

water, and are clearer in proportion to the quantity of water which is added. The refractive index of acanthin is, however, very different from that of glycerine, so that the skeletons of ACANTHARIA are readily visible when mounted in this fluid. In water, the skeletons of all Radiolaria appear about equally refractive, as also in Canada balsam. The substance of the skeleton appears almost entirely hyaline, colourless, and transparent. Very rarely it is faintly coloured (in some ACANTHARIA). A cloudy opaque constitution is seen in some PHÆODARIA (especially in the "porcellanous shells" of Tuscarorida and Circoporida, Pls. 100, 114–117); when dried, these appear by reflected light milky-white or yellowish-white; the cause of this opacity lies partly in the peculiar "cement-like structure" of these porcellanous shells, partly in their fine porosity, and the minute air-bubbles contained in their thick walls.

104. *The Elementary Structure of the Skeleton.*—The general constitution of the skeleton—or more accurately expressed, of the morphological elements of which the skeleton consists—is of such a nature that it may be termed structureless. Both the organic acanthin skeletons of the ACANTHARIA and the silicate skeletons of the PHÆODARIA, as well as the inorganic siliceous skeletons of the SPUMELLARIA and NASSELLARIA, appear under the microscope perfectly homogeneous, transparent, colourless, and crystalline. Only very rarely do they show traces of a concentric striation, which arises from the deposition of the skeletal substance in layers; as, for example, the thick spines of some PHÆODARIA (Pls. 105–107, &c.). Some of the PHÆODARIA, however, form an exception to this rule, inasmuch as their partially tubular skeletal elements possess a remarkable porcellanous structure. In the tubular or Cannoid skeleton, which occurs in most CANNOPYLEA, the lumen of the thin-walled flinty tube is filled with jelly, and frequently a thin siliceous thread runs in its axis, and is connected with the wall by transverse threads (§§ 127, 139). The elementary structure of the opaque porcellanous shells, which distinguish the two families Circoporida (Pls. 114–117) and Tuscarorida (Pl. 100), is quite peculiar. Numerous fine siliceous spicules lie scattered irregularly in a finely granular or porous matrix.

105. *Complete and Incomplete Lattice-Shells.*—In the great majority of Radiolaria (in all four legions) the skeleton has the form of a delicate lattice-shell or a receptacle in which the central capsule is enclosed. In a small minority, however, this is not the case. The skeleton then consists only of isolated rigid pieces (radial or tangential spicules), or of a simple ring (sagittal ring of the Stephoidea), or of a basal tripod with or without a loose tissue of trabeculæ, &c. (Plectoidea); the central capsule is then not surrounded by a special latticed receptacle, but only rests upon the skeletal trabeculæ. According to these different arrangements, two principal groups or sublegions may be distinguished in each legion, of which one set (Cataphracta) are characterised by a complete