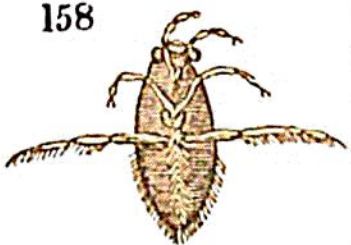


to the succeeding stroke; thus imitating the action which is called feathering an oar. The impulses are given with great regularity, all the feet striking the water at the same moment.

Of all the coleopterous insects, the *Dytiscus*, or water-beetle (of which Fig. 156 represents the upper, and Fig. 157 the under side,) is the one best constructed for swimming: its body having a flattened form, very much resembling a boat, narrower before than behind, and its surface presenting no projecting parts. The upper surface in particular is extremely smooth, to enable it to glide under the water with the least possible friction. Its centre of gravity is placed very near the under surface. The posterior legs, which act as powerful oars, are attached to very large haunches, for the purpose of containing the thick muscular bands which are inserted into the trochanter, and by which these joints are moved with great power. As the motion of these oars is to be performed in a plane nearly parallel to the axis of the body, the haunches are not required to be moveable; and accordingly they are firmly united to the thorax; a structure which renders the motion of the other joints more regular and uniform. When the *Dytiscus* wishes to rise, it need only desist from all action, and abandon itself to the buoyant force of the fluid, which quickly carries it to the surface.

The *Notonecla*, or water-boatman (Fig. 158,) is remarkable for always swimming on its back, a peculiarity depend-



ing on the form of its body, which is semi-cylindrical, with the legs affixed to the flat surface; so that, when lying on its back in the fluid, the centre of gravity is below the centre of the whole figure, or the *metacentre*, as it is termed, and

the equilibrium is maintained. It is evident that, under these circumstances, if it were placed in the water with its legs undermost, it would unavoidably tilt over, and resume its usual position. Its long legs extending at right angles to the body, present a striking resemblance to the oars of a boat;