

## Family PERLIDAE

This family includes most of the more brightly or strikingly colored nymphs. They are all carnivorous. Head as wide or slightly wider than pronotum; either two or three ocelli; epicranial suture distinct; clypeo-frontal suture absent; antennae long and slender. Pronotum much wider than long, variously marked. Meso- and metanotum with the wing pads either only slightly produced and indistinctly set off from the body, or the wing pads may be produced into long, distinct appendages. Gills either present or absent. When present they may be small and finger-like (Perloides), and attached to the submentum or thorax, or the gills may be present as tufted branches on the thorax, and in some cases tufted gills are also found attached to the subanal lobes between the cerci. The cerci are long and slender and made up of many segments. The mouth parts are of the carnivorous type and therefore differ in structure from the mouth parts of the other families.

The labrum is very short and wide and bears a distinct epipharynx which is very flexible and may be extended or retracted.

The mandibles are quite narrow, and beyond the teeth there is a fringe of hairs, but no molar. The maxillae also differ in structure from the maxillae of other families. The lacinia terminates in a long sharp incurved tooth, and in most cases possesses a second long tooth. The galea is much reduced.

The most striking feature of the labium is the unequal size of the glossae and the paraglossae. The glossae are reduced to small lobes, while the paraglossae are developed into very large lobes. The hypopharynx is normally produced to or beyond the tips of the glossae.

The genera belonging to this family are such a varied lot that very little can be said about the general biology which will apply to the entire group. The majority of the genera are found in rather swift running water.

### Genus PERLOIDES Banks

Stoneflies of this genus are restricted to the Rocky Mountain region and the Western States. The nymphs are recognized by the presence of a pair of small, single, finger-like, tracheal gills which are attached to the outer, lower base of the submentum of the labium. In addition to this pair of gills, some species of the genus have the same type of gills on the conjunctivae on the ventral