comparison of many hundred specimens of them, and of their dimensions, has convinced me that this was an error, and that the small spherical or elliptical medullary shell of *Tetrapyle* and the other Diplozonaria possesses already the same complex structure, composed of a system of three girdles, as *Trizonium* and *Larnacilla*. Whilst in the Haplozonaria probably the simple central chamber only represents the medullary shell (enclosed in the central capsule), and the first system of girdles (complete in *Trizonium*) the external cortical shell, with the progessive growth this latter becomes enclosed in the central capsule and so constitutes the "trizonal medullary shell" of the Diplozonaria and Triplozonaria.

A very difficult matter is the mode of connection between the cortical and medullary shell. In most of the Pylonida it seems that the first or transverse girdle (in each system) is produced by the formation of two lateral wings or chambers (one on each side of the medullary shell), so that each wing (or half girdle) represents a short and wide, nearly cylindrical tube, the axis of which (with free openings on both poles) is parallel to the principal axis of the medullary shell. In this case (probably the ordinary one) both principal faces of the medullary shell itself (dorsal and ventral face) constitute the middle part of the first girdle, whilst its lateral parts are formed by the wings (comparable to the lateral chambers of *Amphitholus*).

In the second case (probably a much rarer one) there is a free ring-shaped space between the medullary shell and the first (transverse) girdle, and both are connected by a small number of very short and small radial beams (R. Hertwig, *loc. cit.*, p. 52, line 19 to 21 from above). This mode of connection would be the same as is common between the concentric shells of the Sphæroidea and Prunoidea. The distinction between these two different modes of connection is often very difficult.

The second or lateral girdle is commonly not in direct connection with the medullary shell, or only by some scattered radial beams (mainly in the principal axis). This lateral girdle arises by prolongation of both wings of the transverse girdle in the lateral plane, so that from both sides (right and left) they become united on the poles of the principal axis. The minor axis of the elliptical lateral ring (thus formed) is therefore the major axis of the foregoing (transverse) elliptical ring; the major axes of both are perpendicular one to another. The major axis of the lateral ring is the principal (or longitudinal) axis of the whole body.

The third or sagittal girdle becomes developed from the second almost in the same manner as the second from the first. On both poles of the principal axis two latticed wings arise from the lateral girdle, growing further in the direction of an elliptical ring, which represents the perimeter of the sagittal plane or median plane. These wings are already mentioned by J. Müller as "prominent roofs, protecting the gates of the *Tetrapyle*-shell." If these roofs grow towards the equatorial plane of the shell and become united in pairs on the poles of the sagittal axis, the third girdle becomes