

The distinction into small and great intestine is more or less marked, in different insects, in proportion to the quantities of food consumed, and to its vegetable nature; and in herbivorous tribes, more especially, the dilatations in the lower part of the canal are most conspicuous, as well as the duplicatures of the inner membrane, which constitute imperfect valves for retarding the progress of the aliment. It is generally at the point where this dilatation of the canal commences, that a second set of hepatic vessels is inserted, having a structure essentially the same as those of the first set, but generally more slender, and uniting into a small number of ducts before they terminate. The number and complication of both these sets of hepatic vessels, appear to have some relation to the existence and development of the gizzard, and consequently, also, to the nature and bulk of the food. Vessels of this description are, indeed, constantly found in insects; but it is only where a gizzard exists, that two sets of these secreting organs are provided; and in some larvæ, remarkable for their excessive voracity, even three orders of hepatic vessels are met with.*

A muscular power has also been provided, not only for the strong actions exerted by the gizzard, but, also, for the necessary propulsion, in different directions, of the contents both of the stomach and intestinal tubes. The muscular fibres of the latter are distinctly seen to consist of two sets, the one passing in a transverse or circular, and the other in a longitudinal direction. Glandular structures, analogous to the mucous follicles of the higher animals, are also plainly distinguishable in the internal coat of the canal, more especially of herbivorous insects.† The whole tract of the alimentary canal is attached to the sides of the containing cavity by a fine membrane, or *peritoneum* containing numerous air-vessels, or *tracheæ*.‡

* See the memoirs of Marcel de Serres, in the *Annales du Muséum*, xx. 48.

† Lyonet.

‡ It has been stated by Malpighi and by Swammerdam, and the statement