

The shell consists of eight valves, of which the anterior and posterior invariably differ from the six intermediate valves; the anterior portion of the last valve resembling the central areas of the intermediate valves, while its posterior portion resembles the anterior valve; this valve is thus naturally divided into an anterior area and a posterior area. The intermediate valves are similarly divisible into two areas, the central area and the lateral area. The former extends along the whole length of the ridge of the valve down to the lateral border. The surface markings of the median dorsal line or jugum usually differ somewhat from those of the lateral aspects of the central area, and for these areas I propose and have adopted the term *pleura* (from *πλευρόν, τό*, in plural, the ribs, side). Each central area thus consists of a median jugum and a pair of *pleura*. The coloration of the area is occasionally different in the two regions. The apex or umbo is the posterior termination of the jugum, and rising more or less close to it, the lateral areas of the intermediate valve diverge obliquely forwards. The surface marking of the lateral areas of these valves usually closely resembles that of the anterior valve, and the posterior area of the posterior valve.

In this report I have adhered to the principle of describing the direction of the various kinds of ornamentation in terms which bear relation to the animal as a whole. Thus, longitudinal and transverse apply to the length and breadth of the animal, and the length of an intermediate valve is its antero-posterior axis. Radiating markings are naturally those which diverge from the umbo to the periphery.

The exposed or upper surface of the shell is the tegmentum, which differs markedly in its appearance and structure from the under surface. Although intimately connected together, it is convenient to regard the shell as composed of two concentric and quite distinct portions, the upper or tegmentum forming a cap which leaves the edges of the lower or articulamentum more or less exposed. The tegmentum is raised above the articulamentum, and at its periphery it usually more or less projects over the articulamentum, forming the eaves or subgrundæ. There is great diversity in the relative development of these two layers of the shell, the articulamentum being most rudimentary in the Leptoidea and having its maximum development in the Chitonelloidea.

The articulamentum is in the intermediate and posterior valves produced anteriorly into a pair of broad thin plates, the sutural laminæ, the bay between them being the jugal sinus (*sinus jugalis*). The lateral border of the articulamentum of the intermediate valves is indented by a distinct notch, the lateral slit which demarcates the anterior from the lateral insertion plates or side laminæ of insertion. These are absent only in the Leptoidea and Chitonelloidea. Except in the Leptoidea, the articulamentum of the anterior valve always more or less projects, and is slit or notched, forming a variable number of teeth; the same occurs for the posterior border of the last valve except in the Leptoidea, Schizoidea, Placiphoroidea, and Chitonelloidea.

There is, as a rule, a considerable range of variation in the relative development of the