

(Continued from the June Number)

## AN EASY METHOD OF MANAGING BEES. IN THE MOST PROFITABLE MANNER TO THEIR OWNER.

The above is the title of a neatly printed manual, which was lately presented to us by Mr. David Leflar, of Churchillville, Home District. Mr. L. informs us that he has followed out in detail the directions of the author, and his efforts have been crowned with success.

If the Canadian farmers would turn their attention largely to the management of Bees, the article of honey would very shortly become a considerable item on our list of exports to England. Immense quantities of honey is imported yearly into the Mother Country from Holland and other continental countries, all of which might be supplied from this country if the people would only turn their attention to the business.

### RULE 2.

#### *On Preventing the Depredations of the Moth.*

All fresh stocks as are infested with the moth, will manifest it as soon as warm weather commences in the spring, by dropping some of the worms upon the bottom board. Let the apiarian clean off the bottom board every other morning; at the same time strow on a spoon full or two of fresh, pulverised salt.

Immediately after a second swarm has come forth from a hive, the same season, the old stock should be examined; and if swarming has reduced their numbers so low as to leave unoccupied combs, the apiarian should take the Queens from the swarm, and let them return to the old stock.

Third and fourth swarms should always have their Queens taken from them and the bees returned to the parent stock.

*Remarks.*—"This insect (the moth) is a native of Europe; but has found its way into this country, and naturalized itself here."—*Thatcher.*

This unwelcome visitor has interested the attention and called forth all the energies of the most experienced apiarians of our country, and of many of the greatest naturalists in the world. Their movements have been observed and scrutinized by the most learned—their nature has been studied; various experiments have been tried to prevent their depredations; but, after all, the monster in gaudy hue marches onward, committing the greatest havoc and devastation, with but little molestation. I have lost my whole stock at least four times since 1808, as I supposed by the moth. I tried all the experiments recommended in this and other countries, that come to my knowledge; but, after all, I could not prevent their ravages.

In 1830, I constructed a hive (which was patented in 1836) which I supposed would afford all the facilities for managing bees in every manner that their nature would admit of, and at the same time render their cultivation most profitable to their owner. By constructing windows of glass, on every side of the hive, nearly the eye of its sides, and darkening them by closing doors on the outside of the windows, which may be opened at pleasure, I have been able to discover many important facts, both in relation to the nature and economy of the bee, and its enemy the moth; but, probably, much yet remains to be learned concerning both.

The moth, when first discovered by the common observer, is a white worm or maggot, with a reddish crusted head, and varies in size according to its living. Those which have full and unmoistened access to the contents of a hive, will frequently grow as large as a turkey-quill, and an inch and a half in length. Others are scarcely an inch in length when full grown. They have sixteen short legs, and taper each way from the centre of their bodies.

The worms, like the silk-worm, wind themselves into a cocoon, and pass the dormant (chrysalis) state of their existence, and in a few days come out of their silken cases perfect winged insects or millers, and are soon ready to deposit their eggs, from which another crop will be raised.

The miller or perfect moth, is of a grayish color, from three-fourths of an inch to an inch in length. They usually lie perfectly still in the day time,

with their head downwards, hunking in and about the spary. They enter the hive in the night, and deposit their eggs in such places as are uncovered—of course unguarded by the bees. These eggs hatch in a short time, varying according to circumstances, probably from two or three days to four or five months. At an early stage of their existence, while yet a small worm, they spin a web, and construct a silken shroud, or fortress, in which they envelope themselves, and form a sort of path, or gallery, as they pass onward in their march; at the same time being perfectly secure from the bees in their silken case, which they widen as they grow larger, with an opening in their front only, near their head, they commit the greatest havoc and devastation on the eggs, young bees, and all that come in their way as they pass.

When the moth has arrived to his full state of maturity, he makes preparation to change to a miller, by winding into a cocoon, as has been already explained. The miller is surprisingly quick in all its movements, exceeding by far the agility of the quickest bee, either in flight or on its legs. Hence the enemy becomes so formidable that the bees are easily overcome, and soon fall a sure prey to him.

Now, in order to remedy the evils of the moths, and prevent their ravages, and at the same time aid the bees in their prosperity, and make them profitable to their owner, I found it necessary to use a hive differing materially from the old box, and commenced operations in the one already referred to, (called the Vermont Hive,) in a course of experiments which have produced results perfectly satisfactory. From 9 seasons' experience in its use, I have not the least doubt that bees may be managed to the best advantage, and without ever being materially injured by the moths.

A bee-hive should be made in a perfectly workmanlike manner, so as to have no open joints; the boards should be free from shakes and cracks, because the bees will make their tenement perfectly tight, so as to exclude light and air, by plastering up all such places as are left open by the workman, with a kind of mortar, or glue, of their own make, which is neither honey nor wax, but is very congenial to the growth of worms in the first stages of their larva state, and being secured from the bees by the timber, in a short time they are able to defend themselves by a silken shroud.

Now the miller enters the hive and makes an incision into the bee-glue, or cement, with her sting, and leaves her eggs. These eggs hatch here, and the brood subsist on the glue until they have arrived so far towards maturity as to enable them to encase themselves in a silken shroud; and then they move onward.

Now, unless the bees chance to catch him by the collar, or nape of his neck, while feeding, and drag him out of his place of concealment, they will be compelled to cut away the combs all around his silken path, or gallery and drag out the worm and his fortress all together. At the same time, the bees are compelled to cut away the combs so far as to destroy many of their young broods in making room to remove the annoyance. I have known them to cut away their combs from four to eight or ten inches to remove this silken shroud, and have known them to cut and drag out their only remaining Queen before she was transformed to a perfect fly, which occasioned the entire loss of the whole colony.

Repeated experiments have demonstrated the fact, that placing bees on the ground, or high in the air, is no security against the moths. I have lost some of my best stocks by placing them on the ground, when those on the bench were not injured by them. I have made a groove in the bottom board, much wider than the thickness of the boards to the hive, and filled the same with loam. I then placed the hive on the same, in such a manner as to prevent any crack or vacancy for the worms; and yet in raising the hive four weeks afterwards, I found them apparently full grown all around the hive in the dirt. I have found them very plentiful in a tree ninety feet from the ground.

The best method, in common practice, to prevent the depredations of the moth, is, to suspend the bottom board so far below the lower edge of the hive as to give the bees free entrance and egress all around the same during the moth season, or to raise the common hive, by placing under it little

blocks at each corner, which produces good effect. But I know of but one rule, which is an infallible one, to prevent their depredations, and that is this: keep the combs well guarded by bees. See Rule 10, and remarks on 12.

Large hives that never swarm, are never destroyed by the moth, unless they lose their Queen, melt down, or meet with some casualty, out of the ordinary course of managing them. They are not often in the least annoyed by them, unless there are bad joints, cracks, or shakes, so as to afford some lurking places for the worms. The reason for their prosperous condition is obvious. The stock of bees are so numerous that their combs are all kept well guarded during the moth season, so that no miller can enter and deposit her eggs.

Hives made so small as to swarm, are liable to reduce their colonies so small as to leave combs unguarded, especially when they swarm three or four times the same season. All swarms, after the first, rally forth to avoid the battle of the Queens; constantly making a greater draft, in proportion to the number left, until the combs are partly exposed, which gives the miller free access to the edges. The seeds of rapine and plunder are thus quickly sown, and soon vegetate, and fortify themselves by their silken fortress, before the bees are aware that their frontiers are invaded. While the moths are thus engaged in establishing their post on the frontiers of the bees, the latter are constantly and indefatigably engaged in providing themselves with another Queen, to supply the place of the old one, which has departed with a swarm, and raising young bees to replenish their reduced colony. Now as the moths have got possession of the ground on their frontiers, it requires a tremendous effort on the part of the bees to save their little colony from a complete overthrow.

If late, or second and third swarms are always returned immediately, according to the rule, the combs are kept so guarded the moths are compelled to keep their distance, or be stung to death before they can accomplish their purposes.

Hives made so large as not to swarm may lose their Queen, and then they will abandon their habitation and emigrate into the adjoining hive, leaving all their stores to their owner, which, unless immediately taken care of, the moths will not fail to destroy.

The moths are often complained of when they are not guilty. Hives are frequently abandoned by their occupants, in consequence of the loss of their Queen, unnoticed by any observer, and before anything is known of their fate, the hive is destitute of bees, and filled with moths.

In the summer of 1824, one of my neighbors had a very large hive that never swarmed, which lost their queen; and in the course of a few days the bees entirely vacated their tenement, and emigrated into an adjoining hive, leaving the whole of their stores, which amounted to 515 lbs. of honey in the comb. No young bees or moths were discovered in the hive. Instances of this kind frequently occur, and the true cause is unknown, from inattention.

The Queen is much more tenacious of life than any other bee, and may live much longer. It is believed that the common bees do not often live to exceed 18 months. The Queen is supposed to live several years. By clipping one wing of a Queen accompanying a second swarm, she has been known to come out with the first swarms for several successive years. But one Queen exists in the same hive any great length of time. When there are more than one, the peculiar sound of each, as explained in remarks on Rule 2, is heard by the other, which usually results in a battle between them, or the issue of a swarm in the course of a day or two, unless the swarming season is nearly at a close, then the common bees sometimes smother them as explained in remarks on Rule 2.

Bees, when placed in a dark room in the upper part of the house, or some out-house, are easily kept (not cultivated) a while, and may be of some benefit to their owner; but as they are liable to most of the casualties that swarming hives are, they cannot be as profitable. It takes several years before much comfort, other than the amusement of seeing them work, can be realized; besides if they chance to escape the moth, the combs are rendered exceedingly dark coloured and filthy where the bees locate in the winter; and a disagreeable