

particularly that in the processes, attains a high degree of development (Pl. XXXVII. fig. 8). In the pedicels of the above-mentioned species I have found that the connective tissue consists of three easily distinguishable layers,—an outer which contains the large calcareous plates, an intermediate of a loose and fibrous texture in which small spicules of various shapes are present, and an inner layer which forms a dense, thick, hyaline and elastic tunic immediately beneath which the muscular coat of longitudinal fibres is situated. The tunic in question, which is distinguished by having numerous transverse closely-placed wrinkles of about equal size, seems to be very intimately united with the longitudinal muscular layer, because when isolating them from one another the tunic bears evident impressions of the muscular fibres. I did not ascertain that the processes or the tentacles of this animal possessed such an elastic tunic, which however should be present; it was probably very thin, and thus escaped my attention. In the dorsal processes of *Lætmogone wyville-thomsoni* I have likewise observed a corresponding membrane or tunic.

The principal forms in which the calcareous deposits are presented in the Elaspoda are, strictly speaking, only three—spicules, wheels, and plates. The body-wall is usually supple and pliable because its calcareous skeleton is composed of spicules or wheels which are more or less dispersed in the substance of the corium; in *Elpidia glacialis*, *Elpidia verrucosa*, *Scotoplanes murrayi*, *Peniagone vitrea*, *Scotoanassa diaphana*, &c., these spicules lie so closely crowded and overlapping one another that the perisoma becomes exceedingly brittle, while at the same time the animal loses the power of changing the shape of its body in proportion to the degree of hardness of the integument. In a very few cases, *Deima* and *Oneirophanta*, the integument is strengthened by a great number of perforated, larger and smaller, conspicuously overlapping plates (comp. Pl. XXXI.), which constitute an almost continuous and immovable shell.

Different kinds of calcareous bodies are often found in one and the same animal; thus *Lætmogone wyville-thomsoni* is provided with wheels and simple spicules (Pl. XXXI. figs. 14–16), *Lætmogone violacea* with wheels and cruciform bodies (Pl. XXXVI. figs. 20–24), and *Ilyodæmon maculatus* is most particularly characteristic in having, besides wheels, dichotomously branched, flat and discoidal bodies, which are partly scattered, partly crowded in great numbers (Pl. XXXVI. figs. 12–19).

The spicules appear variously shaped, but are, nevertheless, derived from two principal forms—simple and branched (Pls. XXXII.–XXXV.). Among the former there is to be noted, firstly, the C-curved type, which has hitherto been regarded as characterising the genus *Stichopus*, Brandt, but is now known to be present in all the representatives of the genus *Scotoplanes*, and in some of the genus *Peniagone*; secondly, the simple, straight, or inconsiderably curved, spinose rods, which are found in several species, as, for instance, in *Scotoplanes albida*, *Scotoplanes globosa*, &c.; and lastly, the minute more or less highly arcuated and spinose spicules, conspicuously thickened in the middle,