perish when placed in the receiver of an air-pump, and the air exhausted; but they are generally more tenacious of life under these circumstances than the larger animals, and often, after being apparently dead, revive on the readmission of air.

Aquatic insects have tracheæ, like those living in air, and are frequently provided with tubes, which are of sufficient length to reach the surface of the water, where they absorb air for respiration. In a few tribes a complicated mode of respiration is practised; aerated water is taken into the body, and introduced into cavities, where the air is extracted from it, and transmitted by the ordinary tracheæ to the different parts of the system.*

Such, then, is the extensive apparatus for aeration in animals, which have either no circulation of their nutritious juices, or a very imperfect one; but no sooner do we arrive at'the examination of animals possessing an enlarged system of blood vessels, than we find nature abandoning the system of tracheæ, and employing more simple means of effecting the aeration of the blood. Advantage is taken of the facility afforded by the blood vessels of transmitting the blood to particular organs, where it may conveniently receive the influence of the air. Thus, Scorpions are provided, on each side of the thorax, with four pulmonary cavities, seen at L, on the left side of Fig. 374, into each of which air is admitted by a separate external opening. A, B, is the dorsal vessel, which is connected with the pulmonary cavities by means of two sets of muscles, the one set (M, M) being longer than the other (m, m, m.) The branchial arteries (v) are seen ramifying over the inner surface of the

* Mr. Dutrochet conceives that the principle on which this operation is conducted is the same with that by which gases are reciprocally transmitted through moistened membranes; as in the experiments of Humboldt and Gay Lussac, who, on enclosing mixtures of oxygen, nitrogen, and carbonic acid gases, in any proportion, in a membranous bladder, which was then immersed in aerated water, found that there is a reciprocal transit of the gases; until at length pure atmospheric air remains in the cavity of the bladder.

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