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AXIAL INCREASE IN SOME EARLY TABULATE CORALS

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Various modes of increase, known from both cnidarians and poriferans, are recognized in some early tabulate corals. Among the tabulates occurring in the Late Ordovician of southern Manitoba, Canada, are *Saffordophyllum newcombae*, *Trabeculites maculatus*, *Manipora amicarum, Manipora* sp. A, and *Catenipora* spp. A, B, C and D. Lateral increase, considered to be typical of corals, appears to be a normal mode of increase in all these species. In addition, axial increase is also apparent. This mode of increase is generally considered to be characteristic of coralline sponges, but also occurs rarely in rugose corals. Four types of axial increase are recognized in these tabulate species. In the first type of axial increase, the dividing wall originates in the axial area of a normal corallite and subsequently lengthens in both directions to join the corallite wall. The parent usually divides into two, but rarely three or even four offsets separated by walls that usually divide the parent corallite radially. This form of increase occurs in all species except those of *Catenipora.* The second type of axial increase is similar to the first, but takes place in association with rejuvenation of a damaged corallite following sediment influx. The original corallite is replaced by two, or rarely three or even four corallites. This type of increase appears to be very common and is observed in all species. It often coincides with dense cyclomorphic bands in *Saffordophyllum newcombae* and all *Catenipora* species, but usually occurs in the less-dense bands in *Trabeculites maculatus*, *Manipora amicarum* and *Manipora* sp. A. The third type of axial increase involves the division of a relatively large but otherwise normal corallite into two offsets that are similar in size. The dividing wall originates from a septum on one side of the parent corallite, and lengthens to join a septum on the opposite side. This form of increase is rare, but is recognized in all species except *Catenipora* spp. A, C and D. A fourth type of axial increase is rare. It occurs in response to deposition of a foreign skeletal grain (e.g., crinoid ossicle) on the growth surface of a corallum. The corallite beneath the grain divides and grows around the object, eventually incorporating it into the corallum. This form of increase is observed in *Saffordophyllum newcombae* and *Manipora amicarum.* The various types of axial increase that are characteristic features of these early tabulate corals have not been reported from other tabulates. Certain other growth features recognized in these corals are also very different from those of typical tabulates. The similarities in modes of increase and other paleobiologic attributes in these species suggest a close phylogenetic relationship among them, despite the differences in wall microstructure and mural pores.