

The great entomologist, Latreille, divided this order into two primary sections to which he applied the names of *Geocoris* or Land Bugs, and *Hydrocorisa* or Water Bugs. Westwood, however, improved on this arrangement by calling the former of these *Aurocorisa*, or Air Bugs, because there were certain species (*Hydrometridæ*) which had to be included in it, but which do not live on land, but pass the greater part of their time on the water, although they never dive below the surface. These species were also included by Latreille in his *Geocorisæ* and called *Ploteres*. Westwood's arrangement of Latreille's system was as follows:—

- (1.) *Hydrocorisa*, or those which reside in water.
- (2.) *Aurocorisa*, or those which breathe the free air.

1. *Hydrocorisa*.—There are many species of water bugs which differ very much in appearance, but they all have the antennæ very short and concealed in cavities beneath the eyes, their legs are modified according to their mode of life: the anterior pair are short and fold close to the body, forming a pair of claw-like organs with which they seize their prey; the other legs, particularly the last pair, are generally elongated and ciliated with stiff bristles which spread out when the limb is driven backward through the water and so act as the blade of an oar; of course when drawn forward they pass through the water easily. The eyes are often of a large size. Nearly all the species in this group are of a dull inconspicuous colour. They have to come to the surface of the water frequently to obtain a supply of atmospheric air, which they carry down to the bottom again in different ways; among the *Notonectidæ* it is carried in a space beneath the closely fitting hemelytra and the upper surface of the abdomen, where it is retained by means of rows of hairs. It is into this cavity that the spiracles or mouths of the breathing tubes open.

2. *Aurocorisa*.—In this section the insects may be generally recognized by the greater length of the antennæ, and by the legs being fitted for running and walking and not for swimming. Good examples of these insects are found in the destructive Squash Bugs and Chinch Bugs, as well as in the useful Spined Soldier Bugs and Rapacious Soldier Bugs. This, too, is the section which boasts the possession of that highly objectionable creature, the bed-bug (*Acanthia lectularia*), but it also includes the *Reduvii*, a family of cannibal insects, one species of which, *R. personatus*, is known in Europe to feed on these, and which family is represented in Canada by some useful species.

The other sub-order of the Hemiptera is called Hemiptera-homoptera (*ὁμός* = like, *πτερά* = wings), or same winged, because both the upper and under pairs of wings are of a similar character; both pairs are membranous, generally transparent and net-veined, the upper larger than the lower. The wings do not lap over each other when the insect is in repose as is the case among the Heteroptera, but are much deflexed at the sides and lie over the back like the roof of a house. The body is generally thick and convex, rather than depressed, and this partly accounts for the deflexed position the wings take when not in use. With few exceptions the antennæ are very short and bristle like. The face is either vertical or slopes obliquely under the body, so that the beak, which is composed of three joints, two short ones and one very long one, is set rather far back and issues from the under surface of the head close to the breast. In nearly all it is long and slender, as they all feed entirely on vegetable juices.

Within the limits of this sub-order are included some very grotesque and curious forms, and some which at first sight are apparently very dissimilar; but which, on a careful examination can easily be recognised as belonging to the same group. There are the Musical Cicadæ, the well-known Lantern-flies, the active, strangely-formed little Tree-hoppers and Leaf-hoppers, the Cuckoo-spit insects or Frog-hoppers, the lively Psyllidæ, the destructive Aphides or Plant-lice, with their remarkable transformations, and the extraordinary Coccidæ, or scale insects, which bear a closer resemblance to vegetable excrescences than to living animals.

None of the species have more than three joints of the feet, and Mr. Westwood considered this such an important character that he based his system upon it, dividing them into three sections:—

1. Trimera. Tarsi three jointed; antennæ minute, setigerous; wings areolate.
2. Dimera. Tarsi two jointed; antennæ, filiform, 5 to 10 jointed; wings sub-areolate.
3. Monomera. Tarsi one jointed; antennæ, 6 to 25 jointed; wings not areolate.