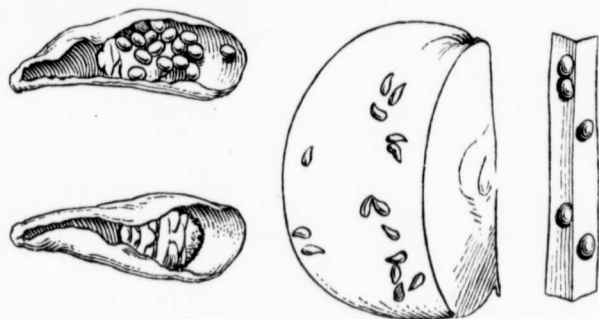




APPLE MUSSEL SCALE. (Much Magnified.)

PALM SCALE.

exact form of the mussel-shell shows that they are true scale-insects. As long ago as the year 1518 a kind of scale was observed upon cactus plants in Mexico (*Coccus cacti*). It was found to contain a red colouring matter which forms the basis of the rich carmine used by water-colour painters, and it also yields the cochineal of commerce, so much employed in dyeing and in various arts.

An Indian scale-insect (*Coccus lacca*) deposits a reddish waxy substance upon the twigs and branches of trees; this substance is called stick-lac, and is largely used in the manufacture of sealing-wax and varnish. So that while we look with disfavour upon the insect plagues of this species which infest our green-houses, we may at least recollect that they possess foreign relations who have a certain claim upon our gratitude.

QUEEN WASPS.

Queen wasps are now beginning to come out of the holes and crevices in which they have been hibernating during the winter.

All the male and worker wasps die in the autumn and only the queens survive until the following spring, when milder air awakens them from their torpid condition, and they begin to seek a suitable place in which to build a nest and found a wasp colony.

We have in England four or five species of wasps, and each may readily be distinguished by the markings on the face and body as shown in the illustration.

The common wasp (*Vespa vulgaris*) prefers to build either in a hollow tree or a hole in a hedge bank.

Having scooped out a sufficiently large cavity the queen lines it with a papery substance made of decayed wood.

I have often watched these insects busily at work upon the stump of an old tree in my garden.

With their strong mandibles they rasp off the dry wood-fibres and moisten them with a glutinous liquid secreted in their mouths until they have a small bundle of a convenient size to carry away.

With this material the wasp makes a ceiling

to her nest, placing about sixteen layers one over the other to make a firm foundation.

From this roof are suspended terraces of cells made of the same grey paper and formed exactly like the honey-comb of bees, only these are made to contain wasp-eggs instead of honey.

An egg is laid in each cell, and the grubs when hatched hang head downwards and are fed from below. This seems a curious arrangement, but the grubs are in some way enabled to hold on by their tails so that they never fall out, and as they grow they line their cells with a kind of silk, change their skins several times, become chrysalides, and then in due time push off the cover of their cell and crawl out perfect wasps. They are pale-coloured and weakly at first, but soon gain strength and colour and begin life on their own account.

As soon as the mother wasp finds that her eggs are beginning to hatch she leaves off building cells, and spends her time in feeding her young brood of grubs, and goes on doing so until they are full grown.

In a little while she finds herself surrounded by crowds of obedient worker wasps, and by their aid she goes on enlarging the nest and laying more and more eggs, until at the end of the season a nest is said to contain as many as thirty thousand wasps.

We have reason to be grateful to these insects, because they feed upon flies and immensely reduce their numbers during the hot summer months.

I have often seen a wasp seize a housefly from the window pane and make off with it; they also pick off the teasing flies from the cattle and thus render them valuable service.

The wood wasp (*Vespa sylvestris*) forms beautiful hanging nests in trees where they look much like grey paper roses.

These nests are made of the same wood fibre masticated into extremely thin layers forming the outer case, within are the brood cells, and at the bottom an opening is left for ingress and egress.

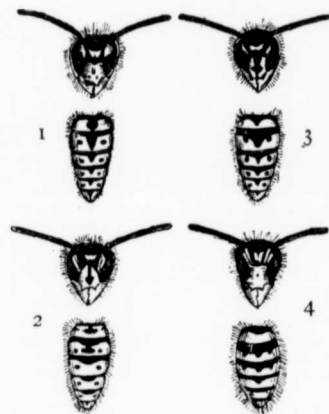
Although so much dreaded by most people, the wasp is really an inoffensive insect, rarely using its sting unless it is provoked and ill-treated.

I cannot say as much for the honey-bee; I have known one to fly straight out of the hive and fix its sting in some innocent passer-by who had done nothing to deserve such treatment.

A bee will also pursue its victim, as I have reason to know, with unrelenting fury.

In the days when I possessed an apiary, if an ill-tempered bee set upon me I found there was but one thing that would baffle my enemy in its pursuit; it was somewhat ignominious, it is true, to have to hide one's head in a bush and remain thus for four or five minutes, but it always proved an effectual defence, the angry hum of the bee died away in the distance and one could at last emerge in safety. This habit of the bee is alluded to in Deuteronomy i. 44. "The Amorites which dwelt in that mountain came out against you and chased you as bees do."

As we think of the life-history of the queen wasp and how, as soon as she wakes from her winter's sleep she sets about forming a nest, laying her eggs, and when the young are hatched feeding and watching over them with



1. *Vespa Germanica*. 3. *Vespa Vulgaris*.
2. *Vespa Rufa*. 4. *Vespa Sylvestris*.

patient mother-love, and all this entirely by herself, guided only by the wonderful instinct with which she has been endowed by the Creator, I think we can but admire the qualities she possesses. And further, when we see the marvellous industry of a colony of wasps, how they also carry out the various useful purposes for which they were created, clearing away dead wood, reducing the hosts of flies and eating many substances that would otherwise tend to pollute the air, we shall, I hope, henceforth look with different eyes upon the persecuted wasp, and instead of showing a foolish dread of its presence, learn to watch its curious ways and recognise that it is faithfully doing, in its humble sphere, the work that has been assigned to it.

VARIETIES.

A HINT TO AUTHORS.—"Brevity," says Sydney Smith, "is in writing what charity is to all other virtues. Righteousness is nothing without the one, nor authorship without the other."

A TEST OF CLEVERNESS.—The clever girl is one who, when you say what you don't mean, always knows what you do mean."

WHO IS A WISE GIRL?—She is by no means to be considered wise who is not wise towards her self.

KNOWLEDGE IS NO BURDEN.—It is said that a girl could easily carry a million pounds if the money was in £1000 notes. It is worth while for every girl to know this so as to be prepared for an emergency.

AN IMPORTANT THING.—Next to knowing when to seize an opportunity the most important thing in life is to know when to forego an advantage.

THINKERS AND TALKERS.—"Those who have few affairs to attend to are great speakers. The less people think, the more they talk."
Montesquieu.