

the same plane as the valve, while in the other the awns are flexuous, being first bent downwards and then curved round. The circumstance that one valve possesses a single central granule, while the other has several small irregularly distributed granules, is unimportant, but it is a matter of greater significance that in both the awns are not filiform, and that in both they are adorned by elegant spirals of very small apiculi, which give a singular appearance to the valves. In contradistinction to the last-named characteristic, it may be noted that in *Bacteriastrum varians*, Lauder, the awns are filiform and smooth.

*Bacteriastrum varians*, Lauder, var. *princeps*, nov. (Plate XIV. fig. 2, and Plate XXIX. fig. 3.)

This interesting form occurred in the rich gathering made on the surface of the Sea of Arafura, an intermediate frustule being shown in Plate XIV. fig. 2, and a terminal frustule in Plate XXIX. fig. 3. The former possesses the singularity of having the two filaments into which each ray bifurcates different from one another, the one being slightly arcuate and the other spirally bent, while the disposition of these filaments is such that the curved always alternate with the spiral. The latter has the rays undulating and slightly curved in the same direction. The rays of the terminal frustule do not arise from the perimeter of the valve, but somewhat more centrally, a circumstance which indicates that the valve is somewhat convex; moreover, a single central granule is very distinctly seen in this case.

Although the association of such characters gives the entire series a somewhat peculiar appearance, the present singularly distinct and elegant forms cannot be regarded as specifically distinct from *Bacteriastrum varians*, Lauder, from which indeed they differ only with regard to the condition of the rays.

*Bacteriastrum varians*, Lauder, var. nov. (Plate XXIII. fig. 1.)

Another new variety of Lauder's typical form is here shown under a magnifying power of 460 diameters. The round central area is entirely devoid of ornamentation, but near the periphery eleven stout rays project round the central disc. These rays are approximately at a uniform distance apart, and at their origin are somewhat swollen, a slight involution of the proximal bounding line of the ray occurring here just in the line of the longitudinal axis of the rays. At their distal extremities the rays bifurcate, the main shaft of each having, however, a length considerably greater than the diameter of the central disc. The branches of each bifurcation are bent in a graceful curve towards one another; their diameter is somewhat less than that of the main shaft, and their length is somewhat less than the radius of the disc. Where the bifurcation takes place a short, straight, but well-defined line runs down the shaft of each ray for a short distance. The almost perfect uniformity of the diameter of the rays from their origin to the point of bifurcation is especially noteworthy.