§ 7. *Aquatic Insects.*

Although many insects are inhabitants of water while in their larva state, few continue to reside in that element after they have undergone all their metamorphoses. When they have attained the imago state, indeed, every part of their bodies becomes permeated by air, which forms altogether a large portion of their bulk, and gives to the insect, when it is immersed in water, a strong buoyant force. As the largest volume of air is contained in the abdomen, this part is comparatively lighter than either the trunk or head; and the natural position of the insect in the fluid is oblique to the horizon, the head being depressed, and the abdomen elevated. Any force impelling the body forwards in the direction of its axis tends, therefore, to make it also descend. The effect of this downward force is counteracted by the sustaining pressure of the water, which is directed vertically upwards: so that the real operation of the force in question is to carry the body forwards nearly in a horizontal direction.

In insects destined to move in water, sometimes all the legs, but occasionally only one pair, are lengthened and expanded into broad triangular surfaces, capable of acting as

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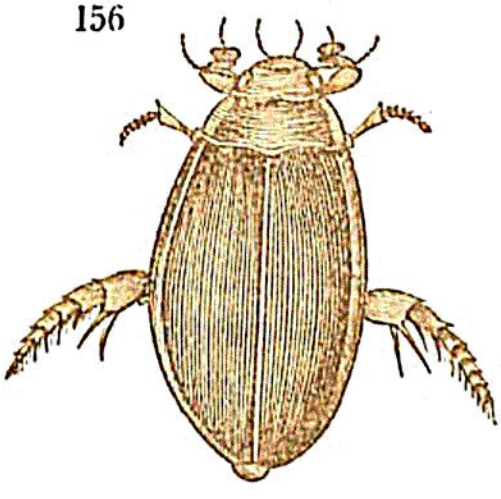

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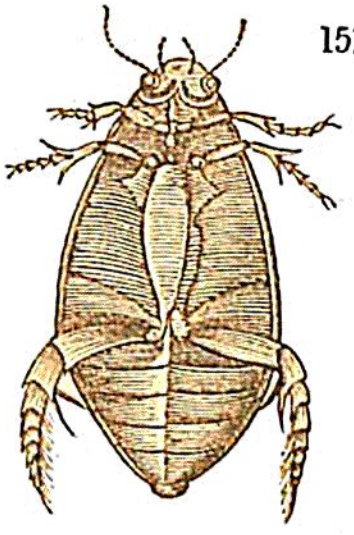

oars: and these surfaces are farther extended by the addition of marginal fringes of hair, so disposed as to project and act upon the water every time the impulse is given, but to bend down when the leg is again drawn up, preparatory