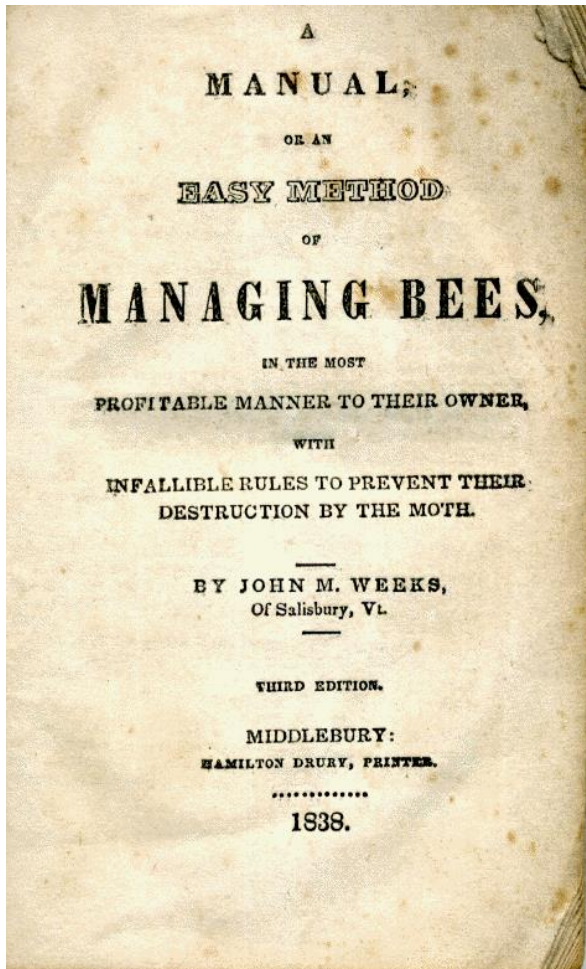


STAHLMAN BEEKEEPING NOTES

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For Reference Material relating to Issue 26 on Wax Moths



Weeks was a popular author and beekeeper from Vermont in the 20 plus years this book was published from its first printing in 1836 through revisions to 1856. This is a reproduction of only the chapter on wax moths.

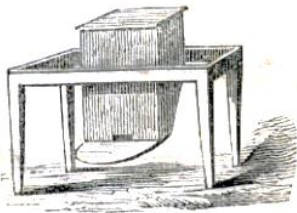
The Langstroth hive had an impact on all bee literature written after its introduction in 1852.

Weeks sold a patent bee hive called the "Vermont Hive."

The bottom of the hive should slant downward from rear to front, so as to afford the greatest facility to the bees to clear their tenement of all offensive substances, and let the water, which is occasioned by the breath and vapor of the bees, run off in cold weather. It also aids the bees very much in preventing the entrance of robbers.

The bottom board should be suspended by staples and hooks near each corner of the hive, in such a manner as to afford a free entrance and egress to the bees on all its sides, which will better enable them to keep their tenement clear of the moths.

There should be a button attached to the lower edge of the rear of the hive, so as to enable the apiarian to govern the bottom board in such a manner as to give all the air they need, or close the hive at pleasure.



The hive he wrote about might have looked something like this suspended hive. The sloping bottom board was interesting and so was the idea that the bottom board be suspended on hooks. Rather than being a way to stop wax moth, it allowed free entrance by wax moth into the hive. And Quinby made fun of sloped bottom boards because some thought the wax moth would roll out of the hive.

Old bee books were lacking pictures or drawings for the most part. All that follows is a verbal description of Weeks' idea that wax moths were a problem and he could build a hive that would avoid them. Facts are: All these words mean nothing. **No hive can be designed and built to eliminate wax moths.** They can be controlled only by strong bee populations of bees that can keep wax moth eggs from developing into larvae. Wax moth will enter hives and lay eggs during the night. Female moths deposit eggs inside the hive – generally any place there is a crack or debris to hide them. They are active in warm weather. It is interesting in that Weeks shares information about swarms. He talks about taking queens away from late swarms and returning the bees to the parent hive. This results in a strong hive capable of defending itself against wax moths. It was and is possible for a colony of bees to swarm itself out of existence.

Multiplying colonies by this rule is a perfectly safe method of managing them, admitting they are not allowed to swarm themselves so low as to leave unoccupied combs, which will be explained in remarks on Rule 10.

R U L E X.

ON PREVENTING THE DEPREDATIONS OF THE MOTH.

All such 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 strew on a spoon full or two of fresh, pulverized 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 Queen 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 came 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 size 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 redish crusted head, and varies in size according to its living. Those which have full and unmolested 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

en 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

full grown. They have sixteen short legs, and taper each way from the centre of their bodies to their head and exterior or abdomen.

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, lurking in and about the apiary. 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 silk-

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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 8 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 perfect 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 there, and the brood subsist on the glue until they have arrived so far toward 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 brood 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

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

and drag out their only remaining Queen before she was transformed to the 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 plenty 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

combs unguarded, especially when they swarm three or four times the same season. All swarms, after the first, sally 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 their 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 posts 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 al-

ways returned immediately, according to the rule, the combs are kept so guarded that 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 any thing is known of their fate, the hive is destitute of bees, and filled with moths:

In the summer of 1834, 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 215 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 always results in a battle between them, or the issue of a swarm in the course of a day or two.

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, & 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 exceeding dark colored and filthy where the bees locate in the winter; and a disagreeable smell, which is caused by their winter breath and other exhalations, is the result. In short, it is believed to be like making a great effort to raise some delicious fruit-tree that is not climated in our country.

Large colonies never increase their stock in proportion to the swarming colonies. There is but one female in a large colony, and they can do but little more in raising young bees than to keep their stock good by replenishing them as fast as they die off or are destroyed by the birds, reptiles and insects, which are great admirers of them, and sometimes swal-

low them by dozens. Now if it requires five swarming colonies to be equal in number to the one first described, it is not difficult to imagine that five times as many bees may be raised by the swarming colonies: for one Queen will probably lay as many eggs as another.

The swarming hives are no more liable to be destroyed by the moth during the swarming season, than others, if the hives are kept well replenished with bees according to Rule 10.

RULE XI.

ON FEEDING BEES.

If it is found that a swarm need feeding, hitch on the feeder, well stored with good honey, while the weather is warm in October.

The apiarian should use the same precaution in feeding, as directed in Rule 4, to prevent robberies.

REMARKS.

The best time to feed is in the fall, before