

ticular and peculiar habits—the subject begins to enlarge so greatly.

By a very little work in the direction of collecting specimens of the native or wild bees of this State, we have already gathered close to 200 distinct kinds. Some of these are large and quite conspicuous, hence are known to most of us. Others are small and inconspicuous, and are unknown even to most entomologists.

All bees are more or less connected with the fertilization of flowers—i. e., they gather and carry the pollen from one flower to another. These flowers among themselves are constructed on very different plans, hence require different methods for bringing about their pollinization or fertilization. It stands to reason, then, that the bees which perform this task must differ one from the other in structure as well as in habit.

Our efforts thus far have been confined principally to the gathering or capturing and naming of these bees, with the result that there already have been brought together in the neighborhood of 200 distinct species or kinds. These belong to at least 37 distinct genera, and possibly to others still unrecognized. It is estimated that by future work in this same direction there will be at least 100 additional forms found to inhabit our State, since our studies in other directions go to show that the State is one exceedingly rich in its flora and fauna. Our birds seems to exceed those of any of our sister states by fully a half-hundred kinds. We have more species of grasshoppers than they, and our tiger beetles are double theirs. Our botanists tell us that the kinds of plants belonging to our flora are similarly extensive.

All bees differ from their allies—the wasps—in being anthophilous, or honey and pollen eating, instead of carnivorous. As has already been hinted, our native bees vary greatly one from another in color, structure, size, and habits. This is to be expected when we take into consideration their numbers and the vastly different flowers from which they must obtain their food, and that for their young.

First of all, much depends upon the form and length of a bee's tongue, whether or not it will be able to reach and secure the nectar that lies more or less deeply hidden away within the recesses of flowers. Not all bees are equally well equipped in respect to this organ. Some have this organ short and blunt, hence are confined in their search for food to such flowers as have their nectar near the surface. Others have their tongue excessively lengthened, and therefore can obtain nourishment from deeper

flowers. Some bees are slender and are thus enabled to creep into flowers where plumper-bodied species could not venture. A few of our bees are solely nectar-gatherers, but most gather both the nectar and pollen. All of them feed their young with either nectar or pollen, or a combination of the two.

The representatives of a few genera are parasitic, living as guests (uninvited) in the nests of hosts that are obliged to work for them for nothing. Cuckoo-like, these parasites linger near the nests of their hosts until the latter has a cell about completed and provisioned, and are away, when they stealthily enter and leave an egg, and are off, ready to repeat the operation when opportunity presents. These parasitic bees are just as particular about their homes for prospective offspring as are all parasites. To this end they invariably select the nest of some particular host, a given parasite invariably choosing the same species for its host. In this way the careful observer can frequently determine the presence of a particular bee in a given region, although he may not have been fortunate enough to see or take it.

While a hive-bee, or honey-bee, is social in its habits, and contains an additional form (worker) to the female (queen) and male (drone), nearly all of the wild bees are solitary and are without this worker. Only the bumble-bees are thus provided, and here more than one female are to be found in a single colony.

Where the student has so many distinct forms to deal with as he has here, it becomes necessary for him to select some means for their separation. This has already been accomplished, and it is now comparatively easy for us to locate any bee in the group where it naturally belongs. Some of the characters thus employed are wing venation, presence or absence of spines on the legs, length of tongue, number of join's in the lip and jaw appendages, and the absence or presence in varying amount of hair upon the body or legs of the bee, which is to be classified.

Taking up some of our native bees separately, it has been found that about the following can be said of their appearance and mode of life.

The genus *Holletes* is composed of rather robust, hairy, wasp-like insects, more or less well equipped for carrying pollen, which they carry to their solitary nests for food for their young. The nests are made in the ground by the female, and are filled cell by cell with pollen, and an egg laid in each when finished. There are probably two broods a year.