

Since then the generic designation given originally by Ehrenberg must be looked upon as valid, it may further be noted that Pritchard and Ralfs¹ unite under the designation of *Actinocyclus ehrenbergii* not less than one hundred and sixteen species which Ehrenberg had established by giving special value to the radiating divisional lines, and had named after all the gods of Olympus, after stars, historical celebrities, gems, &c. At the same time the species *Actinocyclus moniliformis*, Ralfs,² *Actinocyclus ralfsii*, W. Sm.,³ *Actinocyclus fulvus*, W. Sm.,³ and *Actinocyclus crassus*, W. Sm.,³ are retained, while *Actinocyclus panhelios*, Ehrenb., is regarded as a doubtful species. *Actinocyclus interpunctatus*, Bright.,⁴ and *Actinocyclus subtilis*, Greg.,⁵ are looked upon as the representatives of a section whose discs are generally coloured and ornamented by radiating series of points, while *Actinocyclus tessellatus*, Roper,⁶ is regarded as the single type of a second section embracing cellulated hexagonal discs without radiating lines. The *Actinocyclus interpunctatus*, Bright., however, has no trace of an intramarginal pseudo-nodule, and, therefore, cannot be regarded as belonging to the present genus, while *Actinocyclus tessellatus*, Roper, possesses neither a pseudo-nodule nor any other characteristic which might authorise its ascription to this genus.

Rabenhorst, in his *Flora Europæa Algarum Aquæ dulcis et submarinæ*, follows the example of Kützing in omitting the important generic character above referred to, but that work must be admitted to be greatly deficient generally in its account of marine Diatoms.

It follows, therefore, that although the presence of a pseudo-nodule is indispensable to the conception of the genus *Actinocyclus*, the radiating lines or points which divide the surface into compartments have a more or less accidental character, while among the specimens collected by H.M.S. Challenger discoidal forms distinctly provided with intramarginal pseudo-nodules have been observed to be either finely and closely or sparsely punctated, to possess discoid surfaces either with or without radiating lines, to exhibit large radiating cells, or finally, to have a marginal pseudo-nodule and a disc minutely and closely but irregularly punctated. Since then the essential conditions which separate one organic form from another must be recorded, and since less essential characteristics become more and more extended as the discovery of new and kindred forms goes on, the original definition given by Ehrenberg may now be modified in the following manner:—*Frustula simplicia, disciformia, punctulata vel cellulosa, plerumque nonnullis lineis radiantibus distincta, circulari pseudonodulo intramarginali instructa.*

¹ Pritchard, *op. cit.*, p. 834. ² = *Actinocyclus ternarius*, Ehrenberg, *Mikrogeologie*, pl. xxii. fig. 9.

³ = *Eupodiscus ralfsii*, *Eupodiscus fulvus*, and *Eupodiscus crassus* respectively. These forms, according to Smith, probably belong to the genus *Actinocyclus*, Ehrenb., but as he has "limited that genus to frustules with undulated valves," he has found it necessary to place these apart. Their position in *Eupodiscus* he regards, however, as doubtful since "the process in all is rather a pseudo-nodule than a projection from the surface of the valve." Smith, *Synop. Brit. Diat.*, vol. i. p. 24, vol. ii. p. 86.

⁴ *Micr. Journ.*, vol. viii. p. 94, pl. vi. fig. 17.

⁵ = *Eupodiscus subtilis*, Gregory, *Diatoms of the Clyde*, p. 29, pl. iii. fig. 50.

⁶ = *Eupodiscus tessellatus*, *Micr. Journ.*, vol. vi. p. 19, pl. iii. figs. 1a and 1b.