

The frustules of this type, which was collected in the Antarctic Ocean, show a characteristic peculiarity at their inferior extremities, and one which is not found in any frustule of *Asterionella bleakeleyii*, W. Sm., namely, the presence, on the zonal side, of two small symmetrical lines, which run in the direction of their long axes. These probably represent the incapsuling of the two valves of the frustule, and if so, ought to have been visible in *Asterionella bleakeleyii*, though contracted as a result of incineration.

Nor can *Asterionella glacialis* be confounded with the freshwater *Asterionella formosa* of Hassall,¹ as the latter has its superior extremity somewhat swollen, although to a less extent than its inferior extremity, while the former has a swelling only at the inferior extremity of the valve, and on the zonal side of the frustule, so that it must be regarded as a new species.

Asterionella gracillima (Hantzsch.), Heib. (Plate XXV. fig. 6.)

We have here represented a form which cannot be confounded with the *Asterionella bleakeleyii* of W. Smith, as, instead of being linear in the parts succeeding the dilated base, it is sensibly swollen at its superior extremity. The specimen, however, which unfortunately has suffered somewhat from the bleaching process, agrees better with *Asterionella gracillima*² (Hantzsch.), Heib., in its morphological characteristics; but, instead of being found in fresh water, like the latter, it occurred on the surface of the sea. As it may have been borne to that locality by glaciers and icebergs, it may, for the present, be viewed as identical with that species.

Synedra, Ehrenb.

This genus is chiefly characterised by having its small frustules joined by means of a cushion, or sometimes of a more or less developed peduncle to seaweeds or other objects. The attachment thus effected is of a feeble kind, so that it is a very common occurrence to find living specimens in a free state, and in the examination of geological diatomaceous deposits, or of frustules that have been treated with acids, it is impossible to determine whether any given form existed in the free or adherent condition. But apart from its attached or non-attached habit, the genus cannot, on account of its structural peculiarities, be confounded with any other. Its closest affinity is to be found in the *Bacillariæ*, from which, however, it is readily distinguishable by the presence in the latter of a characteristic punctated keel. Nor can it be confounded with the *Asterionellæ*, Hass., or with members of the genus *Thalassiothrix* (Grun.), Cstr., inasmuch as it does not possess large broad or dilated extremities, but is provided either with a small cushion, which unites the frustules in a star-like manner, or with small triangular pads placed laterally at the two extremities,

¹ *Micr. Journ.*, vol. viii. pl. vii. fig. 8; Heiberg, *Consp.*, pl. vi. fig. 20.

² Heiberg, *Consp.*, p. 68, pl. vi. fig. 19; = *Diatoma gracillimum*, Hantzsch. in Rabenh. *Alg.*, No. 1104, c. icone, *Krypt. Flor. von Sachsen*, p. 32.