



***Cocconeis pinnata* W. Gregory ex Greville (Bacillariophyta): Lectotypification and an emended description after examination of type material and South Pacific specimens**

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Abstract

A marine species of *Cocconeis* (Bacillariophyta) from coral reef lagoon of Tahiti Island (Society Archipelago, South Pacific) was identified as *Cocconeis pinnata* W. Gregory ex Greville. Neither drawings nor micrographs of the raphe valve (RV) of *C. pinnata* are available in the literature. The examination of Gregory's type material (several slides annotated 'Arran 57' from Greville's collection housed in BM, British Museum, London, U.K.) allowed us to complete and emend the *C. pinnata* description. Lectotypification of *C. pinnata* is proposed. Since the raw material used by Gregory was not found, no scanning electron microscope (SEM) observation of type material can be provided. Except for Hustedt (1933) and a few later reports, all descriptions and illustrations agree with the original description. LM and SEM observations demonstrate that the sternum valve (SV) stria arrangement of specimens from Tahiti match those of the type. The description of the RV by Grunow in Van Heurck (1880) refers to a stria pattern very similar to that of *C. pseudomarginata* W. Gregory. The RV of *C. pinnata*, as revealed in LM and SEM, has a dense striation and no internal marginal rim. Both valves of *C. pinnata* have areolae with remarkable arborescent volae, which is a new feature for *Cocconeis*. *Cocconeis pinnata* is cosmopolitan, from cold-temperate to tropical areas. Several taxa have been formerly assigned to *C. pinnata*, though they are probably varieties of *C. costata*.

Key words: *Cocconeidaceae*, coral reefs, Tahiti Island

Introduction

In his researches into the taxonomy of diatoms, William Gregory (1803–1858) contributed extensively to the knowledge of the genus *Cocconeis* Ehrenberg (1837: 173) describing 15 new taxa (Gregory 1855, 1857a, b). Two species of *Cocconeis* Gregory named but never described, *Cocconeis pinnata* W. Gregory ex Greville (1859: 79) and '*Cocconeis crassa*' *nom. nud.*, were both dealt with in a paper written by Greville shortly after Gregory's death; Greville described only the former, as he was unable to find any specimens of '*Cocconeis crassa*' (Greville 1859: 79).

Discovery of specimens of a marine benthic diatom from the South Pacific, identified as *C. pinnata*, motivated our focus on this poorly known taxon. *Cocconeis pinnata* has relatively large valves (Greville 1859: 79), its sternum valve (SV) having a typical and easily recognizable morphology, while its raphe valve (RV) has yet to be illustrated, either in the type description or any subsequent studies, and has been described only briefly (see Taxonomic History).

In a previous contribution about *Cocconeis costata* W. Gregory and *C. pinnata*, Romero & Rivera (1996) noted of *C. pinnata* that 'revision of the type material still is needed' (Romero & Rivera 1996: 336). At that time they were unable to study Greville's specimens but instead examined several slides from Frenguelli's diatom collection (LPC, for details of this collection see Sar *et al.* 2009). Unfortunately, the identification of Frenguelli's specimens

Geography of Cocconeis pinnata:—First described from Northern Europe (United Kingdom, Greville 1859), *C. pinnata* is widespread from cold temperate to tropical marine environments (Grunow in Van Heurck 1880, Cleve 1895, Peragallo & Peragallo 1897, Schmidt 1894, Jørgensen 1905). Its Antarctic distribution remains questionable (see remarks above about the taxa described in Frenguelli & Orlando 1958). Hällfors (2004) recently cites (without illustration) this taxon as planktonic in the Baltic Sea, probably after sediment resuspension. It is not surprising to find *C. pinnata* in the French Polynesia (South Pacific) since it was previously recorded from tropical sites such as Seychelles and Rhea Island near Singapore (Cleve 1895).

Conclusion

Cocconeis pinnata has been lectotypified from Gregory's material acquired by Greville and now located in BM. Recently collected material from epizoic specimens living on a holothurian from Tahiti reef lagoon allowed further comparison and SEM examination. An emended description has been supplied.

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