

The Apiary.

The Sting of the Honey-Bee.

A painful rather than a pleasing interest attaches to the subject now proposed for discussion. Possibly this may account for the fact that so little is said about it. In most minds it awakens disagreeable memories, or unpleasant apprehensions. We incline to be mute on distressing themes. In looking over an apicultural library one is impressed with the idea that there is a sort of avoidance of this subject. You can readily find ample details concerning the honey sac, the pollen bucket, the wax works, the wings, the eye, but marvellously little about the sting.

Kilby and Spence, in their excellent treatise on Entomology, devote a paragraph to "insects which attack man from revenge or fear," and remark: "These all belong to the Linnæan order *Hymenoptera*, and the tremendous arms with which they annoy us are two darts finer than a hair, furnished on their outer side with several barbs not visible to the naked eye, and each moving in the groove of a strong and often curved sheath, frequently mistaken for the sting, which, when the darts enter the flesh, usually inject a drop of subtle venom, furnished from a peculiar vessel in which it is secreted, into the wound, occasioning, especially if the darts be not extracted, a considerable tumor, accompanied by very acute pain. Many insects are thus armed, and have this power." Prominent among them are mentioned the ichneumon, the spider-wasp, the honey-bee, the wasp, and the hornet.

Mr. Quimby has just eight lines on this topic in his valuable work, entitled, "Myterics of Bee-Keeping Explained." They are as follow:—"The sting of the bee, as it appears to the naked eye, is a tiny instrument of war, so small indeed, that its wound would pass unheeded by all the larger animals, were it not for the poison introduced at the same instant. It has been described as being composed of three parts, a sheath and two darts. Both the darts are furnished with small points or barbs like a fish hook, that hold it when thrust into the flesh, the bee being compelled to leave it behind."

The only full and scientific account of the bee's sting we have been fortunate enough to find is embodied in a communication to the *American Bee Journal* (Aug., 1870), by Mr. J. R. Bledsoe, of Natchez, Miss. Four cuts illustrate the appearance of the various parts of this warlike implement, as seen under a powerful microscope. One of them, which shows the point of the sting, is a truly formidable-looking object. Mr. Bledsoe was led to his microscopic examination from certain peculiarities of experience connected with a sting he received, and it is not surprising when one looks at the terrible pictures drawn by him, to find him saying, "I certainly dread bees more now than before my investigation." The pith of Mr. Bledsoe's interesting paper, partly condensed and partly quoted literally, is as follows:—"He observed in extracting a sting from his person, that a portion of it remained in the wound, and that the part still fixed in the flesh was extremely fine in size, finer indeed than the portion removed, and fully as long. It also appeared to be a tube pulled out of the main sting, much in the manner of the working of a telescope. A microscopic view showed, however, that it was not a perfect tube, neither does it work with telescopic action. The bee's sting is a complex instrument, being composed of three distinct parts, of which the sheath forms one. These three parts join near the edges, and form a tube which, viewed sectionally, has the shape of a triangle, the angles being rounded off.

The sheath near its point is narrow, but grows wider towards its base, where it gradually embraces

the remaining parts, thereby keeping them in place in their working. Near each edge of the inner or hollow side of the sheath, runs a ridge which fits a corresponding groove in each of the other parts. Near its point, which is rounded rather bluntly, it is armed with two feeble sets of barbs, numbering as many as four in each set. The base of the sting or sheath is large, being broad and somewhat flattened, with an oblong hollow, which constitutes a receptacle for the poison, just previous to injection into the wound.

The other two parts constitute the sting proper, and in a sectional view are semicircular, the upper edges being thicker than the lower ones, and squared to each other, one of the edges having a projection extending along the under or inner portion of it, thereby forming a rabet, along which the opposite part freely moves. The under or inner edge of each of these parts tapers down to extreme thinness, while near the termination of the edge there runs a minute groove which corresponds with the ridge mentioned in the description of the sheath, and along which the parts move freely. Each of these parts proper tapers down to an exceedingly fine point. Near the point begin the barbs, which in some stings number as many as ten, extending along the sting nearly one-half its length, and are well-defined.

The parts are of a horny consistency, of a deep red color, and transparent; they are also hollow along the greater portion of their length, intended perhaps to combine lightness and strength.

The two chief parts of the base of the sting gradually assume a nearly round and tubular form, each terminating beyond the base of the sting within the body of the bee, and having an arm attached to it at right angles, which forms a part of the muscular mechanism by which their movement is effected.

Also, to each of the chief parts, and located in the cavity formed at the base of the sheath, is attached a plano-convex valve, the convexity of which is adapted to the inner side of this receptacle, and they occupy about one-half of the space therein. When the sting is in action, each of the chief parts is thrust out and withdrawn alternately; so that when working its way into a wound, the valves by their action force out the poison which fills the cavity, and which is received from a sac situated apart from the base of the sting. The poison readily passes along the tube, (which is a continuation of the cavity) and finds its way into the wound with great facility, owing to the peculiar formation of the sting.

It often happens that one or both of the chief parts of the sting are left in the wound, when the sheath is withdrawn. These being very minute are seldom perceived, the person stung congratulating himself at the same time that the sting has been extracted. Additional pain and swelling result from leaving any portion of the sting in the wound.

In common with all the doctors who prescribe for bee-stung patients, Mr. Bledsoe advises the immediate removal of the sting; but there is a touch of grim irony in the advice, when it is added, "it continues its working motion for several seconds after being torn from the body of the bee, and thereby buries itself so deep as generally to make it impossible to withdraw all of it."

The peculiarity just noticed probably accounts for the severity of the consequences resulting from bee stings in certain cases in which highly sensitive parts of the body are attacked, but in view of the fact that the extremely fine point of the sting is armed with a number of barbs, may it not be questioned whether anything but the outer sheath is ever got out of the wound inflicted by this instrument.

Leaving the scientific paper of Mr. Bledsoe, and indulging in some general remarks, the celerity and force with which the sting is propelled cannot fail to indicate a remarkable endowment. It has been styled a weapon of war, and such indeed it is, always

ready and highly formidable. Is any other creature, in proportion to its size, as thoroughly equipped for martial purposes as the bee? It has been remarked that if man were as good a jumper, according to his size, as the flea, he could clear the dome of St. Paul's at a bound. In like manner, if he were armed proportionally as perfectly as the bee, he would be a terrible warrior indeed. The bee itself, if it had human depravity, would be an insect so intolerable, that, spite of the sweet honey it brings us, we should be compelled to go in for its extermination.

Fortunately, however, the bee is pacifically disposed. It is armed for the preservation of peace and not for the prosecution of war. The common idea seems to be that the bee resembles the devil, who goeth about seeking whom he may devour. But the foraging excursions of this industrious insect are for other purposes than to find victims to sting. The stings of a bee colony are undoubtedly meant to defend their stores, and if bees were as harmless as flies, very little honey would ever find its way to the market or the table. Hence the idea of sometime or other bringing apiculture to such perfection as to breed a race of stingless bees is as unwise as it is utopian.

The more practical branch of this subject, viz., the fear of being stung as a hindrance to bee-keeping, was fully discussed in these columns not very long since; and as its consideration would protract the present article to an immoderate length, it need not be touched upon at this time.

Superstitions about Bees.

To cure bee stings hundreds of remedies have been offered, some of them very old. Pliny says rue will cure stings of bees, hornets and wasps. He also declares that a tea made out of bees themselves will cure the sting when drunk. Paulme and saurell, both leaf, bark and berry, he says will cure it. These may be good, but old Pliny goes still further. "For the sting of bees," he says, "the owl is counted a sovereign thing, by a certain antipathy in nature. Moreover, as many as have about them the bill of a woodpecker when they take honey out of the hive, shall not be stung."

An almost universal superstition is that bees must not be sold. This superstition takes various forms in different localities. In Ireland an old saying reverses the rule: "Bees must not be given away, but sold; otherwise, the giver or taker will have no luck." In Devonshire, England, when bees are sold, payment is never made in money, but in corn, &c., and the bees are always moved on Good Friday. In portions of Pennsylvania it is believed that the seller must not be at home when the bees are taken away; if he is, the bees will not thrive.

A common superstition in England, France and Germany is that if the master of the house dies the bees must be immediately informed of it. In North Germany they say to the bees, "The master is dead, the master is dead." They believe the bees will die, fly away, or do no good unless so informed; and in portions of England the hives are dressed in mourning for the same reason. In Lithuania the bees are informed of death in the family by rattling the keys at the entrance. In Bradfield, England, bees are always invited to the funeral. A worse superstition still is that all the hives must be immediately removed to another stand on the death of a member of the family; and another, that at the moment the corpse is taken out of the house the hive must be turned over. They don't have movable frames or they could not do it.—*Correspondent Bee Journal*.

WHITENING BEESWAX.—In cool weather wax can be whitened in a little while in the sun by spreading it out in very thin cakes or layers. Take a very thin board or a clean shingle and wet it thoroughly, and dip it first in pure melted wax. It will adhere to the shingle in sufficient quantity thick as is necessary, and it will cool off almost instantly on being taken out of the melted wax. Now draw a knife along the melted edges, and you can readily cleave it off the shingle, and you have the thin layer of wax. Expose this to the sun on the snow or on the window sill, and it will become perfectly white, when it can be made up into cakes or any fancy form suitable for market, where it will command a much higher price than the yellow wax.