

undergone by the form and contents of the central capsule in the different groups of MONOPYLEA, especially those due to the formation of the skeleton, are not without influence upon the podoconus. The most important divergencies from the above described primary form are the following :—(1) The vertical axial cone becomes oblique, its axis inclining in the sagittal plane and approaching either the dorsal or the ventral wall of the capsule; the cause of this appears to be usually the excentric development of the growing nucleus or the formation of a large oil-globule. (2) The smooth mantle of the podoconus becomes divided by three longitudinal furrows into three equal prominent ridges, which correspond to three circular lobes in the porochora; the cause of this basal triradial lobular formation lies probably in the triradial development of the skeleton in many NASSELLARIA or in the cortinar structure of the collar septum. (3) The simple podoconus splits into three or four elongated lobes, which eventually become almost completely separated and correspond to the lobes of the central capsule, in the axial wall of which they lie as longitudinally striated bands. The behaviour of these bands justifies the hypothesis that the podoconus is a muscular differentiated portion of the endoplasm and is composed of myophane fibrillæ, whose contraction determines the opening of the central capsule.

A. The podoconus of the MONOPYLEA was first described by R. Hertwig in 1879, and recognised as a characteristic component of the central capsule in the most various groups of this legion (in Plectoidea, Stephoidea, Spyroidea, and Cyrtoides; see his figures, *loc. cit.*, Taf. vii., viii., and the description, pp. 71, 73, 83, 106). Hertwig called it the "pseudopodial cone," and regarded it as a conical process of the capsule-membrane, which is developed from this latter and projects from the porous area into the interior of the central capsule; "it is penetrated by fine canals which arise at the apex of the cone, diverge towards the base, and terminate there in the rods of the pseudopodial area. The intracapsular protoplasm penetrates at the apex of the pseudopodial cone into its fine canals, runs along them and emerges from the rods of the porous area in the form of slender threads" (*loc. cit.*, p. 19). I cannot agree with this view of Hertwig, although I have been able to confirm the accuracy of his description by my own observations upon numerous excellently stained and preserved preparations in the Challenger collection. As I have proved by numerous teased out preparations, and as Hertwig himself correctly states, "the cone is more readily detached from the membrane than from the protoplasm, when the capsule is teased" (*loc. cit.*, p. 73). Hence I regard the podoconus not as a differentiated portion of the capsule-membrane but as endoplasm, and believe that it is composed of myophanes or "contractile muscular fibrils" in the same manner as the cortical layer of the CANNOPYLEA. Probably the contraction of these fibrils serves to raise the opercular rods and hence to allow the exit of the endoplasm through the pores which lie between these opercular rhabdillæ (compare § 59).

80. *The Endoplasm of the Cannopylea.*—The intracapsular protoplasm of the PHÆODARIA or CANNOPYLEA is distinguished from that of the other three legions by several characteristic peculiarities, which are very important, since they stand in causal relation to the typical structure of the capsule-membrane and in particular of its