

and we find coiled up in the bottom of the cell a tiny white, glistening grub, which for three days is fed on chyle secreted in the heads of the nursing bees. It does not eat this food but absorbs it through its skin. In from nine to eleven days the perfect bee emerges from its cell. As soon as it makes its appearance the nurses feed it, and in twenty-four hours it has learned to feed itself and has begun its duty as a nurse. After spending five to seven days as a nurse it becomes a wax producer, and for about a week it hangs with its sisters in a cluster and eats enormous quantities of honey, becoming so fat that the wax glands, to relieve the system, draw upon the fat and convert it into wax, as already described. During this time the bees need exercise, and they get it for about two hours each fine day, when from about two hours in the afternoon until four they go out to play in front of their homes. Mr. Jones assured his audience that young bees actually do play, and none who have watched them can doubt that they really enjoy their outing. He then minutely described, with the assistance of his charts, the process of comb-building. The third week in the bee's life is the most varied in its labors of any in its existence. It is spent in comb-building, pollen-gathering, house-cleaning, ventilating, home and queen guarding. The bees show an unmistakable desire to be part of the queen's retinue, often intruding themselves among her body-guard to the disturbance of the general order of the hive. It is remarkable how often the guards chase. After the third week the bee devotes nearly all its time during the day to foraging and during the night to comb-building. It is not known whether bees sleep.

In opening the third section of his subject—its important work—the lecturer considered it advisable to go a little into elementary botany, for it was necessary to understand the construction of flowers in order to appreciate the fitness of the bee to work in them. After explaining the reproduction process in flowers he said that the bee's end in nature was no more the gathering of honey than it was the horse's life work to haul his oats to his stable. The bee's honey is its food which fits it to accomplish the end for which it is created, and this end, and a most important one, is the fertilization of flowers. Many flowers are entirely dependent upon the bee for fertilization, notably the clover. The English primrose, the figwort and many of our commonest plants, would produce no seed but for the visits of the bee. The honey is scented in the flower to attract the bee, and the main use of the perfume is to guide the bee to where the honey is. Mr. Jones then displayed

charts, illustrating the bee's work in the blossom and the process of carrying the pollen from one flower to another, for nature will allow no flower to fertilise itself. This section was only touched upon sufficiently to give an idea of what a field for study it opened up.—Mail.

Improved Methods in Honey Production

THE brood chamber is covered by a board, when the sections for honey are not in place, and contains twelve hanging frames twelve inches long by nine-and-one-half inches deep. The surplus arrangement consists of cases, at one end of which are a follower and wood screw by which the sections are tightly clamped together. Each section is supplied with a full sheet of foundation and between each row are placed thin wood separators to insure perfect combs. Mr. Manum was probably the first to make a white poplar dovetailed section, which is not so much used. Previous to this they were of pine, and made to nail. This section, put together with glue, is not only the strongest but the peatest section in use. Two of the Bristol clamps cover the brood chamber and can be tiered up as high as desired. Mr. Manum has lately discarded all but one-pound sections. When filled with finished combs, the cases are disconnected from the brood chamber, and before they are removed to the honey house the bees find their way out at the bee escape in the gable. A cord and a simple device allows the hive cover to be tipped back instead of having to lift them off bodily when opened.

The hives are five feet from each other in rows twelve feet apart. To prevent upsetting by heavy storms in winter, a large cord is thrown across the roof and fastened to a stake driven in the ground on each side. During the winter everything needed in the summer campaign is prepared ready to be quickly supplied to the different yards by the teams which are then constantly on the road. In the spring at certain intervals Mr. Manum and his assistants spend a day in each apiary giving that aid to colonies which is so important. These rounds are made more and more often until the swarming season is about to commence, when one competent person is placed in charge and is in constant attendance for six or eight weeks, or until the honey season is over. Board is usually obtained at the farm house near which the yard is located, and the help are continually employed in hiving swarms, putting on or taking off boxes and in attending to other necessary details. As experienced men are not always to be had, many