

Some Useful Beetles.

BY C. J. S. BETHUNE.

Most people are apt to regard all insects as injurious, or at any rate troublesome, and in consequence to condemn them all, wherever found, to a speedy death. There are really very few, out of the enormous number of species, that are serious enemies and deserving of ruthless destruction. The vast majority are either useful in their own sphere of life, or of no particular benefit or injury as far as the human race is concerned. In the world of nature there is a marvellous system of checks and counterchecks, and in this system insects play a very important part. Vegetation, for instance, if left undisturbed, would become a tangled mass that would choke itself by its own luxuriance, but as every plant has one or more insects that feed upon it, a constant pruning is being effected, and a thinning out is always going on that leaves room for light and air and moisture. To insects, again, is largely due the removal of all dead and decaying animal and vegetable matter, which but for them would accumulate to such a degree as to render life almost impossible. But the insects themselves which are performing these useful duties would increase to such an enormous extent, if let alone, that they would sweep away all vegetation from the face of the earth; accordingly we find that they in turn are restrained from too great a multiplication by birds and beasts which feed upon them, and especially by other insects whose vocation it is to reduce their numbers and keep them within due bounds; these, again, have others to prey upon them, and so it goes on in a wonderful system that maintains a fair balance among all created things.

The farmer and fruit-grower are chiefly concerned with the vegetable-feeding insects, and are not likely to bestow much consideration upon any kinds that do not directly affect their crops, and so it comes to pass that they know little or nothing about some of their best friends. Most of the parasitic insects—that is, those which feed in their maggot or grub state within the living bodies of injurious kinds, such as caterpillars—are very minute, and are not likely to be observed or interfered with, but there are other kinds large enough to be conspicuous which devour grubs, caterpillars or aphides, and help very materially in reducing the numbers of these serious pests. To a few of these we would now draw attention.

In spring and early summer, while the earth is still moist, if a loose stone or log, or bit of board, is turned over there are usually to be seen a number of beetles of different sizes, which rapidly scuttle off in different directions, and speedily get out of sight. Most of these belong to the family of Carnivorous Ground Beetles (*Carabidae*), which includes an immense number of different species. The majority of them resemble the figure in the margin in shape and general appearance, though they differ much in size and details of structure. Most of them are black or brown in color, some polished and shining, others dull—some few are bright green, others metallic like burnished copper,—all of them may be regarded as useful insects, and friends who deserve our protection. They usually fly about at night in search of food, and devour great quantities of noxious insects; the larger species prey upon cutworms and other caterpillars, the grubs of potato-beetles, etc. In the daytime they hide away as already mentioned. Some kinds are attracted indoors by lights at night; they fly in through the open window or door, and when they drop on the table near the lamp, instantly start off to run with great rapidity in order to effect their escape. Beetles of this description should not be killed; even if they seem to be a nuisance by coming into the house, they will do no harm to either food or furniture, but may devour some really injurious creature. When seen in the fields or garden, or by the wayside, they should not be trodden under foot, as they too often are, but be allowed to go on their way unmolested.

Another beetle belonging to the same family, but differing somewhat in shape from those already referred to, is the large caterpillar-hunter, figured in the margin. It is black in color, with three rows of bright coppery impressed spots on each wing-cover. Its name is *Calosoma calidum*, which means the hot or glowing, beautiful body, so called from its elegant shape and apparently red-hot spots. If taken up in the fingers, it will be found to have a very strong, peculiar and by no means pleasant smell, which probably protects it from being devoured by birds. This insect is a special foe to cutworms and other caterpillars; it goes about at night seeking its food, and is most useful on the farm and in the garden. There are several other species of similar shape and size, but differing in markings; they are not, as a rule, so often met with as the one just referred to, but are equally useful. One very handsome species (*Calosoma scrutator*) is brilliant green in color, with broad coppery-red margin; it feeds upon caterpillars,



Ground Beetle.



Caterpillar Hunter.

climbing trees for the purpose, and is believed to be a special enemy to cutworms in wheat fields and among other crops. Being nocturnal in habits, it is not often seen, but is sometimes found in quantities on the lake shore, where it has been washed up by the waves after being blown off the land in a gale at night.

For these and other useful insects we plead protection, and hope that they will be spared from a pitiless destruction, which dooms to death both friend and foe without discrimination.

APIARY.

Swarming of Bees.

BY M. PETTIT.

One of the necessities of nature is that every living being shall have some power of reproducing its like, in order to preserve the species; and, especially in the insect world, there is a great diversity of ways of attaining this end. In the apiary the individual is the colony rather than the insect. Thus, "increase" signifies an addition to the number of colonies, while the population of each is spoken of as its "strength."

Increase is effected by "swarming." As soon as a colony becomes very strong, queen cells are started in various parts of the hive, and the majority of the inmates "swarm," accompanied by the old queen; this during the months of May, June and July, but chiefly in June.

If permanent increase is not desired, it is advisable to prevent swarming as much as possible, as it involves the loss of much valuable time and the risk of swarms issuing and escaping unobserved. To my knowledge, no method of absolute prevention in profitable beekeeping has been discovered. It may be greatly lessened, however, by studying the requirements of bees and adding as much as possible to their comfort in the hive. See that the workers have plenty of room for stores, that the queen is not crowded in the brood chamber, and that the hive is kept airy and cool. The wedges used in the comb-honey hive, described on page 97, assist much, and should be used on extracting hives also. Apple trees provide excellent shade for hives, as well as low branches for convenient access to swarms which do occur.

A swarm seldom absconds without first alighting on a neighboring tree, shrub or other object. As soon as it has clustered take it down and place in the new hive. A light pole with swarming device attached to the upper end may be held under the cluster, while an assistant gives the limb a sharp jar with another pole having a hook on the end. Continue to jar the limb to prevent the flying bees from relighting, and hold the swarm-taker in the air where the bees are thickest until they are nearly all clustered in it; then carry them to the new hive. Several hives should be kept in readiness for this purpose, with from 6 to 8 frames containing half-inch starters of foundation attached to top bars. The number used should depend on the strength of the swarm and size of frame, the hive being filled out with dummies (boards which take the place of combs). Transfer the sugar from the parent hive, and the new swarm will continue its unfinished work.

It is desirable to strengthen the new swarm at the expense of the parent stock to concentrate forces for work and avoid a second swarm. For this purpose set the new hive on the old stand, and the parent hive immediately behind it. Then the bees which were afield when the swarm issued will naturally enter the new hive on their return. On the 5th or 6th day, at a time of day when bees are flying about most vigorously, remove the parent hive to a new stand at some distance from the old, and clear away all signs of a hive from where it stood. The field bees, returning and finding their home gone, will join the new swarm also. About the 7th day the first queen hatches, and under ordinary circumstances would come out with a second swarm; but, if the parent stock is thus weakened, they will probably have given up all thoughts of swarming again, and she will be allowed to destroy the remaining queens in their cells, or contend in mortal combat with any that may have hatched simultaneously with her. Not much surplus can be expected from such hives; but, having young queens, they make the best colonies for next season. About 27 days after swarming, examine their combs for eggs or brood, to be sure they all have laying queens. This is a point that should not be neglected, as there are many dangers surrounding the young queen before she starts laying. (See F. A., Vol. XXXIV., p. 557.)

The bees understand perfectly that they cannot exist as a colony without a queen, and refuse to remain away from the parent hive unless one goes with them. They swarm and sometimes cluster, or even go straight to the woods, expecting their queen to accompany them; but unless she does so, or some other queen joins them, they always return. Taking advantage of this, many beekeepers obtain an easy method of hiving swarms by clipping one or more of the queen's wings, after she has had her mating flight, so that she cannot fly. A laying queen may be clipped at any time; but it is best to go through the hives in spring to find every queen, and be sure she is clipped. (See Apiary Dept., F. A., Vol. XXXV., p. 135.) It is advisable to clip on the earliest opportunity; i.e., when the day is still and sunny, thermometer at 70° F. in shade, and bees gathering a little pollen and honey. Although

many recommend it, if, where bees have been wintered well, one waited until fruit bloom, the hives would be so full of bees there would be difficulty in finding the queen.

When a colony having a clipped queen starts to swarm, watch for her until she is found either about the entrance or on the ground near by, and cage her. A cage may be made of wire cloth rolled into a cylinder 4 inches long and tacked about a wooden plug at one end. A stopper placed in the other end confines the occupant. Lay the caged queen in the shade of the next hive, and set the hive back immediately behind the old stand. Put the new hive in its place, lay the queen in front of the entrance, transfer the super and adjust cover and alighting board. All this is accomplished while the swarm is in the air. As soon as they discover their loss they come back, usually with a rush, and enter the new hive. When they are going in pretty freely liberate the queen, and she will go in with the rest.

If the swarm clusters on a tree and shows no inclination to return, it may be that a virgin queen has joined them, and they should be hived in the old way.

POULTRY.

Hatching and Rearing Chickens Naturally

At this season of the year the broody hen is welcomed by all poultry-raisers. April and May hatched pullets, if well reared, are almost sure to make good winter layers. After getting the hen, one of the perplexing problems is how best to set her so as to insure a good hatch and also avoid vermin. Wherever possible, set the hen in a pen by herself, or at least away from the other fowls, and avoid setting her anywhere in the henhouse. In this way one can usually keep the hen quiet, and at the same time avoid her becoming infested with vermin from the henhouse.

When it can be so arranged, set three or more hens at the same time. About the tenth day the eggs should be tested, the infertile ones removed. The fertile ones may be put under part of the hens, and the other hens can be either re-set with fresh eggs or broken up.

The nest should be a roomy one. Try to place an inverted sod in the bottom of the nest, hollowing it out a little in the center; then upon this place a few inches of straw, taking care to well fill the corners, or the hen may possibly roll some of the eggs into these places, which will materially injure the hatch. As a preventive of lice, dust the hen well with insect powder and place in the nest camphor balls, tobacco stems or tansy. Any of these substances are a good preventive of vermin. Place a libera, supply of grain in easy access to the hen, as well as good clean water, not omitting to supply some grit and a dust bath.

When hatching begins, it is well, if the hen is quiet, to remove the shells every few hours, taking care not to chill the chicks or the eggs. Do not be in a hurry to remove-biddy and her brood, or yet to give them a feed. It must be borne in mind that just before the chick is hatched the yolk is absorbed into the system and this acts as a food for some hours.

Arrange the coop so as to face the south, and have it well sheltered from cold winds, if possible. Be careful to have the coop airy, but not drafty, and at the same time waterproof. Early in the season a board bottom is a help in keeping the chicks dry and warm, but during the latter part of May or later the mother earth serves as a good bottom. The coop should have a small amount of chaff placed into it. Before removing the chicks from the nest, a portion of food should be put down, as well as a supply of water. Never fail to clean the coop at least twice a week, or if no bottom is in the coop, to move it to fresh land every day or so AFTER THE DEW IS OFF.

The first feed for the little chicks may be either equal proportions of hard-boiled eggs (chopped fine), onion (chopped fine), and bread crumbs, all in equal proportions, or johnnycake (finely crumbled). Usually the former ration gives best results. Feed the ration for the first few days, after which gradually wean to a ration composed of equal proportions of meat, vegetables and grain. Cooked livers (chopped fine) answer well for the meat supply; grain sprouts or root sprouts for the vegetable; and the grain may consist of equal proportions of bran, corn meal and oatmeal. Moisten all slightly with skim milk or boiling water. If grit is not easy of access, it is advisable to add a handful to about a gallon of the feed. Where the chicks have a nice fresh grass range and where there are plenty of insects, the meat and vegetables may be omitted. The water should be so supplied that the chicks cannot get into it. This can be easily accomplished by taking an old corn or tomato can, punching a few holes near the edge; then fill with water and place a saucer over the top. Turn the can over quickly and you have as good a fountain as one would wish. Cracked wheat or wheat screenings may be fed after the tenth day. Give five feeds daily until the chicks are four or five weeks old, when they may be gradually weaned to three feeds per day. Chicks usually thrive better upon ground grain than upon whole grain.

Keep a sharp look-out for lice. If any are seen, dust the chick and hen with insect powder.

When chicks show a greenish discoloration at the back of the abdomen, it may be taken as an indication that there is a lack of meat food.

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