

connection with their arrangement and relative size, together with the extent and form of the dilatation of the tarsi, furnishes excellent characters for the separation of groups, and will be referred to again later.

The larvæ are aquatic and carnivorous, in form elongate, cylindrical or fusiform, the head large and flat, the antennæ frontal, the mandibles falcate, suctional. The legs are terminated by two claws, and the abdomen lacks the tracheal branchiæ seen in the *Gyrinidæ*. They remain in the water until full growth is attained, when they repair to some convenient place under a board, stone or tuft of vegetation, where probably by the squirming motions of the body a cell is made in which the change to pupa takes place; the length of time spent in this latter stage must vary greatly in different broods and with the various species, but it was found to be ten or eleven days in the case of *Dytiscus verticalis*, of which a larva, taken at Bayfield, Wis., pupated on July 18th, the beetles appearing on the 28th.

The *Dytiscidæ* do not offer that diversity of form, colour and sculpture presented by many of the families of terrestrial beetles, hence the selection of easily seen, though superficial, points on which groups might be set apart has not been found practicable, and it has been considered wise to use in the main the structural differences proved useful by such workers as Drs. Sharp and Lacoste in the primary divisions. Though the discrimination of the genera and species will sometimes be difficult for the beginner, it is hoped that at least in most cases a correct identification will be the reward of careful work with sufficient material. The two great divisions of the family, as defined by Dr. Sharp, are these:—

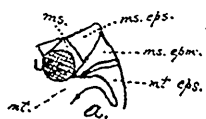


FIG. 6.

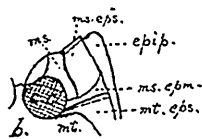


FIG. 7.

1. Metathoracic episternum not reaching the middle coxal cavity (fig. 6a) *Dytisci fragmentati*.
2. Metathoracic episternum reaching the middle coxal cavity (fig. 7b). *Dytisci complicati*.

Of the accompanying cuts, fig. 6 a represents a diagram of a portion of the under surface of *Laccophilus*, which belongs to the *fragmentati*, α being the middle coxal cavity. It will be seen that the mesosternal epimeron (*ms. epm.*) articulates at its inner end with the metasternum (*mt.*), and thus cuts off the metasternal episternum (*mt. eps.*) from the coxal cavity. In fig. 7 b, however, which is a diagram of similar parts of *Colymbites* of the *complicati*, the mesosternal