

to the exterior surface of the plates a slightly convex aspect. The compound plates are built up in the following manner :—from the upper surface of a more or less regularly perforated simple plate, that is to say, from the innermost layer of the compound plates, which thus seems to be developed first, a number of minute processes rise, from the tops of which branches run out which join with one another and constitute an irregular network, which in its turn gives rise to another net-work which lies above it, &c. *Oneirophanta* furnishes most evident examples that the development takes place as above described, because the plates, though they are simple, carry on their upper surface one or several small processes (Pl. XXXI. fig. 1), which in most cases remain unbranched, but which sometimes give off small branches from their tops, which unite and form a rudimentary network on the upper surface of the plate.

Both plates and wheels take their origin from the same typical form, viz., a small spicule provided with four short arms (Pl. XXXII. fig. 3), and more than once I have had occasion to state the correctness of this view. In its first stage of development the plate always presents the appearance of a spicule, the four arms of which increase in size and give off branches, which, connected with each other, form the larger holes which are always situated in the centre of the plate; round the edge of this primary plate new holes arise successively by means of the development of new processes which become connected with one another. Though it may seem very strange, the wheels in the *Elasipoda* are developed in the same manner. As has been already noted the wheels in this order are remarkable for having a small central crown made up of four, rarely five or six, short arched arms; this crown, which ought to be regarded as a four- to six-armed spicule (Pl. XXXII. fig. 3), becomes first visible, and its more or less curved arms, being linked together by their ends so as to form four to six holes, give rise to an irregular ring (Pl. XXXII. fig. 2), which is the first indication of any nave. This nave increases in size and gives off round the edge small, conical processes (Pl. XXXII. fig. 4), which growing larger become spokes which in their turn send out branches towards each side; these branches joined together with one another form the felly. The wheels in *Myriotrochus*, *Steenstrup*, *Trochoderma*, *Théel*, *Chirodota*, *Eschsch.*, &c., which lack the crown as well as the large hole in the centre of the nave, are developed in a slightly different manner. In these forms the wheels do not take their origin from a spicule but from a calcareous star, which gives off as many small processes or rays as there are spokes; the further development takes place as above described.

When the calcareous bodies are examined with a high magnifying power and treated with a dilute acid and some colouring matter, it will easily be seen that they are surrounded by a thin membrane which sometimes seems to communicate with fine threads, which either belong to the surrounding connective tissue or are nerve fibres. A central canal is often discernible within the calcareous deposits. In the hope of obtaining a favourable specimen for showing how the calcareous deposits are developed,