The caterpillars leave their nests during pleasant weather to feed upon the leaves and return to them at night. The stripping of the leaves checks the growth of the trees, if it does not kill them outright. The nests with their contents are readily gathered and destroyed; consequently there is no excuse for allowing this pest to increase or even do any considerable injury to apple or other trees. During winter, the eggs deposited by the moth can be found in clusters glued to the small twigs of the trees, and if taken off and destroyed there will be proportionately fewer caterpillars the following summer.

Codling Moth.

Wormy apples are common enough, everyone will admit, but how the worms get into the apples is not so clear, except to a few who may have studied their history. The worms so common in apples are the larvæ of a beautiful little moth *(Carpocapsa pomonella)*, which was introduced from the Old World many years ago. Soon after the young apples are formed in the spring, the female moth deposits an egg in the blossom, where it hatches, and the grub eats its way into the fruit, causing it after a few weeks to drop off. The grub crawls out of the fruit, and immediately proceeds to climb up the stem of the nearest tree, and, after finding a suitable hiding place, under some piece of rough bark, or in the crotch of the tree, spins itself a thin, silken cocoon, in which it passes the pupa state, finishing its transformation by the last of July, or August, when it comes forth ready for an attack upon the apples which escaped the first brood of the season. The fruit is so far advanced when this second brood attacks it, that comparatively few specimens are caused to drop, but what the farmer calls "wind-falls" among apples are occasionally quite abundant. If the autumn happens to be fine, and the apples are not gathered until quite late, a greater part of the worms will have left them before they are stored; but their cocoons may sometimes be found in abundance in the barrels received in our markets, showing that they were wormy when shipped from the orchard.

Of course, the first, and most important operation to be performed, in order to reduce the number of moths, is to gather every wormy apple as soon as they can be shaken from the tree, feeding them to hogs, or otherwise making away with both the fruit and their contents. If so simple a preventive as this one was vigorously followed, these insects would rapidly decrease in numbers; but farmers, as a rule, are negligent in such matters, until forced to do something to prevent a total failure of their crop. A more certain method of destroying them, is to put hay bands loosely around the stems of the trees, and keep them there during the entire summer. The worms, as they leave the fallen fruit, and crawl back up the trees, find these hay bands a most inviting retreat, and will generally rest underneath, and there spin their cocoons. All that is necessary to do in order to kill them, is to go through the orchard occasionally, and move these bands up and down, sufficiently to crush the worms, or cocoons underneath. The above are the most destructive insects infesting our apple orchards, but there are others requiring attention, and of which we may have something to say at another time.

Beneficial Insects—Hymenoptera.

During the winter season, when the whole insect world is removed from sight, and either killed, or rendered torpid by the cold, it has been our custom to bring before the readers of the CANADA FARMER some observations upon the beneficial properties of insects, as contrasted with the noxious propensities usually so practically brought under our notice in summer. In previous winters we have gone through the principal families of beetles *(Coleoptera)*, that are either directly or indirectly of benefit to us; we now propose to treat of another order of insects, the *Hymenoptera*, which includes amongst its numerous families such well-known creatures as bees, wasps, saw-flies, ichneumons, ants, &c. Before enlarging upon any particular family, however, we deem it advisable to give some general account of the order, and its leading characteristics, in order to render our further remarks more readily intelligible.

The name, *Hymenoptera*, like a vast number of other scientific terms, is derived from the Greek, and signifies *membrane-winged*. It is applied to those numerous insects that have four clear membranous wings, crossed, or divided by very few veins, or nervules; the hinder pair are almost always smaller than the front ones.

The members of this order are given the first rank amongst insects by many entomologists, both on account of their structure, and their mode of life. The head is large in proportion to the rest of the body, and is furnished with large, compound eyes, four nippers, or jaws, adapted with the other mouth parts, for both biting and feeding on the nectar of plants. The wings are small, but very powerful, and enable the insect to fly more swiftly, and to continue in flight longer than other insects. In the female, the extremity of the abdomen is furnished either with a venomous sting, or with a piercer, for boring, or cutting the holes in which the eggs are deposited. On this account, the order is divided into two groups, termed respectively Stingers *(Aculeata)*, and Piercers *(Terebrantia)*.

All the species of *Hymenoptera* go through a complete series of transformations; first, the egg, then the larvæ, or grub, next, the pupa, or cocoon, and finally the winged, or perfect insect. The young of all the Stingers are soft, white, and maggot-like, without legs, and so similar to each other that in this stage the species can seldom be distinguished from each other. Many of the larvæ of the Piercers are of the same character, but others, as for instance, those of the Saw-flies, closely resemble the caterpillars of butterflies, and moths, having a hard, horny head, and jaws, six jointed feet, and often a number of prop-legs besides. Consequently, these latter procure their own food, and are able to move about in search of it; the others, however, are for the most part perfectly helpless, and depend entirely upon the care and attention of their parents, or nurses, quite as much so as the young of the human species.

Another striking peculiarity of the order, is the existence among certain social species of three sexes, as they may be termed; males, females, and neuters. The last constitute the workers in all those communities of bees, hornets, and ants, that unite together in one general habitation, providing a common stock of food, and rearing a large progeny of young. Upon them devolves almost all the labor of the society, the males enjoying a brief, idle life, and the females providing for the necessary increase of the population.

The *Hymenoptera* have their home in the tropical, and temperate regions of the earth, very few, indeed, being found in a climate as cold as that of Labrador. In their perfect state, they love the light and heat of the sun, taking wing only in the day time, and remaining at rest when the sunlight is withdrawn at night, or obscured by heavy clouds. In point of number of species, they are estimated to constitute about one-fourth of the insect population of the world. In their instincts, and mode of life, they far surpass all other orders of insects. To quote Dr. Harris' observations—"If any are curious to learn this, and to witness for themselves the various arts, resources, and contrivances resorted to by these insects, let them go abroad in summer, and watch them during their labors. They will then see the Saw-fly making holes in leaves with her double key-hole saws, and the Horn-tail boring with her auger into the trunks of trees; they will not fail to observe, and admire the untiring scrutiny of the ichneumon-flies, those little busy-bodies, forever on the alert, and prying into every place, to find the lurking caterpillar, grub, or maggot, wherein to thrust their eggs; the curious swellings produced by the gall-flies, and inhabited by their young; the clay-cells of the mud-wasp, plastered against the walls of our houses, each one containing a single egg, together with a large number of living spiders, caught, and imprisoned therein, solely for the use of the little mason's young which thus have constantly before them an ample supply of fresh provisions; the holes of the stump-wasp, stored with hundreds of horse-flies for the same purpose; the skill of the leaf-cutter bee, in cutting out the semi-circular pieces of leaves for her patch-work nest; the thimble-shaped cells of the ground-bee, hidden, in clusters, under some loose stone in the fields, made of little fragments of tempered clay, and stored with bee-bread, the work of many weeks for the industrious laborer; the waxen cells made by the honey-bee, without any teaching, upon purely mathematical principles, measured only with her antennæ, and wrought with her jaws and tongue; the water-tight nest of the hornet and wasp, natural paper-makers from the beginning of time, who are not obliged to use rags or ropes in the formation of their durable paper combs, but have applied to this purpose fibres of wood, a material that the art of man has not been able to manufacture into paper; the herculean labors of ants, in throwing up hillocks, or mining their galleries, compared wherewith, if the small size of the laborers be taken into account, the efforts of man, in his proudest monuments, his pyramids, and his catacombs, dwindle into insignificance. These are only a few of the objects deserving of notice among the insects of this order; many others might be mentioned, that would lead us to observe with what consummate skill these little creatures have been fashioned, and how richly they have been endowed with instincts that never fail them in providing for their own welfare, and that of their future progeny."

The above quotation will afford our readers some idea of the interest attaching to the members of this order of insects. In future numbers we shall endeavor to give a more detailed account of the marvellous doings of these creatures, so far as they may be considered of direct, or indirect benefit to mankind.

Entomology a Disgusting Study.

So said a fashionable young lady, a few days since who, while calling upon Clarissima, inquired what that building was, (pointing to my office) and on being informed that it was my office, containing, among other things, an entomological cabinet; of course she shrugged her beautiful shoulders, and emphasised the word "disgusting" at the same time. Poor thing! As she would scarcely condescend to read the *Rural New Yorker*, through fear of seeing something in it about pigs or poultry, I can say what I please without fear of wounding her feelings. Now I have frequently seen this sensitive young lady tipping stewed and pickled oysters down her swan-like throat without the least show of disgust; but even to handle the beautiful beetles and butterflies, or their larvæ and pupæ, is to her a disgusting practice. Anything that God has deigned to make is not beneath the study of man, is the platform upon which all true students of nature stand.

The wonderful differences in opinion and feeling prevailing in society in regard to such subjects are merely the result of education and association. The country boy or miss may not scream at the sight of every harmless spider, like their city cousins; but just ask them to take some shrimps for the first time, and notice the looks of disgust which appear at the very thought of eating these spider-like decapods. Perhaps I should add that ignorance and superstition are the handmaids of timidity, at least, so far as it touches, or comes in contact with the minute forms of animal life. Who has not heard grand-mothers and nurses tell of the wonderful "death-watch" which announced the approaching dissolution of some near relative or friend. No doubt many persons still believe that—

"The solemn death-watch clicks the hour of death."

For centuries, these little harmless insects have been the terror of children, and solemn warnings to superstitious, ignorant people, while all the time these beetles were only making love to each other, and "tick, tick, tick," was equivalent to "come, my love," among the beeds who trembled with fear at the sound. In an old school-book, which was in use when I went to school, there were many good lessons worth remembering, but none containing better advice than two lines of Shakspeare, which told us to—

"Find tongues in trees, books in the running brooks;
Sermons in stones, and good in every thing."

—D. R. L., *in Rural New Yorker.*