Hemiaulus glacialis, n. sp. (Plate XXV. fig. 4.)

Processus laterales elongati truncati, mucronati; intermedia frustuli inflatione utrinque septata; granulis perspicuis stipatis. In mari Antarctico.

This valve, which is perfect, is furnished with two long parallel processes, which are truncated at the ends, and upon each of which a well-defined claw-shaped terminal spine projects from the internal part. Between the long processes, and in the centre of the valve, a slight protuberance or swelling occurs, indicating, when seen in profile, that the plane of the valve must be crossed by two septa. This frustule, which has not been hitherto figured, has been named *glacialis*, on account of its Antarctic habitat.

Cerataulus, Ehrenb.

Professor H. L. Smith[1] has united the genera *Cerataulus*, *Odontella*, *Zygoceros*, and others, under the single genus *Biddulphia*—a circumstance which has rendered the classification much more intricate, and which therefore should not be adopted, notwithstanding the intimate relation that exists between all these organisms. The oval shape of the valves, the alternation of the two sublateral processes, and the strong horn-like spines, in the case of *Cerataulus*, compared with the disposition of the frustules in zigzag chains, or their adhesion to each other by alternate angles, the elongated and often septate character of the valves, and the presence of subterminal processes in *Biddulphia*, must be regarded as essential distinctions between the two genera. This view has also been adopted by other naturalists, among whom Dr Eulenstein may be mentioned. This observer, in issuing the first hundred of his typical preparations, gave, under Nos. 9 and 10, *Cerataulus lævis*, Ehrenb.,[2] and *Cerataulus turgidus*, Ehrenb.,[3] and under No. 11 *Biddulphia pulchella*, Gray,[4] recognising, as an essential characteristic of *Cerataulus*, the possession of strong

[1] Pritchard, *op. cit.*, p. 847. *The Lens*, vol. i. 1872, p. 89.

[2] = *Gallionella*, sp.? Bailey, 1842; *Sil. Journ.*, vol. xlii. pl. ii. fig. 8.
Biddulphia lævis; Pritchard, *op. cit.*, p. 847, pl. vi. fig. 7; Roper, *Micr. Journ.*, vol. vii. p. 18, pl. ii. figs. 24–26.
Odontella polymorpha, Kütz., Bac., 1844, pl. xxix. fig. 90; Kütz., Spec. Alg., 1849, p. 136.
Isthmia polymorpha, Montagne } Quoted in Kütz., Spec. Alg., 1849, p. 136.
Melosira thermalis, Meneghini }

[3] Ehrenberg., *Monatsber d. k. Akad. d. Wiss. Berlin*, 1843, p. 270; Bailey, 1850, Micr. Obs., pl. ii. figs. 26 and 27.
= *Biddulphia turgida*, Smith, Synop. Brit. Diat., vol. ii. p. 50, pl. lxii. fig. 384; Roper, *Micr. Journ.*, vol. vii., p. 17, pl. ii. fig. 23.

[4] Gray, Nat. Arr. of Brit. Plants, vol. i. p. 294; Ralfs, *Ann. Nat. Hist.*, 1843, pl. viii. fig. 3.
= *Conferva biddulphiana*, Eng. Bot., 1807, vol. xxv. tab., 1762; Dillwyn, Brit. Conf., 1809, p. 52.
Diatoma biddulphianum, Ag. Syst. Alg., 1824, p. 5, and Conspec. Crit. Diat., 1830, p. 54. Hooker's Brit. Flor., 1833, p. 404; Harvey, Man., 1841, p. 201.
Biddulphia trilocularis, Kütz., Bac., 1844, pl. xix. fig. 89, and Spec. Alg., 1849, p. 137.
Biddulphia quinquelocularis, Kütz., Bac., 1844, pl. xix. fig. 1, and Spec. Alg., 1849, p. 137.
Biddulphia septemlocularis, Kütz., Bac., 1844, pl. xix. fig. 2, and Spec. Alg., 1849, p. 138.
Biddulphia australis, Mont., Pl. Cel. de Cuba, 1845, p. 5.