

This inconsistency has not escaped the observation of Professor H. L. Smith, who, in his synopsis of the families and genera of Diatoms, which is given in Dr van Heurck's work, entitled, *Le microscope, sa construction, son maniement et son application à l'anatomie végétale et aux Diatomées*, modified the definition of the genus *Actinoptychus*, Ehrenb., as follows:—"Valves with marginal spines obsolete; or if present, few, and in alternate compartments."

In the family of the *Heliopelteæ* he also gives the genus *Halionyx*, Ehrenb.,<sup>1</sup> to which he attributes the following characteristics:—"Valves with a hyaline (stellate) umbilicus, with marginal spines or teeth connected by a radial rib." But these characters are precisely those of the genus *Omphalopelta*—a genus which Professor H. L. Smith regards as synonymous with *Actinoptychus*, which accordingly possesses spines in alternate compartments, or in each compartment—a circumstance overlooked by Professor Smith. Hence it is preferable to leave the genus *Actinoptychus* intact, and to modify Ehrenberg's definition of *Omphalopelta*, limiting the principal characteristic to the marginal spines, whether they occur in each compartment, or in alternate compartments. Moreover, the number of spines should be limited in number, in order to avoid confusion between *Omphalopelta* and *Heliopelta*, Ehrenb., because in this last group the numerous spines, in addition to its other characteristic marks, do not, when carefully examined, present the appearance of spines, but of small spheroidal processes.

The genus *Omphalopelta* may accordingly be defined as follows:—"Frustulum simplex, discoidale; valvis cellulosi vel punctatis, in cuneatis dissepimentis distinctis; area umbilicali hyalina; spinis marginalibus in omnibus vel in alternis dissepimentis."

*Omphalopelta antarctica*, n. sp. (Plate VII. fig. 2.)

Valvis areolato-punctatis, in sex partes alternatim elevatas et depressas distinctis; area umbilicali parva, hyalina, indefinita; denticulo in elevatioribus dissepimentis submarginali; lato margine irregulari punctulorum corona distincto. Ad mare Antarcticum.

This small disc, which was collected in the Antarctic Ocean, has six alternately elevated and depressed compartments. The valve is delicately punctated in a quincuncial manner, and also possesses distinct rounded cellules or areolæ. The hyaline centre is small and not distinctly defined, while a single intramarginal denticule occurs in each of the three elevated segments, but is absent from the depressed segments. The margin is for the most part smooth, but it is distinguished externally by an irregular circle of small points. The occurrence of this circle of puncta, as well as of the rounded areolæ, is especially noteworthy.

*Omphalopelta japonica*, n. sp. (Plate VII. fig. 10.)

Areolato-punctata; area umbilicali indefinita; dissepimentis pluribus (18) elevatis et depressis, et denticulo marginali distinctis. In mari Japonico.

<sup>1</sup> Ehrenberg, *Mikrogeol.*, pl. xxxv. A 21, fig. 12.