tropical spines, so that around each principal spine the four neighbouring tropical spines (two of the northern and two of the southern hemisphere) had grown together by their edges and formed the peculiar conical sheath. I can now say that this opinion (afterwards adopted also by Hertwig) was quite erroneous, the two conical or funnel-shaped sheaths being the enlarged basal sheaths of the two hydrotomical spines, which we have already seen in the Hexalaspida (Pl. 139). But whilst in these latter all six principal spines of the hydrotomical meridian plane are hypertrophied (two equatorial and four polar spines), in the nearly allied Diploconida only the two opposite equatorial spines are developed, whilst all other eighteen spines are more or less atrophied or quite rudimentary. In *Diploconus* the latter are more or less evident, whilst in *Diplocolpus* they disappear externally.

The true lattice-shell of the Acanthophracta (constantly composed of the meeting apophyses of twenty radial spines) is therefore represented in the Diploconida by the small roundish middle part of the whole shell, which is usually much smaller than the two opposite cones, and separated from them by the two slight transverse strictures. Usually this small but most important middle part of the shell is very dark and opaque, on account of its very thick wall and small pores; but in some species it is clear enough to ascertain that the structure of this lattice-shell is the same as in the lenticular Hexalaspida, there being a network of thick crests on the outer surface and small pores in the dimples between them. Indeed, in many (and probably in all) Diploconida the forty aspinal pores are present which we found in all Hexalaspida, Belonaspida, and Diporaspida, so that these four families of Acanthophracta represent one continuous phylogenetical series; *Phractaspis* among the Diporaspida is at the beginning, and *Diplocolpus* among the Diploconida at the end of this remarkably transformed morphological series.

The twenty radial spines in all Diploconida are probably united very firmly (or even perfectly grown together) in the centre of the small thick-walled lattice-shell, the inner space of which is extremely reduced. Probably, too, the sutures between the meeting apophyses of the thick radial spines are often (or even constantly) obliterated by concrescence, so that the whole shell forms a single piece of acanthin. But I regret that I cannot ascertain these and other points in the structure of the shell, as the small number of specimens observed did not permit an anatomical examination to be made. I have no doubt, however, that the structure of the whole of the middle main part of the shell is quite the same as in the lenticular shell of the thick-walled Hexalaspida, and that in both families each of the twenty radial spines bears originally only two opposite apophyses.

The characteristic mantle of the double cone of the Diploconida, or the basal sheath of their two large, perfectly developed principal spines, is usually much larger than the shell itself, and more or less compressed from both poles of the shortened geotomical axis. Therefore the transverse section of the two cones is usually elliptical, more