we must spray and cultivate our orchards, and small fruit among the trees hinders these operations, besides taking moisture and plant food from the trees. But to come back to the bookkeeping: A show of hands was requested from all men present who could tell exactly what they had made in returns and profits from an orchard. The invitation was responded to by a showing of only three hands. He then proceeded to explain his system of time-cards, by means of which he keeps track of the labor bestowed on every crop he raises, and is, in this way, able to decide which ones pay. These time-cards, he says, drove him out of grain-growing years ago. Ten dollars an acre was the best he could make out of wheat; barley was a little better; he didn't make anything out of his corn, but his apple orchard yielded him from \$600 to \$800 a year clear profit.

TRIMMING.

The system of trimming old orchards in such a way that in the center there is a circle 10 or 15 feet in diameter bearing no fruit, was criticised by Mr. Case as seriously defective. A common practice is to cut off the side limbs and send the long branches out further and further. Now, a bushel of apples five feet nearer the center of the tree is not nearly such a strain to hold up as a bushel at the extremity of the long limbs, so his practice is to haul in the diameter of these old trees, and force the bearing wood in to the center, by leaving a few suckers in the center of the tree, and cutting off the limbs which reach out farthest. It is possible to draw in the diameter of the tree three feet a year. He prunes all winter, when the weather is mild enough. To protect the ends of the larger limbs, he uses grafting wax, although some growers use a thin cement.

In planting new orchards, he sets all his apple trees 20 x 24 feet apart; even standard varieties, such as Baldwins, Greenings and Spies, are set this distance in squares. "Many fruit-growers," he declared, "are now getting their orchards to throw paying crops in seven years, instead of twenty. They are coming to low-heading and that helps to secure early cropping." He has been held back ten years in adopting the low heading system by the difficulty in figuring out a way to cultivate these low-headed orchards. The gasoline engine has solved the problem. He is now using it to draw harrows and cultivators. Six, twelve-inch plows can be hauled by this engine and can be made to run close up under the trees. The wheels of the motor are forty inches in diameter, and the total cost of it about two hundred dollars. Going back to the matter of pruning, Mr. Case submits that these trees set

20 by 24 will not crowd until fifteen years of age, and if they commence bearing at seven years, that gives a chance for eight crops of apples. He then purposes to take out the trees diagonally, leaving the rows 31 feet apart, at which distance they should be good until twenty-five years of age; then, taking out the odd trees, he will have them 40 x 48.

Intercropping an orchard, Mr. Case considers about like swapping dollars; you put a dollar in in the spring, and take one out in the fall. His plan is to sow Mammoth clover as a cover crop about June 15th, and plow it under in the spring. If a little feed is required for the horses, a strip of this clover growing between the rows of trees in a young orchard may be used in that way. Mr. Case emphasizes the advisability of sowing the cover crop early; too late cultivation of a bearing orchard he finds to militate against color on the fruit. A tree is like an animal—during the period of incubation and early growth it wants the best of feed in a readily assimilable form. During the months of May and June the tree is forming blossoms and embryo seed; it then wants plenty of plant food to stimulate growth. Provide this by early and thorough cultivation, then sow the cover crop, and mow it a couple of times before fall. To cultivate too late will stimulate a big, thick leaf-growth, and shade the fruit, preventing it from coloring as it should. It may increase the yield somewhat, but orchards handled on the plan above outlined will yield abundant harvest of well-colored fruit.

THINNING.

"We sent some apples to a chemist to analyze; he reported that the flesh of the fruit was nearly all water, with a trace of potash and phosphoric

acid. The seeds were high in phosphoric acid. It doesn't tax a tree very much to pump up water, but it does tax it to pump up and elaborate the mineral elements, so we want to grow as much flesh as possible, and as few seeds. We accomplish this by culling out surplus fruit that sets. We started thinning in September, and tried to utilize the fruit picked off, but this would not do, so now we thin in July, after the June drop, and throw hundreds of bushels of apples away."

FERTILIZERS.

"I never grew such crops of apples as when I began to use commercial fertilizers," declared the speaker. "I tried keeping stock to make manure, but I couldn't make my cows pay, even when I credited the manure at \$2.00 per ton, so now we depend chiefly upon cover crops and commercial fertilizers, using about 112 pounds of sulphate of potash and 600 pounds of ground bone per acre. I use sulphate in preference to muriate of potash, because my land is quite wet. I have miles and miles of underdrains running through the hollows and, leading into these, 3-inch tiles between each two rows of trees in the low places. The drains are 2 feet deep in the shallowest places; we try to get them down 2½ feet. With culture of this kind, it is no trouble to make an orchard bear four, five and six barrels of apples to a tree." As to profit, the Geneva Experimental Station some years ago started an experiment on what they called "The Outer Farm" with a ten-acre orchard, half cultivated, and half in sod. Results published showed that the five acres which had been cultivated yielded in four years net proceeds amounting to 10 per cent. per annum on a valuation of \$1,000 an acre. The part in sod did not do so well. Mr. Case took the same four years, and figured out that the proceeds on his orchard had averaged 14½ per cent. per year on \$1,000 an acre.

Moving a vote of thanks to Mr. Case, A. McNeill, Chief of the Fruit Division, Ottawa, heartily endorsed his suggestions as to close planting, low-heading, etc., stating that he himself had planted about 2,000 trees on that very plan.

APPLE-SHIPPERS INSIST ON SPRAYING.

Samuel Nesbitt presented to the Convention a resolution adopted by the Ontario Apple-shippers' Association, a body representing buyers who have purchased from year to year 750,000 to 850,000 barrels of apples in this Province, declaring that they would refuse henceforth to buy apples from unsprayed orchards. The trouble has been that there are too many producers asking any kind of an old price for any old apple grown on any kind of an old tree, and there had been buyers who would take this fruit at some price or other. The shippers, however, had been thoroughly disgusted with their operations this year in these unsprayed orchards, and at a meeting in Toronto last week resolved that they would agree among themselves, each for himself, not to buy apples in future from any grower who did not spray his orchard with lime-sulphur and arsenate of lead, or some other equally good spray. The shippers, declared Mr. Nesbitt, were determined to live up to this resolution.

DELAY IN FREIGHT SHIPMENTS—PILFERING AND ROUGH HANDLING.

For fifty-one years, said W. H. Bunting, Chairman of the Transportation Committee, we have been preaching the gospel of good culture, and



Norfolk's Exhibit at the Ontario Horticultural Exhibition, 1910.