

by the lymphatics. None of the invertebrata, indeed, possess lymphatics, and absorption must consequently be performed by the veins, when these latter vessels exist. The addition of the system of lymphatic vessels, as auxiliaries to the veins, may therefore be regarded as a refinement in organization, peculiar to the higher classes of animals.*

Professor Muller, of Bonn, has lately discovered that the frog, and several other amphibious animals, are provided with large receptacles for the lymph, situated immediately under the skin, and exhibiting distinct and regular pulsations, like the heart. The use of these *lymphatic hearts*, as they may be called, is evidently to propel the lymph in its proper course along the lymphatic vessels. In the frog four of these organs have been found; the two posterior hearts being situated behind the joint of the hip, and the two anterior ones on each side of the transverse process of the third vertebra, and under the posterior extremity of the scapula. The pulsations of these lymphatic hearts do not correspond with those of the sanguiferous heart; nor do those of the right and left sides take place at the same times, but they often alternate in an irregular manner. Professor Muller has discovered similar organs in the toad, the salamander, and the green lizard, and thinks it probable that they exist in all the amphibia.†

in Fig. 378. They correspond in structure, and probably also in their functions, to the mesenteric glands, through which, in the mammalia, the lacteals pass, before reaching the thoracic duct. It is chiefly in the mammalia, indeed, that these glands are met with; for they are rare among birds, and still more so among fishes and reptiles.

* Fohmann, who has made extensive researches on the absorbent vessels throughout all the classes of vertebrated animals, has found that they terminate extensively in the veins. See his work, entitled "*Anatomische Untersuchungen über die Verbindung der Saugadern mit den Venen.*"

† Phil. Trans. for 1833, p. 89.