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Multiple embryos, multiple nepionts and multiple equatorial layers in *Cycloclypeus carpenteri*.

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In this study, 17 specimens of *Cycloclypeus carpenteri* have been analyzed by means of microCT scanning. We used CT scanning technique as it enables the visualization and the quantifications of internal structures of hollow specimens without their destruction. It has been observed that many specimens possessing the natural morphology of this taxon, actually contain multiple embryos (up to 16 in one single specimen) and, in some few cases, multiple nepionts each with its own heterosteginid chambers (up to three separated nepionts). The diameter of each proloculus has been measured, and as a result, they are very variable even within the same specimen, therefore questioning the long known theory that schizonts have smaller proloculi than gamonts and also questioning the fact that proloculi in the same species should all have comparable size. Furthermore, we have observed the presence of additional equatorial planes on several specimens. Such additional planes are always connected to what seems to be the main equatorial plane. Such connections are T-shaped and are located at the junction between two equatorial layers; these junctions are made by a chamberlet, which possesses an unusually higher number of apertures. The connections between equatorial planes are always perfectly synchronized with the relative growth step and the same chamber can be therefore followed along the multiple equatorial planes. Apparently there is a perfect geometric relationship between the creation of additional equatorial planes and the position of the nepionts. Whenever the nepionts are positioned on different planes, additional planes are created and the angle of the nepionts is related to the banding angle of the equatorial planes. The presence of additional planes do not hamper the life of the cell, on the contrary, it seems that the cell is still able to build nicely shaped chamberlets and, after volumetric calculations, it seems all specimens managed to keep their logistic growth function.