

continually add to the original lump, making it bigger and bigger, while the queen goes on laying eggs in it as long as warm weather lasts. Perhaps before winter arrives the mass will have grown to the size of one's two fists. It is literally honeycombed with cells from which the young bees have made their escape, and these empty chambers are used for the storing of honey. Most of the honey gathered by bumble bees is obtained from red clover.

ONLY QUEENS SURVIVE COLD WEATHER.

Up to nearly the end of the summer the queen lays only worker eggs—That is to say, eggs which produce females which are undeveloped sexually. They are the honey-gathering and comb-building class. When autumn is coming on, however, she produces males—called drones. At the same period also she lays eggs which give birth to fully developed females, all of which are destined to be queens the following year. These females mate with drones and thus are rendered able to reproduce their species in the next season. From 6 to 12 of the future queens are turned out by each hive. When cold weather arrives they crawl into snug places, where they hibernate during the winter, gathering pollen in the spring and laying their eggs in it. Thus is completed the cycle of their species. Only the queens survive, all the workers and drones dying.

Thus it may be said that every bumble-bee hive is wiped out each autumn. Here is one of the reasons why this genus of apidae is not useful to mankind. They do not gather in numbers sufficient to accumulate large stores of honey, notwithstanding their industry. Ordinarily a single colony will not number more than 30 or 40 individuals. Another cause of their worthlessness is that their cells, being formed in the manner described, are huddled together without order, so that the honey cannot well be obtained from the combs in a clear state.

DIFFERENT VARIETIES SCATTERED ABOUT.

The bumble bee and the honey-making bee proper are cousins. Scientifically speaking they are families belonging to the same order. Four species of honey bees are known. Three of them are indigenous to India and are found nowhere save in that part of the world. The fourth known as 'Mellifica,' is distributed all over the globe. It includes a number of varieties, all of which were very likely derived from one stock at the beginning. Bees, like rats, have spread with man, though from a different cause. They have accompanied the human race as servants, not as scavengers. It is well known that the ancients kept bees. They are frequently represented on the monuments of Egypt, and in that

country, centuries before Cleopatra reigned, they were cultivated on a very large scale. Thousands of barges freighted with hives were floated up and down the Nile in order to afford the insects pleasure on the flowers along the banks.

There were no bees in America until the seventeenth century, when the common black variety was brought over from Germany. It is that kind which swarm all over the United States to day. But within recent years bee-keeping has been reduced to scientific principles, and so it has been sought to procure from them abroad finer breeds. Important among these is the Italian, which was fetched to this country first in 1859. Italian bees have many advantages from the industrial point of view. They are docile and easily handled, they are very prolific and they protect their hives better than the black ones do from the ravages of the wax moth. These moths lay their eggs in combs, and the larvae feed upon the wax and pollen, destroying the cells. In 1881 Mr. Benton, a well known expert, went abroad and brought hither other choice breeds from Cyprus, Syria, and Palestine. These, particularly the Cyprian, are all very handsome and thoroughly business bees, possessing extraordinary energy in honey gathering. They are irritable and for that reason difficult to handle, unless one knows how.

STOCKS MUST BE CAREFULLY SELECTED.

Nowadays bee-keepers select their stock as carefully as farmers do cattle. Hundreds of people all over the country made a profitable business of raising pure-bred Italians or other queens for market. In each hive are engendered from 12 to 300 queen bees, depending upon the race. If left alone they would nearly all be killed by being stung to death in their cells, because a bee household can never have more than one mistress; but the breeder removes the portion of the comb which contains these queen cells before their occupants are ready to emerge, and he puts one of them, with a bit of comb and honey, into each of a number of miniature hives made for the purpose, with a few handfuls of bees in each. Thus many thousands of queen bees may be produced in a season, and, inasmuch as well bred ones sell for from \$3 to \$5 each, the business is lucrative. For some so-called Punic queens, of an alleged new stock, as much as \$80 apiece has recently been asked. In fact, however, these are merely of the Tunisian variety from Africa, figuring under a fresh name. When the young queens are ready to mate the breeders shut up the drones in all the hives save those containing the best stock, thus