

GARDEN & ORCHARD.

Stimulus in Fruit-growing.

“Twenty years in Hell with the Beef Trust,” by Roger R. Shiel, is a curio in its way, notably in the gratuitous information furnished on other topics throughout the book. Among the letters collected and published in the volume by Mr. Shiel for the Roosevelt Commission on the Improvement of Rural Life Conditions, we find several that illustrate the splendid enterprise of United States citizens in promoting industries which appeal jointly to their pockets and their patriotism. To cite an example: The soil and climate of Indiana are naturally well adapted in many sections to the production of apples of fine quality, but somehow orcharding lagged, and the markets were being supplied with the showy and finely packed though inferior-flavored Pacific Coast fruits. E. R. Smith, of Indianapolis, finally made up his mind to try apple-growing, and picked out a 750-acre farm in Franklin Co., of fine rolling, well-matured bluegrass land. He had it thoroughly examined by horticultural experts from Ohio and Indiana, and after consultation with these and reliable nurserymen, planted 4,000 apple trees—Jonathans, Grimes Golden, Winesaps and Roman Beauties—and next spring will add 6,000 more; in all about 300 acres, all to be cultured in the best possible way. Ten years hence, Mr. Smith figures that a half crop will give him a return of \$150,000 annually. Over the hills he will graze a big flock of Hampshire Down sheep for the spring lamb trade. Another man who became jealous of the good name and capabilities of Indiana in fruit production was J. M. Zion, who picked out 320 acres of good land in Tippecanoe County in 1889. He drained 50 acres and set out apples, to the surprise of nearly every land-owner in that part of the State, who said he might as well plant oranges. In fact, the ignorance and opposition were such that he set apart 10 acres especially for experimental fruit purposes, and the remaining 40 as a commercial orchard, at an expense of some \$15,000. Now he says he is receiving almost every day letters of enquiry, congratulation and thanks, to say nothing of his success at exhibitions, winning almost enough first prizes on his apples to make a circus tent. Many of his friends are planting large orchards, and with up-to-date legislation, which is being sought at the next session of the State Legislature, the apple-growing industry of the State, it is confidently anticipated, will be placed upon a sure and successful basis.

When one sees the really magnificent displays of apples and other fruits shown year after year at our leading exhibitions in Eastern Canada, drawn from the plantations of a comparatively limited number of growers, the question naturally suggests itself: Is there not a profitable field to be more generally exploited, particularly in growing apples of fine quality, for which the demand is all but universal, and which may be stored with so much less hazard than the more perishable fruits?

Fruit-growing in Ontario.

[Abstract of paper by Linus Woolverton, prepared for the meeting of the American Pomological Society, St. Catharines, Ont., Sept., 1909.]

The first fruit trees in Ontario were those planted by the early French colonists about three hundred years ago. Some old pear trees of these old plantations still remain along the Detroit river. But it was not until U. E. Loyalists and other English-speaking settlers began to come in, about the end of the eighteenth century, that any considerable progress in the planting of fruit trees was made. It is perhaps needless to say that all of the apple trees of that date were seedlings. Some of these were passable, but the most were of very poor quality, and some were frightfully sour, but they were apples, and, being scarce, were prized. Many of these trees were afterwards top-grafted, and being of hardy stock, continued to bear good fruit for many years. A few peach and pear trees were also grown by most settlers, and peach trees for a time did well, even in districts where the climate became too severe for them after the forests were cleared off. Some lingering single specimens of the old pear trees are still to be seen in the fields where they now serve the purpose of shade trees.

Orchards for the production of fruit for shipment were in those days not dreamed of. The local market demanded some, but the supply for the home was about all that was expected.

Much of the extraordinary progress in fruit culture that has taken place in the last fifty years

has been due to the good work done by the Ontario Fruit-growers' Association, which was formed on January 9th, 1859, in the City of Hamilton, with a membership of eighteen. In 1868, the Department of Agriculture, recognizing the good work done by this Association, voted a grant of \$350 per year to it, an amount afterwards increased to \$1,800. This enabled the Association to have a paid secretary to give his time to the work. Directors were appointed to represent the various sections of the Province, who became active workers for the encouragement of fruit-growing. Meetings of the whole body were held in various parts of the Province to discuss methods and varieties, and an interest in fruit-growing was thereby created, which, helped as it was by the display of fruit at the old Provincial Exhibitions, spread to all classes of farmers.

As the fruit industry developed, markets had to be sought for the product, and an export trade sprang up which has grown to large proportions. Apples in boxes or barrels are now sent to Great Britain, Germany, France, the United States, and to our own Northwest. Irregular grading, and sometimes dishonest packing, led to the passing of the Fruit Marks Act by the Dominion Government, and to the appointment of a small army of inspectors to see that the provisions of the Act were carried out.

In 1896, the Department of Agriculture of Ontario established about a dozen fruit-testing stations, and, later, a Central Experimental Fruit Farm at Jordan Harbor. The work of these stations was to find out varieties suited to the different sections of the Province, and to assist in the solution of other problems in horticulture.

The starting and rapid increase in number of co-operative associations for the packing and marketing of fruit is the latest and probably the most important move that has been made towards making the fruit business a paying one. To the farmer with only a small orchard they are a great boon, as he is relieved from all the worry of making sales, and his returns are vastly increased. In another way, besides merely packing and selling, these co-operatives have done great things; that is, in making obligatory on members better methods of handling orchards. In the one matter of compulsory spraying, the grade of fruit has, as a result, been very much improved. The work of these associations is not confined to handling apples, but all kinds of tender fruits are now by their means sent to market, and a tidy addition to income is in this way received by many from stuff that formerly went to waste.

The following table, taken from the last Dominion census, shows the extent of the fruit interest in Ontario in 1901, and, of course, there has been vast increase since that date:

	Not bearing.	Bearing.	Total trees.	Bushels.	Value.	Acres.	Capital value.
Apple trees	1,989,983	7,551,036	9,541,019	13,631,264	\$3,407,815	228,013	\$31,201,950
Peach trees	179,772	811,725	991,497	539,182	539,182		
Pear trees	280,175	564,798	844,973	487,759	365,819		
Plum trees	628	999,001	1,000,000	337,108	252,831	38,002	11,400,000
Cherry trees	237,792	446,556	684,348	132,177	297,398		
Total	3,605,350	10,373,806	14,000,156	15,127,790	\$4,863,315	266,015	\$45,602,550

How to Make Cider Vinegar.

Directions for making cider vinegar are given by Professor Van Slyke, of the Cornell, New York, Experiment Station:

Only ripe apples should be used, possessing a sugar content of not less than 7.5 to 8.5 per cent. Most varieties of apples commonly available possess the requisite amount of sugar when ripe, but not when green. The apples should not be decayed or overripe, because the amount of sugar is lessened in such apples. The apples should be clean when gathered, and if not, they should be made so by washing. The objection to dirt in the apple juice is the danger of introducing forms of fermentation that will interfere with the normal alcoholic and acetic fermentations which are desired. One objection raised to washing apples is the liability to remove the germs that cause the desired forms of fermentation. While in our own practice we have not met with such difficulty, it is preferable that the apples shall, if possible, be clean when gathered.

In the grinding and pressing of the apples, care should be taken to observe ordinary precautions of cleanliness. In many cases it is the practice to add water to the apple pomace after pressing, let it stand awhile and press again. This treatment yields an additional amount of juice, which, however, does not usually contain the requisite amount of sugar to make good vinegar. Provided the first pressing has been efficient. Avoid the use of juice made from second pressing if you wish to make only high-grade vinegars.

When practicable, it is a good plan to store the freshly-pressed apple juice in some large covered receptacle and allow it to stand a few days before putting it into barrels. In this way considerable solid matter held in suspension will settle before the liquid is placed in casks. The casks used should be well cleaned, thoroughly treated with live steam or boiling water, and should not be over two-thirds or three-fourths filled with apple juice. The bungs should be left out, but a loose plug of cotton may be placed in the hole to decrease evaporation and prevent dirt and flies getting in. The bung should be left out until the vinegar-making is completed.

When the freshly-pressed apple juice is at once placed in ordinary cellars, where the temperature during the winter does not go below 44 or 50 degrees Fahrenheit, the alcoholic fermentation is complete in about six months, assuming that the work is begun in October or November; though 80 to 90 per cent. of the alcohol is formed in half this time or less. By having the fermentation take place at a temperature of 65 to 76 F., the time can be considerably reduced; however, it is not desirable to have the alcoholic fermentation take place much above 76 F., since the loss of alcohol by evaporation is increased. By the addition of yeast to the fresh apple juice the fermentation can be completed in three months or less, especially if the temperature is 65 to 75 F. It is suggested that one ordinary compressed yeast cake, or an equivalent, be used for each five gallons of apple juice, if one desires to use yeast. The yeast cake is stirred in a cup of water, and after complete disintegration is mixed with the juice. Whatever form of yeast is used, it should be fresh. Vinegar or "mother" should never be added to fresh apple juice or before the alcoholic fermentation is practically completed.

When the alcoholic fermentation is completed, it is well to draw off the clear portion of liquid, rinse out the cask, replace the clear liquid, filling barrel half full, and then adding one-fourth volume of old vinegar. On the surface of this is carefully placed some "mother," prepared as follows: Expose in a shallow, uncovered crock or wooden pail a mixture of one-half old vinegar and one-half hard cider at 80 F. In three or four days the surface should be covered with a gelatinous coating, which is "mother" of vinegar. A little of this carefully removed with a wooden spoon or flat stick should be laid gently on the surface of the mixture of cider and vinegar prepared as described above. Do not stir it in, because the acetic ferment grows only on the surface where it can have an abundant air supply. In three or four days the coating should spread itself over the entire surface. The coating should not be broken or disturbed as long as the acetic fermentation is going along satisfactorily.

The acetic fermentation occupies from three to eighteen months or more, according to the conditions under which the fermentation is carried on. When the apple juice is stored in cool cellars and left there until it becomes vinegar of legal standard, it requires from twenty-one to twenty-four months, or even more. When the alcoholic fermentation is allowed to take place in a cool cellar, and the casks then removed to a warmer place, the time of vinegar formation may be reduced from that given above to fifteen to eighteen months. Where the alcoholic fermentation is hastened by the use of yeast and the acetic fermentation favored by the proper temperature and addition of vinegar "starter," it is possible to produce good merchantable vinegar in casks in six to twelve months.

When the acetic fermentation has gone far enough to produce 4.5 to 5 per cent. of acetic