

I have seen even the minute cells of woody structures, each with several bands of differently coloured materials deposited in succession, like the coats of an onyx agate.

A further stage of mineralisation occurs when the substance of the organism is altogether removed and replaced by foreign matter, either little by little, or by being entirely dissolved or decomposed, leaving a cavity to be filled by infiltration. In this state are some silicified woods, and those corals which have been not filled with but replaced by silica, and can thus sometimes be obtained entire and perfect by the solution in an acid of the containing limestone, or by its removal in weathering. In this state are the beautiful silicified corals obtained from the coriferous limestone of Lake Erie, which are so perfectly replaced by flinty matter that when weathered out of the limestone, or treated with acid till the latter is removed, we find the coral as perfect as when recent. It may be well to present to the eye these different stages of fossilization. I have attempted to do this in Fig. 13, taking a tabulate coral of the genus *Favosites* for an example, and supposing the material employed to be calcite and silica. Precisely the same illustration would apply to a piece of wood, except that the cell wall would be carbonaceous matter instead of carbonate of lime. In this figure the dotted parts represent carbonate of lime, the diagonally shaded parts silica or a silicate. Thus we have in the natural state the walls of carbonate of lime and the cavities empty (*a*). When fossilized the cavities may be merely filled with carbonate of lime, or they may be filled with silica (*b*, *c*); or the walls themselves may be replaced by silica, and the cavities may remain filled with carbonate of lime (*d*); or both the walls and cavities may be represented by or filled with silica or silicates (*e*). The ordinary specimens of Eozoon are supposed to be in the third of these stages, though some exist in the second, and I have reason to believe that some have reached to the fifth. I have not met with any in the