

## "The Little Busy Bee."

I AM moved to write a few things about the wonderful insect above named by two considerations. The first is, to dispel somewhat of the popular ignorance in regard to a most useful member of the animal kingdom, which deserves to be better known; and the second is, to draw the attention of my literary fellow-workers to a most interesting scientific pastime, which will tempt them into the fresh air and bright sunshine, giving them exercise of a kind not at all exhaustive, in the indulgence of a pursuit that is fascinating in the extreme. Most people know little more about bees than is embodied in that juvenile song of Dr. Watts', which we so often hear alluded to, usually more in jest than in earnest. Like many other compositions intended for the young and rising generation, this famous song about "The Little Busy Bee," is not so true to nature and to life as it might be, and ought to be. Dr. Watts himself seems to have known little more about this insect than that it is a marvel of industry, which is just as true of the devil as it is of the bee. This fact, indeed, is recognized by the poet in the couplet:

"For Satan finds some mischief still  
For idle hands to do."

It is a curious fact that the very first verse of Dr. Watts' song contains two great errors about the insect whose praise it sings:—

"How doth the little busy bee  
Improve the shining hour,  
And gather honey all the day,  
From every opening flower."

In the first place, the bee does not gather honey. It gathers the sweet nectar secreted by the flowers, which is converted into honey by some mysterious process that goes on in the mouth and stomach of the bee. The nectar is transmuted into honey by the busy gatherers of it, and the change takes place during transit from the flower to the hive.

A second error is, that the bee gathers "from every opening flower." It is only some flowers that secrete and yield nectar. Attracted by the aroma of certain blooms, the bees visit them and are invariably rewarded by a tiny drop of the precious liquid of which they are in search.

It may not be amiss to give two or three illustrations of popular ignorance in regard to bees and honey. Thus the idea largely prevails among the general public that bees resemble the devil not only in tremendous activity but also in being of the same prowling nature, and that as he goes about seeking whom he may devour, so also the bee goes about seeking whom it may sting; whereas there is no creature in nature more disposed to mind its own business and give others a good letting alone than the bee. There is also an almost universal tendency to strike at a bee when it is seen near by, and this ignorant, foolish act is the cause of most of the stings people get. The general public should be taught at least some primary lessons in regard to this useful insect, so as to know how to behave properly in the vicinage of bees, and not needlessly expose themselves to the risk of being stung. An amusing instance of ignorance about bees among *literati* occurred last summer. The May number of the *Cosmopolitan* magazine contained a very interesting article on the honey-bee, by an expert named Hutchinson. But the literary man who furnished the sub-headings knew no better than to say, "Being a complete account of the honey-bee, his home, his migrations, his food habits of life, his business methods, his storehouses, his food and communal life." Probably not one person in a thousand is aware that worker-bees, which constitute the chief population of a hive are undeveloped females, or that the masculine insect is only a transient performer on the scene, appearing when the busy season is inaugurated, and vanishing when the increase of population is not further desirable until the advent of another working season.

Never strike at a bee. This one simple rule will prevent stinging in nine cases out of ten. If a bee buzzes round you, the impulse is to hit it. Repress that impulse. Maintain perfect quiet and inaction. Slightly bow the head and keep the eyes downcast. When a bee is minded to sting it aims at the eye. So "mind your eye" when a bee is near, and seems to be at all in hostile mood. Never try to fight a bee. It has several thousand eyes and you have

but two. The many-eyed fighter is sure to win in such an unequal contest.

But I pass to notice briefly matters of far greater practical importance. Among these our indebtedness to the bees and dependence upon them may be adverted to. After all, honey-gathering is not the most important function they perform. We owe to them the beauty of the flower, the fertility of the seed, and the ripe lusciousness of the fruit. The bee that thoughtless mortals try to strike down and kill, often to find what an alert fighter it is and what a sharp rapier it carries, is one of the greatest benefactors of the human race. A brief reference to a few simple facts will abundantly demonstrate the truth of this statement.

Flowers are the reproductive organs of the plants that bear them. No seed is produced unless pollen shed by the anthers is carried to the pistil. Some flowers have anthers and no pistils; these are male blooms. Others have pistils and no anthers; these are female blooms. But by far the greater number are hermaphrodite; that is, they carry both sexes within themselves. Female blooms must have pollen brought to them from male blooms, generally speaking of the same species, or the seed will fail. Often the seeds will not develop even though the flower has both stamens and pistils, unless the pollen of another flower is brought to fructify them. The wind and insects are Nature's two servants that perform this work. Wind-fertilized, or anemophilous flowers, are, as a rule, scentless, honeyless and inconspicuous. But flowers that need the aid of insects to fertilize them must invite their visits; hence nectar is offered; sweet perfumes attract and fine colours reveal. Hermaphrodite flowers need insects scarcely less than others, for although they produce pollen, yet their own pollen is not so desirable as that from other blooms. The experiments of that great naturalist Darwin, on cross-fertilization, have brought to light much of the wonderful working of the laws of insect life along these lines. But the subject is too voluminous to be more than touched in passing.

Among the insect tribes, bees are the chief agents in the fertilization of flowers. The necessary process is accomplished in various ways. A species of the willow-herb *Epilobium angustifolium*, must have all its own pollen carried off to other flowers before its pistils develop, when, in turn, it is fructified by the pollen from other blooms. The primrose, cineraria, orchids, tropeolum, heath-blooms, and other flowers that might be named, present curious and diverse contrivances for utilizing the visits of the honey-bee. The strawberry, that most delicious fruit, owes its fertilization to the bee. It is estimated that to produce a single perfect strawberry, from one hundred to double or triple that number of independent fructifications must be accomplished. If fructification fails, instead of a luscious berry, we have a hard, shrunken, greenish mass.

Ignorant people suppose bees to be enemies of fruit, whereas, without them, we should not have any. It is a mistake to imagine that they injure fruit-blossoms by visiting them. Such visits are absolutely necessary if any fruit whatever is to form and mature. It is also a mistake to suppose that bees puncture grapes or other ripe fruit. They do nothing of the kind. If the skin is broken by any other means they simply gather up the sweet juices that would otherwise go to waste.

In England there are many who pursue bee-keeping as a fascinating recreation or scientific pastime. They make no account of the value of the honey, or the question of profit and loss in connection with the business. They find endless pleasure in observing the wise and curious ways of bees. There is soothing music in their hum, and constant interest in the study of what is going on inside the hive. What there is to be deprecated or frowned upon in this I have never been able to see, but certain it is that amateur bee-keepers in Canada and the United States are at a discount. I think bee-keepers, as a class, are inclined to be selfish monopolists on this side of the Atlantic. They are not anxious to let the general public into their secrets, lest they should become charmed with the pleasant occupation of tending bees. It is openly advocated by some that the pursuit should be confined to specialists. There is a class of bee-keepers who look at everything from a dollar and cent standpoint. They have no sympathy whatever with the poetry of bee-keeping, and no idea of making the pursuit a diversion. I cannot understand why studying the habits of