and probably form a subepidermic plexus (Pl. VIIa. fig. 1; Pl. XXIV. fig. 2—*ca'*). Extensions of it also proceed into the cirri round the cirrus-vessels (Pl. LXII., *cv*), and give off similar radiating branches. Jickeli's observations on *Antedon rosacea* show that the movements of the cirri, like those of the arms, are dependent upon an influence proceeding from their axial cords;[1] and it is clear that if the central capsule and axial cords of *Comatula* constitute its principal nervous system (as few will now deny), this must be regarded as also extending throughout the whole stem of a Stalked Crinoid, even though it reach 70 feet in length, as in the fossil *Extracrinus subangularis*.

It may also be assumed with tolerable certainty that there was a similar neuro-vascular axis in the stem of all the fossil Pelmatozoa, including the Blastoids. These had no arms attached to the radials, as a Crinoid has. But if they had the same arrangement of axial cords in the basals and radials as prevail in a Crinoid, which I see no reason to doubt, it is unlikely that the radial cords, starting from the circular commissure (fig. 20, *A*) should have ended in the forks of the radials which receive the distal ends of the ambulacra. In the Mesozoic *Phyllocrinus* the radials have almost exactly the same forked shape as those of a *Pentremites;* but the point where the limbs of each fork separate is marked by an articular facet to which the arm was attached.

In a Blastoid, however, the sinus between the two limbs of the radial is filled up by the ambulacrum, which terminates in a more or less prominent lip at the same point in the body of the radial as is occupied by the articular facet in *Phyllocrinus*. That the axial cord in the radial of a *Pentremites* (fig. 20, *A*) ended in this lip seems to me improbable; and I cannot help suspecting that it may here have become continuous with the nerve of the ambulacrum. From what we know of the ambulacral nerves of recent Crinoids, this is not likely *per se* to have been related to any other movements but those of the tentacles, even if these organs were present; while it may perhaps have been removed from the superficial epithelium, as in an Urchin, and lodged within one of the canals in the lancet plate. This would have brought it deep enough to be continuous with the axial cord of the radial at the termination of the ambulacrum. The movements of the so called pinnules of the Blastoid would thus have been controlled by the central capsule, instead of by the oral ring, which is not likely to have had anything to do with them; for the oral ring of a recent Crinoid has absolutely no control over the movements of any part of the calcareous skeleton; and the jointed pinnules of a Blastoid cannot have remained permanently closed over the ambulacra, as they are found in the fossils (fig. 20).

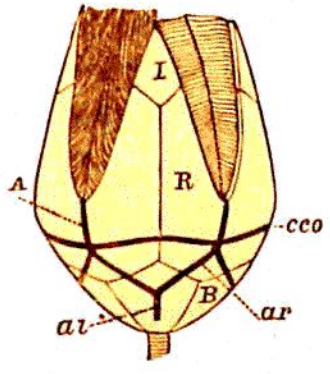

FIG. 20.—Diagram showing the arrangement of the axial cords in the calyx of a *Pentremites*, supposing it to be the same as in the calyx of a Crinoid. The pinnules are represented as preserved on one ambulacrum, but not on the other. *A*, axial cord of the ray; *ai*, primary interradial cord; *ar*, one of the converging radial cords which result from its bifurcation; *B*, basal; *cco*, circular commissure; *I*, interradial plate (deltoid of Roemer); *R*, radial.

[1] See the quotation from Agassiz, *ante*, p. 333.