

matter. In evidence of this we sometimes find in a single canal an outer tubular layer of serpentine and an inner filling of dolomite, just as vessels of fossil plants are sometimes filled with successive coats of different materials. In some well preserved specimens we find the original cell wall represented by a delicate white film, which under the microscope shows minute needle-like parallel processes representing its still finer tubuli. It is evident that to have filled these tubuli, the serpentine must have been introduced in a state of actual solution, and must have carried with it no foreign impurities. Consequently we find that in the chambers themselves the serpentine is pure; and if we examine it under polarized light, we see that it presents a singularly curdled or irregularly laminated appearance, as if it had an imperfectly crystalline structure, and had been deposited in irregular laminæ, beginning at the sides of the chambers, and filling them toward the middle, and had afterward been cracked by shrinkage, and the cracks filled with a second deposit of serpentine.<sup>1</sup> Now, serpentine is a hydrous silicate of magnesia, and all that we need to suppose is that in the waters of the Laurentian sea magnesia was present instead of iron, alumina or potash, and we can understand that the Laurentian fossil has been petrified by infiltration with serpentine, as more modern Foraminifera have been with glauconite, which, though it does not contain magnesia, often has a considerable percentage of alumina. Further, in specimens of Eozoon from Burgess, the filling mineral is loganite, a compound of silica, alumina, magnesia and iron with water, while in other specimens the filling mineral is pyroxene. In like

<sup>1</sup> The same structures may be well seen in thin slices polished, to be viewed as transparent objects. I may, however, explain that if these are made roughly, and heated in the process, they may often show only mineral structures and cleavage planes, whereas, if polished with great care and slowly, and afterwards cleaned with an acid, they may show the canals in great perfection.