

put on a table in the cellar. On Christmas day he went away and shut up his house, and the pears were not looked at until May 10, when they were found in perfect condition and finely ripened. He thought they must have been frozen in the cellar. His partner put a bushel box of pears in an out-building and forgot them, but when taken out in the spring they were in perfect condition.

William H. Hills, of Plastow, N. H., could not understand why apples should keep on the ground when they should be frozen on a shelf. He has kept apples sound in tight barrels, when those in more open casks decayed. He built a dry cellar, where the thermometer sometimes falls to 28°, and then if more warmth is desired he puts in a lighted lamp, which raises it to 32° or more. Here apples keep well, though the thermometer is as low as 27° or 28° half the time. He had known an instance where water got into a cellar, yet the apples kept well. Freezing apples once might not injure them, but repeated freezing and thawing would, and handling while frozen injures the fruit.

Mr. Wilder said that the preservation of apples on the ground arises from the moisture in the ground extracting the frost, as plants are syringed when frozen in the green house. Fruit must be handled as carefully as are eggs. Fruit placed in the storehouse bruised and in uneven condition as to ripeness will never keep.

Mr. Hadwen said that fruit designed to be kept should be picked before too ripe. He has kept green Bousack pears for four weeks. It is especially desirable in gathering Winter apples, such as Baldwins or Greenings, that they should not be too ripe. Shippers begin gathering apples two or three weeks before it is generally done.

Mr. Flint said that he once kept nine or ten barrels of apples on the trees till the ninth of November, when his neighbors thought they were spoiled, but he piled them up on the north side of a building until Christmas, and then put them in the stable and covered with straw, and they kept finely.

Mr. Wood said that Mr. Flint's apples probably kept cool on the trees. He once picked some Roxbury Russet apples very carefully and laid them out on the ground until they were covered with a foot of snow; they were afterwards packed in barrels in coal ashes and opened the middle of June, when they were very nearly perfect—plump, with the flesh crisp and juicy, and of fine flavor, when others have lost their flavor. The air was excluded from them and the temperature was even. Fruit-rooms in dwelling-houses, even though separated from the furnace cellar, do not compare with farmers' cellars for keeping fruit.

The learned horticulturist concluded his paper with the following remarks:

The conditions of success may be briefly stated as follows: The perfect control and temperature, light and moisture. All experience shows that these conditions must be complied with or success cannot be attained; hence these apartments must be cool and constructed so as to exclude at pleasure the external atmosphere, which starts fermentation. After many years of experience, both with and without ice, I have adopted a house built in a cool, shady aspect, with the door on the north, and with a thoroughly drained and cemented cellar, with small double windows, which may be opened or closed at pleasure. In this way I am enabled to keep my late fall and winter pears until February or March in good condition. Apples may be kept at a lower temperature than pears—say 34 to 40 degrees.

In a fruit room of this kind, Mr. John J. Thomas writes me, that by admitting air on cold nights, and closing the entrances when the air is warm, he has had sound Lawrence pears in March, and Josephine of Malines in April, and Baldwin apples in June.

My late fall and winter fruits, intended for long keeping, are allowed to remain on the trees until frost is apprehended. They are then gathered with great care, into bushel boxes, and placed on the north side of my fruit house in tiers of boxes six or seven feet high, and

covered with boards, where they are kept until the ground begins to freeze. They are then removed to the cellar, piled up in the same manner, with thin strips of boards or shingles between the boxes, until wanted for use, when the boxes are looked over and the most mature are from time to time taken out. In this way I keep pears until March or April in perfect condition.

In regard to the use of ice I would say that where fruits are kept for some months under its influence at a low temperature, they seem to lose much of their flavor; the cellular tissue also seems to have become dry, and to have lost its vitality or power to resume the ripening process. Experience proves that, for the common varieties of the pear, about forty degrees Fahrenheit is the temperature best suited to hold this process in equilibrium. The proper maturing of fruit thus preserved demands skill and science. Different varieties require different degrees of moisture and heat, according to the firmness of the skin and the texture of the flesh. Thus some varieties of the pear will ripen at a low temperature and in a comparative dry atmosphere, while others are improved by a warm and humid air. Some varieties of the pear ripening with difficulty, and formerly esteemed only second rate, are now pronounced of excellent quality because the art of maturing them is better understood. Great improvement has been made in the handling, packing and preservation of fruits, so that they are delivered in perfect condition from distant places, every class of fruit having its suitable style of package. So well is the art of keeping grapes now understood that we have them in our markets in such fine order as to command from fifteen to twenty cents per pound until the month of May.

Various Notes on Forestry.

The methods of re-foresting large areas of our land is a question which must soon be impressed upon our attention with greater intensity. Some years ago, when the slaughtering of our forests was in full blast, the farmer was compelled to take a dollar-and-cents view of the business, reasoning thus: "I can clear the land for \$15 or \$16 per acre, and a crop of wheat at the rate of 40 bushels per acre will bring double the cost the first year." This was a simple method of reasoning and it served its generation well. Those were the days when extensive farming paid; for the land was in the virgin state of its fertility; there were few weeds or insect enemies, and all the cultivation required was to tickle the land with the plow and the harrow. "The more acres the more profits" was then a good motto.

But now all is changed. Closer calculation is now required, and too few farmers have educated themselves up to the close calculating standard. Those were the days of oxen and muscle; these are the days of machinery and mind. The question now is, How can the farmer re-forest 10, or 20 percent of his land without decreasing the value of the crops raised? That is to say, he should bring the cultivated areas up to the old standard of fertility, lessening the acreage under cultivation without diminishing the quantity or value of the total products, and forestry is a very significant factor in the calculation. We do not insinuate that he did wrong in reducing the forests then; for the excess of cultivated area can be replanted with more useful timber, and nature demands rotation in our forests as well as in our fields. Our great beech and maple regions will grow other timber now.

The forestry question has been well ventilated by the American Forestry Congress at its meeting held in Boston last September, the

proceedings of which have recently been published in pamphlet form. The object of this Congress is to draw public attention to the necessity for studying forestry questions, the dissemination of forestry literature, and the encouragement of tree-planting.

The President, Hon. Warren Higley, New York, in his annual address, amongst many other interesting illustrations, referred to the case of China, saying that this empire "would have escaped those horrible famines which have attacked some of the most densely populated districts and caused the destruction of millions of people and imposed untold sufferings upon millions more, as well as the loss of a vast amount of treasure to the State," if it had a system of timber culture like that of Prussia—perhaps the best in the world. He also referred to the recent floods in China, the most serious in 30 years, in which more than 10,000 lives were lost, a far greater number being left in a condition of starvation. He attributed these floods to the destruction of forests on the mountain slopes and the headwaters of streams.

The President also instanced the case of Central New York, where streams which "30 or 40 years kept the ponds well filled for the saw and grist mills, and furnished a never-failing supply of running water for the farm, were now dry in summer, with the exception of here and there a stagnant pool." And yet, he said, the spring rains melting the snows caused the streams to overflow their banks, the swift waters carrying away fences, bridges, and embankments. The springs were later, young cattle previously turned out into the wood-sheltered pastures about the first of April, now being kept shut up until the middle of May. Peach orchards had almost disappeared. The extremes of heat and cold were greater, and summer droughts were more destructive. Not only were the smaller streams dried up, but the Mississippi, the Missouri, and the Hudson and the Ohio rivers were becoming more difficult of navigation, caused by the cutting down of the timber from the head waters. He also instanced the case of the Schuylkill river which supplied Philadelphia with water, stating that the once abundant water supply was rapidly becoming scarce owing to the same cause.

In referring to the French Alps—a district once densely populated and prosperous in agriculture and grazing, he said: "The Alps of Provence present a terrible aspect. In the most equable climate of northern France, one can form no conception of those parched mountain gorges, where not even a brush can be found to shelter a bird, where, at most, the wanderer sees in summer here and there a withered lavender, where all the springs were dried up, and where a dead silence, hardly broken by the hum of an insect, prevails. But if a storm bursts forth, masses of water suddenly shoot from the mountain heights into the shattered gulfs, waste without irrigating, deluge without refreshing the soil they overflow in their swift descent, and leave it even more scorched than it was for want of moisture. Man at least retires from the fearful desert, and I have the present season found not a living soul in districts where I remember to have enjoyed hospitality 30 years ago."

(To be continued.)