

DESCRIPTION OF GENERA AND SPECIES.

TRIBE I.—RAPHIDIEÆ.

Amphora, Ehrenb.

The essential characters of the frustules of this genus are so difficult and complicated as to be but little understood. So much is this the case that Professor Arnott severely writes¹ that Dr Gregory having, in his pamphlet on the Diatoms of the Clyde, failed to indicate their distinguishing features, has thereby deprived his work of its claims to be considered scientific. These observations adequately prove the magnitude of the difficulties that exist, and indulgence may be claimed for any errors that occur in the treatment of so obscure and intricate a genus.

The general form of an Amphoran frustule may be taken to resemble that of a grain of coffee, but Dr Gregory's conception that the so-called frustule should be regarded as two perfect frustules that have become united apart from any process of conjugation cannot be entertained. If some species occur as very delicate cymbelloid forms, such as *Amphora coffeiformis*, Kg., this is attributable to the character of the connecting zone, which is extremely slender, and which may be destroyed by the slightest possible action of acids, even when diluted, or by fire.

Amphora speciosa, n. sp. (Plate XXVII. fig. 1.)

Elliptica sublinearis; apicibus rotundatis; valva introrsum inflata; striis punctulatis subradiantibus. Ad portum Thaiti.

This species would perhaps be identical with *Amphora oblonga*, Greg.,² were it not for the profile of the frustule, which is described by Gregory as "elliptic, rather broad," with "ends obtusely acuminate." The present form, however, is narrow, its margins are almost linear, and its extremities are rounded less sharply. The striation also differs in the two cases, being subradiate and evidently moniliform in *Amphora speciosa*, while in *Amphora oblonga* it is continuous. This new species, which is figured in its zonal aspects, was obtained at the port of Tahiti.

Amphora meneghiniana, n. sp. (Plate XXVII. fig. 16.)

Sublineariter elongata; apicibus rotundato-truncatis; medio late subinflata; striis transversis conspicuis subradiantibus. Ad portum Thaiti.

This magnificent new species was also first obtained at the port of Tahiti. It is of an

¹ *Quart. Journ. Microsc. Sci.*, vol. vi. p. 184, 1858.

² *Diatoms of the Clyde*, p. 43, pl. v. fig. 78.