J. Müller as *Haliomma hystrix*. A second species of *Aspidomma*, the *Acanthometra mucronata* of J. Müller, was probably an *Astrolonche*. At that time I placed *Aspidomma* among the Haliommatida, led by the erroneous opinion that it might represent a transition-form between *Dorataspis* and *Haliomma*. But I afterwards gave up this view, as I was convinced that there is no true phylogenetic connection between the acanthinic Dorataspida (*Actipylea*) and the siliceous Haliommatida (*Peripylea*). Therefore in my Prodromus (1881, p. 468) I placed *Aspidomma* among the Dorataspida and changed its name to *Phractopelta*, to avoid further confusion with the unrelated Ommatida (Sphæroidea). It formed there, with three nearly related genera, the "subfamily Phractopeltida," which we now advance to the higher rank of a separate family. (By a typographical mistake the words are printed in the Prodromus *Phractopelma* and Phractopelmida, &c., instead of *Phractopelta* and Phractopeltida, &c.). The detection of other new species appertaining to this family, and a closer anatomical investigation of them, has now led to the distinction of five different genera, characterised by other differences than were employed in 1881 in the provisional system of the "Prodromus."

The two concentric spherical lattice-shells of the Phractopeltida, connected by radial beams, correspond perfectly to those of the double-shelled Dyosphærida (*Haliomma*, *Diplosphæra*, &c.), and in both cases we may call the smaller inner the "medullary shell," and the larger outer the "cortical shell." There is no doubt that the double-shelled Phractopeltida must be derived phylogenetically from the simple-shelled Dorataspida (just as we derive the double Dyosphærida from the simple Monosphærida). But it is not yet possible to decide positively which of the two shells is the first formed. Probably the small inner or medullary shell of the Phractopeltida is the first formed, and corresponds to the simple spherical lattice-shell of the Dorataspida; and the larger outer or cortical shell of the former is a later new formation, absent in the latter family. This opinion seems to be confirmed by the genus *Orophaspis*, the only form among the Dorataspida, in which the radial spines outside the shell bear free latticed apophyses. If these twenty apophyses grow further and meet one another, the second or outer shell of *Phractopelta* may be formed. But some objections may be raised to this opinion from the peculiar structure and the very small size of the inner shell; and there is some possibility that this latter is a secondary later product inside of the primary cortical shell. The probable phylogenetic series which reveals the origin of the Phractopeltida is the following:—*Acanthometron*, *Zygacantha*, *Lithophyllium*, *Phractacantha*, *Doracantha*, *Dorataspis*, *Orophaspis*, *Phractopelta*.

The twenty radial spines exhibit in all Phractopeltida the same characteristic position and relation as in all other Icosacantha, and are constantly arranged according to the Müllerian law in four meridian planes, their distal ends falling into five parallel zones. Their distinction in the majority of the Phractopeltida is not difficult,