

The whirligigs (*Gyrinidae*) must be familiar to every one. They are those little black beetles that one sees so often in groups on the surface of water, whirling and circling about in every direction with great rapidity. "When thus occupied their motions are so exceedingly quick that the eye is perplexed in following them, and dazzled by the brilliancy of their wing-cases, which glitter like bits of polished silver or burnished pearl. On approaching them they instantly take alarm and dive beneath the surface, carrying with them a little bubble of air, which glitters like a drop of quicksilver, and is attached to the posterior portion of their bodies. Sometimes they may be taken flying, their large wings enabling them to change their abode without difficulty, when the drying up of their native pool compels them to migrate. This enables us to account for the occasional discovery of these insects in small puddles of newly-fallen rain-water. The structure of the short hind legs, and especially of the curious branched tarsi, must be examined in endeavouring to account for the singular motions of these insects; the assembling together of which has been regarded by some writers as resulting purely from a strong social influence, and by others as indicating no closer bond than that of animals congregating round their common food. That the food of the *Gyrinidae* consists of small dead floating insects, I have ascertained; but I would further suggest that, being produced on the same spot, as is the case with the swarms of midges, they are influenced in some degree by the common desire of continuing their species. I have often observed that, in their gyrations, they hit against one another. In dull and inclement weather they betake themselves to quiet places, under bridges, or beneath the roots of trees growing at the water's edge. When touched they emit a disagreeable odour, arising from a milky fluid, which is discharged from the pores of different parts of the body. The remarkable structure of the eyes, which, unlike those of most insects, consist of two distinct pairs, one on the upper and the other on the lower surface of the head, must be greatly serviceable to the insect in the peculiar situation in which it is generally observed, and whereby it is enabled to see objects beneath it in the water, and above it in the air." (Westwood). They are all of a broad, oval form, generally of polished black colour, with broad oar-like hind tarsi, and long slender fore-feet, used in seizing their prey. They vary in size from about one-fifth to half an inch in length.

Besides the Diving-beetles and the Whirligigs, there is yet another great family of aquatic beetles, which belong to a different sub-tribe of this order of insects; its members are termed "Water Lovers," (*Hydrophilidae*) from their habits.

The members of this family live either in the water, or on the damp margins and shores of streams and ponds; they are carnivorous in the larval state, but as beetles they feed upon refuse and decaying vegetable matter, thus uniting the qualities of the two families already noticed, and those of the scavenger beetles, which we purpose bringing before the reader by and by. A considerable number of these "Water Lovers" are found in Canada; some of the species attain a very large size, while others are quite minute, and not to be discerned without close observation. As these creatures are not of any very general interest, we may dismiss them from our notice and pass on to the more conspicuous and note-worthy Carrion Beetles.

#### 4. BURYING AND CARRION BEETLES. (*Silphidae*).

These curious and interesting creatures belong to the family *Silphidae*; they are distinguished by the flattened form of their bodies, their knobbed antennæ, their habits, and the black nauseous fluid they discharge when handled. Their grand duty is to remove from the surface of the earth all dead or putrefying animal matter, which would otherwise become noxious and offensive. They are usually found in or close to carrion of all sorts, though sometimes they devour putrid fungus; occasionally we have taken them on the wing, and have even found them attracted by light into our rooms in summer. The *Silphidae* are divided into several genera, the chief of which are *Necrophorus*, including the Sexton or Burying Beetles, and *Silpha*, the Carrion Beetles; both of these genera are well represented in Canada.

The Sexton Beetles (*Necrophorus*), in spite of their loathsome occupation, are decidedly handsome insects. Their usual colour is deep shining black, variegated with rich orange-red spots; beneath they are frequently ornamented with yellowish silken hair like that of a Humble-bee; their antennæ are very remarkable, consisting of a jointed stem terminated by a rose-coloured or orange knob composed of four little cups or plates piled