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A Manual or an Easy Method of Managing Bees

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A
MANUAL:
OR AN
EASY METHOD
OF
MANAGING BEES,
IN THE MOST
PROFITABLE MANNER TO THEIR OWNER,
WITH
INFALLIBLE RULES TO PREVENT THEIR
DESTRUCTION BY THE MOTH.

—
BY JOHN M. WEEKS,
Of Salisbury, Vt.

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1837.

Entered according to act of Congress, in the year 1836.
By JOHN M. WEEKS,
in the Clerk's Office of the District Court of Vermont.

PREFACE.

It appears to the writer of the following pages, that a work of this description is much needed in our country.

The cultivation of the bee (*Apis Mellifica*) has been too long neglected in most parts of the United States.

This general neglect has unquestionably originated from the fact, that the European enemy to the bees, called the moth, has found its way into this country, and has located and naturalized itself here; and has made so much havoc among the bees, that many districts have entirely abandoned their cultivation. Many Apiarians, and men of the highest literary attainments, as well as experience, have nearly exhausted their patience, in examining the peculiar nature and habits of this insect; and have tried various experiments to devise some means of preventing its depredations. But, after all that has been done, the spoiler moves onward with little molestation, and very few of our citizens are willing to engage in the enterprize of cultivating this most useful and profitable of all insects, the honey-bee.

The following work is comprised in a set of plain, concise rules, by which, if strictly adhered to and practised, any person, properly situated, may cultivate bees, and avail himself of all the benefits of their labors.

If the Apiarian manages strictly in accordance with the following rules, the author feels confident that no colony will ever materially suffer by the moth, or will ever be destroyed by them.

The author is aware of the numerous treatises published on this subject; but they appear to him, for the most part, to be the result not so much of experience as of vague and conjectural speculation, and not sufficiently embodying what is practical and useful.

This work is intended as an accompaniment to the Vermont hive, and will be found to be the result of observation and experience, and it is thought comprises all that is necessary to make a skilful Apiarian.

THE AUTHOR.

MANUAL, &c.

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RULE I.

ON THE CONSTRUCTION OF A BEE-HIVE.

A bee-hive should be made of sound boards, free from shakes and cracks; it should also be planed smooth, inside and out, made in a workmanlike manner, and painted on its outside.

REMARKS.

That a bee-hive should be made perfect, so as to exclude light and air, is obvious from the fact, that the bees will finish what the workman has neglected, by plastering up all such cracks and crevices, or bad joints, as are left open by the joiner. The substance they use for this purpose is neither honey nor wax, but a kind of glue or cement of their own manufacturing, and is used by the bees to fill up all imperfect joints and exclude all light and 6 air. This cement or glue is very congenial to the growth of the moth in the first stages of its existence.

The moth miller enters the hive, generally, in the night—makes an incision into the glue or cement with her sting, and leaves her eggs deposited in the glue, where it remains secure from the bees; it being guarded by the timber on its sides. Thus, while a maggot, (*larva*) the moth uses the cement for food until it arrives so far towards a state of maturity as to be able to spin a web, which is more fully explained in remarks on Rule 10.

The size of a hive should be in accordance with the strictest rules of economy, and adapted to the peculiar nature and economy of the honey-bee, in order to make them profitable to their owner.

The lower apartment of the hive, where they store their food, raise their young bees, and perform their ordinary labors, should hold as much as a box thirteen inches and one half or fourteen inches square in the clear.

If the hive is much larger than the one described above, with the chamber in proportion, which should hold about two-thirds as much as the lower apartment, the bees will not be likely to swarm during the season.

Bees in large hives never swarm; and those in hives much less than the one already described, do but little else than raise young bees and lay up a sufficient quantity of food to supply them through the coming winter, and are more liable to be robbed.

All hives of bees that swarm are liable to swarm too much, and reduce their colonies so low in numbers as to materially injure them, and is frequently the cause of their destruction by the moth, which is more particularly explained in remarks on Rule 2.

The changer of the hive should be made perfectly tight, so as to exclude all light from the drawers.

Drawers should be small like No. 2, for all purposes except such as are used for multiplying colonies and transferring, which should always be large like No. 1.

Hives should have elects on their sides, so as to suspend them in the air some distance from the floor of the apiary, the better to secure the bees from destruction by mice, reptiles, and other vermin.

The back side or rear of the lower apartment of the hive should slant forward, so as to render the same smallest at the bottom, the better to secure the combs from falling when cracked by frost or nearly melted in hot weather.

No timbers or boards should be placed very near the lower edge of the hive, because it facilitates the entrance of depredators. That the back side should slant forward, is obvious from the fact, that bees generally rest one edge of their combs on that side, and build towards the front in such a manner as to enter upon the same sheet where they intend to deposit their stores, when they first enter the hive, without being compelled to take any unnecessary steps.

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 water. 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 should have two sticks placed at equal distances, extending from front to rear, resting on the rear, with a screw driven through the front into the end of the stick, which holds it fast in its place, and a ventilator near the top of the lower apartment of the hive, to let off the vapor which frequently causes the death of the bees in the winter by freezing. 10

The door to the chamber should be made to fit in the rabbings of the same against the jambs, in such a manner as to exclude the light from the windows of the drawers, and also to prevent the entrance of the little ants. It should also be hung by butts, or fastened by a bar, running vertically across the centre of the door, and confined by staples at each end. There should be three sheet-iron slides, one of which should be nearly as wide as the chamber, and one or two inches longer than the length of the chamber. The other two should be the same length of the first, and half its width only.

All hives and all their appendages should be made exactly of a size and shape in the same apiary. The trouble of equalizing colonies is far less than it is to accommodate hives to swarms. Much perplexity and sometimes serious difficulties occur, where the apiarian uses different sized hives and drawers. But this part of the subject will be more fully discussed under its proper rule.

RULE II.

ON SWARMING AND HIVING.

The apiarian, or bee-owner, should have his hives in readiness, and in their places in the apiary, with the drawers in their chambers bottom up, so as to prevent entrance.

When a swarm comes forth and has alighted, cut off the limb if convenient—shake it gently, so as to disengage the bees, and let them fall gently on to the table, board, or ground, (as the case may be,) place the hive over them before many rise into the air, taking care at the same time to lay one or more sticks in such a manner as to raise the hive so as to give the bees rapid ingress and egress. If the bees act reluctantly in taking possession of their new habitation, disturb them by brushing them with a goose-quill or some other instrument, not harsh, and they will soon enter. In case it is found necessary to invert the hive to receive the bees, (which is frequent, from the manner of their alighting,) then, first secure the drawers down to the floor by inserting a handkerchief or something above them; now invert the hive and shake or brush the bees into it; now turn it gently right end up 12 on the table, or other place, observing the rule aforesaid.

REMARKS.

Bees swarm from nine o'clock in the morning to three o'clock in the afternoon on a fair day, differing in the season according to the climate. In Vermont they generally swarm from the middle of May to the fifteenth of July; in late seasons some later. I have known them to swarm as early as seven in the morning and as late as four in the afternoon. I have also known them to come forth when it rained so hard as nearly to defeat them by beating down many to the ground which were probably lost from their colony; and I once had a swarm come forth on the sixteenth day of August.

Experience and observation have taught that the Queen leaves the old stock first, and her colony rapidly follow. They fly about a few minutes, apparently in the greatest confusion, until the swarm is principally out of the hive. They then alight, generally on the limb

of some tree, shrub, or bush, or some other place convenient for them to cluster in a bunch not far from the old stock, and make their arrangements for a journey to a new habitation. Perhaps not one swarm in a thousand knows where they are going until after they have left the old stock, alighted, and formed into a compact body or cluster; and not then until they have sent off an embassy to search out a place for their future residence. Now if the bees are hived immediately after they have alighted, before they send off their embassy to seek a new tenement, they will never fly away, admitting they have sufficient room, (for it is want of room that makes them swarm in the first place,) and their hive is clear of every thing that is offensive to them.

The old custom of washing hives with salt and water and other substances, to give them a pleasant effluvia, should be speedily abolished. Nothing but bees should ever be put into a hive.

When bees die, the hive should be cleared of its contents, and scraped out clean, and the chamber rubbed with cloth wet in clean water; then set it in its place in the apiary, and there let it stand until wanted for use. An old hive, thus prepared, is as good as a new one for the reception of a swarm. The apiarian should examine before using to see that the hive is free from spiders and cobwebs.

When bees are not hived immediately after they have clustered in a body, they should be removed to the apiary, or several rods from the place where they alighted, as soon as they can be hived, to prevent their being found on the return of the embassy. Since I have thus practised, I have never lost a swarm by flight.

Experience has taught that it is best to remove the new swarm to the place where it is intended to stand during the season, immediately after hiving. Fewer bees are lost by a speedy removal, than when permitted to stand until evening, because they are creatures of habit, and are every moment establishing themselves in their location. It also prevents their being found by the embassy when they return. The longer bees stand in the place where they are hived, the greater will be the number lost when removed. But more of this hereafter.

When bees are collected in drawers for the purpose of equalizing colonies, by doubling, &c., they should be permitted to stand until

evening before they are united, it being a more favorable time for them to become acquainted with each other by degrees; and the scent of the bees in the lower apartment will enter through the apertures during the night so much that there is a greater degree of sameness in the peculiar smell of the two colonies, which takes off their animosity, if they chance to have any.

No confusion or noise which is uncommon to the bees should ever be made during their swarming or hiving. The only effect of noise, ringing of bells, &c., that I could ever discover, was, to render them more hostile and unmanageable.

When bees are treated in accordance with their true nature, they are sometimes hostile, which originates from two causes: First, some of them lie out of the hive before swarming 16 and some of them, in consequence of their confusion in swarming, are not apprised of the intention of the Queen to leave the old stock and seek a new habitation and they sally forth with the swarm without filling their sacks with stores, which always makes them more irritable than when their stomachs are rilled with food.

The Vermont hive possesses advantages in this respect, as well as others, far superior to the old box. Instead of lying out before swarming, as in the old box, they go up into the drawers, and are constantly employed in depositing the delicious fruits of their labors; and being in the hive, where they can hear and observe all the movements of the Queen, they go forth well stored with provisions suited to the peculiar exigency of the case; which ordinarily prevents all feelings of hostility.

The second reason why bees are sometimes irritable, and are disposed to sting when they swarm, is, the air is forbidding to them, by being cold or otherwise, so as to impede them in their determined emigration. In all such 17 cases, the apiarian should be furnished with a veil, made of millinet, or some light covering which may be worn over his hat, and let down so low as to cover his face and bosom, and fixed in such a manner as to prevent their stinging. He should also put on a pair of thick woolen gloves or stockings over his hands, thus managing them without the least danger.

A clean hive is all that is needed for a swarm of bees, with careful and humane treatment.

A cluster of bees should never be shook or jarred any more than merely to disengage them from the limb or place where they are collected, nor should they fall any great distance, because their sacks are full when they swarm, which renders them both clumsy and harmless, and harsh treatment makes them irritable and unmanageable.

I know of no rule by which the exact day of their first swarming can be known with certainty. The apiarian will estimate near the time by the number of bees in and about the hive, as it will become very much crowded.

The day of second swarming, and all after 18 that during the same season, may be most certainly predicted as follows: Listen near the entrance of the hive in the evening. If a swarm is coming forth the next day, the Queen will be heard giving an alarm at short intervals. The same alarm may be heard the next morning. The observer will generally hear two Queens at a time in the same hive, the one much louder than the other. The one making the least noise is yet in her cell, and in her minority. The sound emitted by the Queens is peculiar, differing materially from that of any other bee. It consists of a number of monotonous notes in rapid succession, similar to those emitted by the mud-wasp when working her mortar and joining it to her cells, to raise miss-wasps. If, after all, the weather is unfavorable to their swarming two or three days while in this peculiar stage, they will not be likely to swarm again the same season.

Two reasons, and two only, can be assigned why bees ever swarm. The first is, want of room, and the second, to avoid the battle of the Queens. It is indeed true that there are 19 exceptions. Perhaps one in a hundred swarms may come forth before their hive is filled with comb; but from nearly forty years experience in their cultivation, I never saw an instance of it, where the hive was not full of bees at their first swarming. When bees go from the old stock to the tree without alighting, it is when they lie out of the hive before swarming, and the embassy are sent forth before the swarm leaves the old stock. When the first swarm comes forth, eggs, young brood, or both, are left in the combs, but no Queen; for the old Queen always goes forth with the swarm, and leaves the old stock entirely

destitute. Not a single Queen, in any stage of minority, is left in the hive. The bees very soon find themselves destitute of the means of propagating their species, (for the Queen is the only female in the hive,) and immediately set themselves to work in constructing several royal cells, (probably to be more sure of success,) take a grub (*larva*) from the cell of a common worker, place it in the new-made royal cell, feed it on royal jelly, and in a few days they 20 a Queen. Now as the eggs are laid in about three litters per week, the bees, to be still more sure of succeeding in their enterprize, take maggots, differing in age, so that if more than one Queen is hatched, one will be older than the others. This fact accounts for hearing more than one Queen at the same time, because one comes out a perfect fly, while the other is a nymph, or little younger, and has not yet made her escape from the cell where she was raised; and yet both answer the alarm of the other, the youngest more feebly than the elder.

Bees will never swarm but once the same season unless they make more than one Queen, immediately after the departure of the first swarm; and not then, if the bees permit the oldest Queen to come in contact with the cell where the young ones are growing. Queens entertain the most deadly animosity towards each other, and will commence an attack upon each other the first moment opportunity offers. The old Queen will even tear all the cradles or cells to pieces where young ones are growing, and destroy all the chrysalis Queens in the hive.

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If the weather becomes unfavorable to swarming, the next day after the alarm of the Queen is heard, and continues so for several days, the oldest Queen may come in contact with the others, or gain access to their cells; in either case the life of one of them is destroyed by the other, and the colony will not be likely to send forth another swarm the same season. If the old Queen succeeds in taking the life of the younger, or *vice versa*, the remaining nymphs will be likely to share the same fate of their martyred sisters, by the hand of the reigning Queen, who considers all others in the same hive as her competitors.

Second swarms would be as large and numerous as any others, if it was not the fact that they come forth to avoid the battle of the

Queens. Bees are very tenacious to preserve the lives of their sovereigns, particularly those of their own raising; and when they find they have more than one in the hive, they will guard each so strong as to prevent, if possible, their coming within reach of each other. They being thus strongly guarded to prevent the 22 fight, is unquestionably the cause of their giving the alarm, as described in the foregoing article. The knowledge of the existence of another Queen in the same hive inspires them with the greatest uneasiness and rage; and when the oldest one finds herself defeated in gaining access to her competitor, she sallies forth with as many as see fit to follow her, and seeks a new habitation.

Bees will not swarm but once in a season, if the second one does not come forth within seventeen days from the departure of the first, unless they swarm for want of room, in which case no Queen will be heard before swarming.

The drawers should be turned over, so as to let the bees into them as soon as they have built their combs nearly to the bottom of the hive. If the swarm is so large that the lower apartment will not hold all of them, they should be let into one or both of the drawers, at the time of hiving; otherwise they may go off for want of room. Bees should be let into the drawers in the spring as soon as blossoms are seen.

RULE III.

ON VENTILATING THE HIVE.

Graduate the bottom board and ventilator at pleasure, by means of the button or otherwise, so as to give them more or less air, as the circumstances may require.

REMARKS.

Bees require more air in order to enable them to endure the heat of summer and the severity of winter, than at any other time. If they are kept out in the cold, they need as much air in the winter as in the heat of summer. It is in a mild temperature only, that it is safe to keep them from the pure air. If placed below frost in a dry sand-bank, they seem to need scarcely more than is contained in their hive at the time they are buried, during the whole winter. If kept in a clean, dry cellar, the mouth so contracted as to keep out mice, gives them enough. But if they are kept in the apiary, there should be a slow current of air constantly pressing in at the bottom and off at the top thro' the ventilator.

