Garden, Orchard and Forest.

The Farmer's Familiar Foe—Insects.

Every one knows, in a general way, that there are more or less damages resulting to the crops of the country from the ravages of insects. But few persons, however, are aware how extensive and how damaging these depredations are. Occasionally some extensive destruction caused by them will attract attention, but the fact seems to be overlooked that not a season passes but the most of our crops are reduced a considerable per cent. by these destructive pests. The Hessian fly, the wheat midge, the chinch bug, the cut worm, the Colorado potato beetle, and others, have destroyed crops to the amount of many millions of dollars each year. A few years ago Dr. Fitch estimated the loss to the wheat crop in the State of New York in one year alone at $15,000,000. The cotton worm of the South has been known to destroy that crop to the extent of not less than $50,000,000 in a single year. The chinch bug prevails at times over extensive States, reducing by a large per cent. the products of the fields. The cut worm and the white grub are well known for their destructive propensities. Various species of potato beetle—and especially the 10-lined spearmon—have of late years carried sad havoc to our potato fields, and have led many to the conclusion that it were better to discontinue their culture entirely. The army worm occasionally marches over the country like an invading army, leaving destruction in their pathway. The Western locust, like its near relative of Bible history, now and then swoops down with the Western breeze, and sweeps over the fields of our Western States like a devouring pestilence; before them the country is as the garden of Eden, behind them it is as a desert. Nor is the fruit raiser exempt from the ravages of insect enemies. The culculio has virtually vetoed the production of plums, as well as the finer fruits, the nectarine and the apricot; and now he is making his inroads on the peach. The codling moth lays its contributions on the apple till in some portions of the country it is no longer a profitable crop; and the canker worm and the tent caterpillar, with various other depredators, unite to reduce the profits of our orchards. Indeed, turn which way he will, the agriculturist and horticultist meet the ravages of beetles, bugs, caterpillars, borers, worms, grass-hoppers, &c., to such an extent as to almost dishearten the most sanguine.

Such is the extent and severity of these ravages, that it is estimated by good authority, that the losses sustained by the people of this nation from this cause cannot fall short of three hundred million dollars annually. Yet, amid all this destruction there is a woeful ignorance of the nature and habits of these tiny destroyers, among the very person who suffer the most from them. And indeed many farmers and gardeners look upon the study of "bugology," as they are pleased to call the subject of entomology, as beneath their dignity. And the appropriation of a few thousands of dollars from the public treasury to sustain a competent entomologist in the field to uncover and study out the habits of these enemies, and make known the best remedies for their extermination, is regarded as a wanton and useless waste of the people's money. A thorough knowledge of the nature and habits of our insect foes will, I believe, in nearly if not quite every case, suggest such remedies as will enable us to contend successfully with them, and thus prevent a large proportion of the losses that now result from their ravages. In the hope of awakening a wider interest in this subject, and aiding somewhat in the attainment of this desirable result, I propose, in a series of short articles, to call attention to some of our most common insect enemies, and give such remedies as are most likely to prove effectual in their extermination, or at least, in checking their ravages.—*L. J. T., in Ohio Farmer.*

The Canker Worm.

Prof. Riley, in his late report, gives us some additional information in regard to this pest, so destructive to orchards in various localities of the country. For many years it was supposed that there was but one canker worm, and after the discovery that there were two kinds, the difference was supposed to be varietal, or at most, specific. In this report Prof. Riley separates the insects generically, and gives careful comparisons to establish his position. "*Paleacrita vernata*," he says, "rises from the ground mostly in early spring," and he therefore calls it the spring canker worm. "*Anisopteryx pometaria* rises from the ground in the fall," and is therefore designated the fall canker worm. The latter is rare in the Western States, being most common on the elms of New England. It is the spring canker worm, *vernata*, that is so destructive to orchards of the Western States. "The principal efforts to prevent the female from ascending the tree should be made in the spring. The cocoon is easily broken by any disturbance of the soil, and as the chrysalis is more liable to perish when the cell is broken, fall plowing under trees that have been attacked is recommended. The eggs being secreted mostly under loose bark, the scraping of trees in early spring, or any system of keeping them smooth, will act as a preventive of injury. Scraping and plowing will effect little in preventing injuries by the fall worm, as its cocoon is tougher, and the eggs are attached to smooth as well as rough trees.

"Thus, in addition to the characters pointed out a year ago, we have an important distinction between the two insects, from the practical stand point, in the manner in which the chrysalis state is assumed. The spring canker worm, with its chrysalis formed in a simple earthern cavity, will be very materially affected by late fall plowing of the soil, especially if the soil be of such nature as to crumble easily; for I showed in 1869 that whenever the fragile cocoon is broken open, as it very readily is by disturbance of the soil, at that season the chrysalis has not the power to penetrate it again, or to form a second cavity, and either rots, dry out, becomes moldy, or, if on the surface, is devoured by birds. For the same reason the rooting of hogs is very beneficial in lessening the work of this species. With the fall canker worm, on the contrary, these measures will avail little, if anything; for the cocoon, composed of a thick layer of yielding silk strengthened by the interweaving of particles of earth, cannot be broken open by any such processes, and a dozen plowings would not expose a single chrysalis. Without doubt we have in these facts a vivid explanation all plowing or the use of hogs in orchards as canker worm checks."

Thinning Fruits and its Benefits.

There are several benefits which accrue from thinning out fruits as soon as possible after they are formed. With our hot climate in summer, and the aptitude of the trees to overbear the year they do yield fruit, and the disposition of orchardists to let them, there is an extraordinary waste of the vitality of the fruit trees of the orchards of this State. We have long known that the operation that secures choice fruits in the vinery, in the glass orchard house, on the beautiful ranges of espaliers and wall fruit trees, which adorn the gardens of the old world, must be applied to orchard trees here before prime fruit, healthy trees and steady crops can be secured. We think a tree has just as much constitution to be taken care of as a horse or a cow. If the horse is worked too hard for the amount of food he gets time and opportunity to consume, then he decays. If a cow is not fed up to the amount of milk she gives, she loses flesh. If a tree is allowed to bear more fruit than its constitution and the feeding it has had will grow, it attempts to perfect the seed at the expense of the fruit; and hence its apples, pears, or other fuuit, as the case may be, are plentiful in number, but poor in quality. The seed and its perfection in such quantity has really spoiled and shrunk the growth of the fruit, or that part that is valuable for market purposes This nature of the seed has also sapped the material of the tree itself, just as milking a cow by having two calves suck her is sure to draw the animal down to skin and bone. Just so is the tree reduced, and the next year it has no strength to produce at all. Then, again, the very soil itself is sapped of strength for the purpose of producing bushels of worthless or inferior fruit, and the tree has no longer the fertile soil to draw upon for its recuperation. All these evils may be prevented in an orchard properly attended to, by the process of thinning out all fruit that seems to be too abundant for the wood of the branch on which it hangs to support and grow to its full size and perfection.

At a late meeting of the South Haven Pomological Society Mr. Dyckman said:—

"The operation was so simple and easy to perform that it would not take long to tell what he knew about. He got the idea of Mr. Parmelee, several years ago, and has practiced it ever since. Mr. Parmelee cited the fact that the peaches on a thinned tree brought $2.50 per basket, while from a neighboring tree of the same variety they brought but $1.25 per basket. There are other benefits besides the double price of fruit; the favorable effect is noticed the second year in the growth of the fruit and wood; the tree and fruit buds are not so easily injured by the winter. The quantity of fruit is not so great the first year, but nearly so, and the bearing capacity and life of the tree is increased. Some varieties of peaches, especially Hill's Chili, nearly kill themselves in overbearing. Thinning in part should be done by pruning. Abundant seasons it is absolutely necessary to thin for profit. Some varieties of peaches, especially the Barnard, bearing its fruits all the same size, needs thinning most, while Crawfords perfect some at the expense of the rest. Thinning saves labor in the regular picking, assorting and packing. If the fruit growers hereabouts should all thin, we could build up a reputation for large, fine fruit, that would compete with all the other localities. The cost of thinning peaches cannot exceed five cents per basket. In thinning, leave one peach on a limb six inches long, and two on a limb one foot long. On last season's growth make the spaces as even as you can on the tree, distributing them so they cannot swing and rub one another, or the neighboring limbs and fruit. Finish thinning one limb at a time; work from the centre of the tree.

"He practices thinning his pears as well as his peaches. Leaves but one pear on a spur; picks off from one-half to three-fourths of the fruit. Thins weak trees more than strong ones.

"T. T. Lyon had practiced thinning his Wagner apples, increasing the size, color and quality. It would be productive of good to thin even Red Canadas when bearing heavy. Jonathans are more reliable and would be more benefitted by thinning. Belmonts and Rambos overbear and need thinning."

In fact, there is no practice that is better understood or more thoroughly put in operation by all fruit growers of every kind of fruit, from the currant to the mangosteen, than the necessity of thinning at the proper time to preserve the constitution of the plant, and to grow fruit that is well developed.—*Michigan Farmer.*

Old Strawberry Plantations.

If they have borne two full crops, plow them under. We do not believe that it will pay to raise two crops of strawberries from one planting, and many of our best small fruit growers only take one full crop, knowing that they will diminish in size and yield thereafter; but if well matured when planted, and kept clean at all times, the second one may pay.

Let us examine the plants in a strawberry plantation at this season of the year, when a large crop of strawberries has just been gathered. If the plants have been kept in stools—the runners all removed—those stems which have borne fruit are exhausted and die, and so do the roots employed in feeding them; but from near the crowns of those roots, new roots have started; which either have thrown or will soon throw up new stems to form the basis of next year's crop.

Some practice cutting off and removing the old stems and leaves, just as we do the old exhausted raspberry canes after they are through bearing, and believe that the new ones start up fresher, and grow more rapidly in consequence, and we have certainly seen good results from such a course, but whether we cut off the vines or not the ground between the rows which has been compacted by many feet, should be broken up mellow to the depth of three to five inches, and all weeds and grass cleaned out.

If the ground is not very hard, perhaps one of the improved cultivators or grubbers would be the best implement for mellowing it, but if it is packed too hard to yield readily to these, a one-horse plow (steel is the best) should be used, plowing the earth from the rows. After the plants have been cleaned out, the ridge thrown up between the rows should be leveled with the cultivator.

If the strawberries have been kept in matted rows, the spaces between them should be broken up, and the rows themselves cut down quite narrow, and claened out. Sometimes the workmen may run the plow just under the original plants, and leave a row of fresher ones on one side of the old one. Where this can be done, it will give you a more vigorous plantation for next year's crop.