the other fourteen spines appear rudimentary; and in some of them the two equatorial spines of the hydrotomical plane are much larger than the four polar spines of the same plane. This curious relation reaches its maximum in the Diploconida (Pl. 140).

The different development of the two equatorial axes (of the larger hydrotomical and the smaller geotomical axis) is the first and most important cause of the peculiar forms, which are produced in the four cited families. We derive these terms also from the metaphor of the terrestrial globe. The hydrotomical plane is that meridian plane of the globe which intersects almost only the water-hemisphere (the island of Ferro in the Atlantic, the island of Pandora in the Pacific). Perpendicular to this is the geotomical plane, the meridian of which intersects great land-masses in both hemispheres (Bombay in India, Athabasca in Canada). Both poles of the smaller geotomical axis are everywhere equal (the East Indian and the Western American). However, both poles of the larger hydrotomical axis (the eastern Atlantic and the western Pacific) are in some genera very different, *e.g.*, in *Amphibelone* among the Amphilonchida, and in *Zygostaurus* among the Quadrilonchida. In this case we call the anterior (commonly more developed) pole of the hydrotomical axis the frontal pole, the opposite posterior (commonly smaller) the caudal pole (Pl. 131, figs. 7, 8; Pl. 132, figs. 9, 10). On both sides of these (right and left) lie symmetrically the two equal poles of the geotomical lateral axis.

The promorphology of the ACANTHARIA demonstrates that the geometrical fundamental form in those groups is different. In the majority of the ACANTHARIA, where the two equatorial axes are equal, that form is a double square-pyramid or a "quadrate octahedron"; the four equal equatorial spines indicate the two diagonals of the square, which is the common base of the united regular four-sided pyramids; their common axis is the spineless axis of the body; the ends of the polar spines fall on the edges of the pyramids, while the ends of the tropical spines fall on the halving lines of their faces. However, in those ACANTHARIA in which the two equatorial axes become different, the square double pyramid becomes changed into a rhombic double pyramid; the common base of the united pyramids is thus a rhombus; the hydrotomical axis is the larger, the geotomical axis the smaller diagonal of the rhombus.

Opposed to the Icosacantha, under the name "Adelacantha," is the small group of Actinelida, in which the number and disposition of the radial spines is variable, not determined by the Müllerian law. Probably this group is the common ancestral stock, from which the Icosacantha have been derived by gradual development of their peculiar disposition. Probably the oldest and most primitive form of all ACANTHARIA is *Actinelius*, in which a variable and undetermined (often very large) number of radial spines is united in one common central point, and therefore forms a needle-sphere. Whilst here all spines (often more than a hundred) are of equal size and form, in the nearly allied *Astrolophus* large and small spines are intermingled. Both genera together form the small ancestral family of Astrolophida. In the strange family of Litholophida the radial spines do not