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PITT'S GRAIN GRINDER.

The above is the external appearance of one of the most useful inventions of the day. It is a Grist Mill on a small scale, and at a cheap price, viz: £10. We have never seen one in operation, but from the accounts which are given of it in the American papers, it answers an admirable purpose. It will chop or grind (it is said) from 15 to 20 bushels of oats, pease, barley, or other coarse grain in an hour. It can easily, as the reader may see, be moved about from one barn to another, and as Thrashing Machines are now in pretty general use, two or three neighbors might purchase one of these "Grinders" between them; and with the thrashing machine horse-power, make it a most profitable affair. The cost in such a case would be trifling, and the time and expense of running seven or eight miles to mill, as many are obliged to do, every time a bushel of grain is required to be chopped, might be saved. With all large farmers who keep a numerous stock these machines will be indispensable. A more particular description is hardly necessary, as all who may wish to purchase such an article will probably make a personal examination. The teeth which cut the grain are made of steel, about $\frac{1}{4}$ or $\frac{1}{2}$ of an inch square, and 1 inch long.—One end is ground off like a plane iron or chisel. These are arranged in rows across the circumference of a wheel, upon the same axle with that intended for the band which is seen in the cut. The teeth are confined to their place by a very simple contrivance, and can be made to project a 16th or an 8th of an inch beyond the circumference of the wheel as may be required. The wheel is, we should judge, about 8 inches in diameter, and 4 inches broad, and revolves in an iron casing, one side of which is brought close to the teeth, and is prepared to assist in crushing the grain. The wheel seen on the left side, is merely for the purpose of equalizing the motion by its momentum.

These machines are made by Messrs. Beckett & Phillips, and are also for sale at the Agricultural Warehouse.

FRUIT TREES, AND THEIR MANAGEMENT.

In this, and in the next two or three numbers of our paper, we shall enter into a full consideration of the interesting and important subject of Fruit Culture, so as to lay before our readers the information necessary to its successful prosecution. Very little attention has been paid to the cultivation of good orchards in this Province. The great object has always been to clear away

the forest as speedily as possible. The most pressing wants were to be satisfied first; and the poor emigrant, or native settler, who had moved his family into the "bush," and without money or means, save his bright axe and his own strong arm, had carved himself a farm out of the wilderness, felt but too happy if he succeeded in procuring the absolute necessaries of life, without much regard to its luxuries, or even to its comforts. An orchard was hardly thought of; and if it was, "why it is so difficult to get trees, and we can't spare the time; they cost money, and then it will take them so long to grow: Mr. B., our neighbour, took a great deal of pains to get some trees, and planted them, but they all died, or the mice girdled most of them, and the cattle broke down the rest;" and so the thought of an orchard was abandoned. The few who knew the value of an orchard, and took the "trouble," spared the "time," and spent the "money," to obtain a few good trees, often found themselves humbugged by speculators, who had sold them pretended *Golden Russets* and *Newtown Pippins*, that were no better than they might have raised from the seed. But most of these obstacles to the general culture of fruit trees in this part of Canada are now removed. The only serious difficulty in the way is the habit of doing without fruit, which has become so fixed and powerful with many, that we fear it will require another generation to get rid of its influence. Those who have enjoyed the pleasure, the healthfulness, the luxury, and the profit of a well-selected, well-trained orchard will never, if they can help it, be without one. And as there are a few good orchards in the country, and some good nurseries, which, together with foreign importations, are every year supplying the materials for more, we hope in a few years to see every farmer possessed of this most useful and indispensable appendage to a well-cultivated farm. The advice of Dr. Johnson, the literary giant of the last century, though somewhat ludicrous, deserves to be remembered. "If possible," said he, to a friend, "have a good orchard: I know a clergyman, of small income, who brought up a family very respectably, whom he chiefly fed on apple dumplings!"

We have had just experience enough in the management of fruit trees to give us a relish for every thing that will throw any light on the subject, and to appreciate its importance. Among other late and valuable works which we have procured, to assist us in our labours, we ordered a copy of "Downing's Fruits and Fruit Trees of America," which contains the latest and best information upon this fruitful subject. Everything relating to the culture, propagation, and management of fruit trees generally is explained in the fullest and plainest manner, together with descriptions (accompanied with drawings) of the finest varieties of fruit, both native and foreign. Grafting and budding are so clearly described, that any one with a spark of invention, and who can understand their mother tongue, will be able to perform these operations successfully, with no other assistance than may be had from Mr. Downing's book. We shall make such extracts as appear most likely to prove useful to our readers, and shall intersperse them with observations of our own, and whatever information we can gather from other sources, in order to place before all who desire to

make improvement in this important branch of rural economy the best means of doing so.

The following is introductory, and must be read before that which comes after it can be properly understood:—

THE PRODUCTION OF NEW VARIETIES OF FRUIT.

In our survey of the culture of fruits let us begin at the beginning. Gradual amelioration, and the skilful practice of the cultivator, have so filled our orchards and gardens with good fruits, that it is necessary now to cast a look back at the types from which these delicious products have sprung.

In the tropical zone amid the surprising luxuriance of vegetation of that great natural hothouse, nature offers to man, almost without care, the most refreshing, the most delicious, and the most nutritive fruits. The Plantain and Banana, excellent either raw or cooked, bearing all the year, and producing upon a rood of ground the sustenance of a family; the refreshing Guava and Sapodilla; the nutritious Bread-fruit; such are the natural fruit trees of those glowing climates. Indolently seated under their shade, and finding a refreshing coolness both from their ever-verdant canopy of leaves, and their juicy fruits, it is not here that we must look for the patient and skilful cultivator.

But, in the temperate climates, nature wears a harsher and sterner aspect. Plains bounded by rocky hills, visited not only by genial warmth and sunshine, but by cold winds and seasons of ice and snow; these are accompanied by sturdy frosts, whose outskirts are sprinkled with crabs and wild cherries, and festooned with the clambering branches of the wild grape. These native fruits which at first offer so little to the eye, or the palate, are nevertheless the types of our garden varieties. Destined in these climates to a perpetual struggle with nature, it is here that we find man anchoring and transforming her.

Transplanted into a warmer aspect, stimulated by a richer soil, reared from selected seeds, carefully pruned, sheltered and watched, by slow degrees the sour and bitter crab expands into the Golden Pippin, the wild pear loses its thorns and becomes a Bergamotte or a Beurre, the Almond is deprived of its bitterness, and the dry and flavourless Peach is at length a tempting and delicious fruit. It is only thus in the face of obstacles, in a climate where nature is not prodigal of perfections, and in the midst of thorns and sloes, that MAN THE GARDENER arises and forces nature to yield to his art.

These improved sorts of fruit which man everywhere causes to share his civilization, bear, almost equally with himself, the impress of an existence removed from the natural state. When reared from seeds they always show a tendency to return to a wilder form, and it seems only chance when a new seedling is equal to, or surpasses its parent. Removed from their natural form, these artificially created sorts are also much more liable to diseases and to decay. From these facts arises the fruit-garden, with its various process of grafting, budding and other means of continuing the sort; with also its sheltered aspects, warm borders, deeper soils, and all its various refinements of art and culture.

In the whole range of cares and pleasures belonging to the garden, there is nothing more interesting than the production of new varieties of fruit. It is not indeed by sowing the seeds that the lover of fine fruit usually undertakes to stock his garden and orchard with fine fruit trees. Raising new varieties is always a slow, and as generally understood, a most uncertain mode of bringing about the result. The novice, plants and carefully watches his hundred seedling pippins, to find at last, perhaps, ninety-nine worthless or indifferent apples. It appears to him a lottery, in which there are too many blanks to the prizes. He, therefore, wisely resorts to the more certain mode of grafting from well known and esteemed sorts.

Notwithstanding this, every year, under the influence of garden culture, and often without our design, we find our fruit trees reproducing themselves; and occasionally,

there springs up a new and delicious sort, whose merits tempt us to fresh trials after perfection.

To a man who is curious in fruit, the pomologist who views with a more than common eye, the crimson cheek of a peach, the delicate bloom of a plum, or understands the epithets, rich, melting, buttery, as applied to a pear, nothing in the circle of culture, can give more lively and unmixed pleasure, than thus to produce and to create—for it is a sort of creation—an entirely new thing that has gone before. And still more, as varieties which originate in a certain soil and climate, are found best adapted to that locality, the production of new sorts of fruit, of high merit, may be looked on as a most valuable, as well as interesting result.

Beside this, all the fine new fruits, which, of late, figure so conspicuously in the catalogues of the nurseries and fruit gardens, have not been originated at random and by chance efforts. Some of the most distinguished pomologists have devoted years to the subject of the improvement of fruit trees by seeds, and have attained if not certain results, at least some general laws, which greatly assist us in this process of amelioration. Let us therefore examine the subject a little more in detail.

In the wild state, every genus of trees consist of one or more species, or strongly marked individual sorts; as, for example, the white birch and the black birch; or, to confine ourselves more strictly to the matter in hand, the different species of cherry, the wild or bird cherry, the sour cherry, the mazzard cherry, &c. These species, in their natural state, exactly reproduce themselves; to use a common phrase, they "come the same" from seed. This they have done for centuries, and doubtless will do forever, so long as they exist under natural circumstances only.

On the other hand, suppose we select one of these species of fruit-trees, and adopt it into our gardens. So long as we cultivate that individual tree, or any part of it, in the shape of sucker, graft, or bud, its nature will not be materially altered. It may, indeed, through cultivation, be stimulated into a more luxuriant growth; it will probably produce larger leaves and fruit; but shall neither alter its fruit in texture, colour, or taste. It will be identically the same.

The process of amelioration begins with a new generation, and by sowing the seeds. Some species of tree, indeed, seem to refuse to yield their wild nature, never producing any variation by seed; but all fruit-trees and many others, are easily domesticated, and more readily take the impression of culture.

If we sow a quantity of seed in garden soil of the common black mazzard cherry, (*Cerasus arum*.) we shall find that, in the leaves and habit of growth, many of the seedlings do not entirely resemble the original species. When they come into bearing, it is probable we shall also find as great a diversity in the size, colour and flavour of the fruit. Each of these individual plants, differing from the original type, (the mazzard) constitutes a new variety; though only a few, perhaps only one, may be superior to the original species.

It is worthy of remark, that exactly in proportion as this reproduction is frequently repeated, is the change to a great variety of forms, or sorts increased. It is likely indeed, that to gather the seeds from a wild mazzard in the woods, the instances of departure from the form of the original species would be very few; while if gathered from a garden tree, itself sometime cultivated, or several removed from a wild state, though still a mazzard, the seedlings will show great variety of character.

Once in the possession of a variety which has moved out of the natural into a more domesticated form, we have in our hands the best material for the improving process. The fixed original habit of the species is broken in upon, and this variety which we have created, has always afterwards, some tendency to make further departures from the original form. It is true that all or most of its seedlings will still retain a likeness to the parent, but a few will differ in some respects, and it is by seizing upon those which show symptoms of variation, that the improver of vegetable races spends his hopes.