

similar to those which I have seen in preparations made at the moment of capture (see fig. 333). I have thus been able to determine four specific types of these gigantic Diatoms, which together with smaller forms, to which, however, they are not so closely related, constitute a new genus, which it will perhaps be necessary to divide into two.

"The discovery of forms so remarkable for their size and the tenuity of their walls may well lead us to wonder what new forms may be discovered in the order of the Diatomaceæ, during the prosecution of researches into the unlimited extent of seas, in which such a noble example has been set by the British Government."

For the extremely large and delicately sculptured forms just alluded to, Count Castracane has proposed the generic name of *Etmodiscus*. In addition to the general features already quoted, this genus is characterised by a well-defined convexity of its valves, and, in some cases, by a great development of the connecting zone, which may proceed so far as to cause the axial line of the frustule to exceed the transverse diameter in length.

Delicate radiating striations occur on the valves of several species, such as *Etmodiscus radiatus*, *Etmodiscus coronatus*, *Etmodiscus humilis*, &c., and a corona of great beauty and regularity is found in the form of distinct submarginal points in *Etmodiscus punctiger*, as radiating small lines in *Etmodiscus japonicus*, or as two alternate rows of granules in *Etmodiscus coronatus*. Sometimes, as in *Etmodiscus punctiger*, the entire surface of the valves present a finely punctated appearance, but in other cases granules of small size are to be met with only on subcentral and submarginal regions, the intermediate space being devoid of such markings as in *Etmodiscus periachantinos*, or on the submarginal area alone, as in *Etmodiscus coronatus*. In *Etmodiscus convexus* the large discoidal convex frustule exhibits an almost invisible striation "seminated with very minute thorns," and provided near the margin with a row of delicate "denticules" which differ from the corresponding

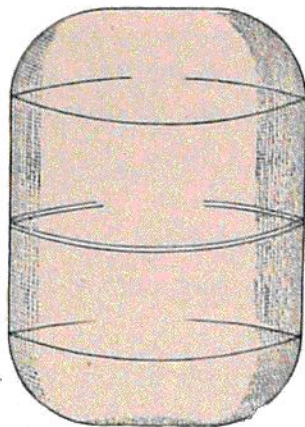


FIG. 332.—Frustule of *Etmodiscus toyvillanus*, n. gen. et. sp., $\frac{40}{7}$.

submarginal circle of points found in *Etmodiscus punctiger* by being at once more numerous and more minute.

The valves of *Etmodiscus radiatus* present a sculpturing of singular beauty, and one which recalls the appearance presented by the medullary rays of an ordinary dicotyledonous tree. Thus its submarginal region forms a belt of small irregularly disposed granules, from which several rows of different lengths proceed towards the centre. Of these rows none reach that point however, the shortest being about one-half, and the intermediate about three-fourths of the length of the longest series. The disposition of these rays on the surface of the valve is perfectly regular and symmetrical. From the central point very delicate striæ proceed towards the periphery, but run across only about three-fourths of the diameter of the valve, the border of which is also striated.