

fourth stage, though this is not uncommon in Silurian and Devonian fossils. I have further to remark that the reason why wood and the cells of corals so readily become silicified is that the organic matter which they contain, becoming oxidized in decay, produces carbon dioxide, which, by its affinity for alkalis, can decompose soluble silicates and thus throw down their silica in an insoluble state. Thus a fragment of decaying wood imbedded in a deposit holding water and alkaline silicates almost necessarily becomes silicified. It is also to be remarked that the ordinary specimens of Eozoon have actually not attained to the extreme degree of mineralization seen in some much more recent silicified woods and corals, inasmuch

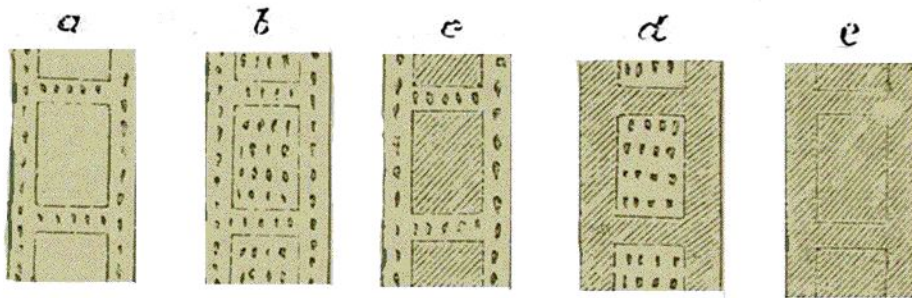


FIG. 13.—Diagram showing different States of Fossilization of a cell of a Tubulate Coral. (a) Natural condition—walls calcite, cell empty. (b) Walls calcite, cell filled with the same. (c) Walls calcite, cell filled with silica or silicate. (d) Walls silicified, cell filled with calcite. (e) Walls silicified, cell filled with silica or silicate.

as the portion believed to have been the original calcareous test has not usually been silicified, but still remains in the state of calcium carbonate.

With regard, then, to the calcareous organisms with which we have now more especially to do, when these are embedded in pure limestone and filled with the same, so that the whole rock, fossils and cavities, is one in composition, and when metamorphic action has caused the whole to become crystalline, and has perhaps removed the remains of carbonaceous matter, it may be very difficult to detect any traces of structure. But