

*Rhizosolenia* (?) *flaccida*, n. sp. (Plate XXIX. fig. 4.)

Cylindrica, annulata, parietibus tenuissimis firmitate destitutis; annulis brevibus parallelis. In mari Adriatico et Arafura.

Among the surface gatherings which have been made at intervals for some years past in the Adriatic, I have observed the frustule here figured from a form found on the surface of the Arafura Sea. It possesses a delicate structure, being bounded by two nearly parallel longitudinal lines, and crossed by transverse parallel lines, which are disposed at approximately equal distances from one another. Towards each extremity there is an irregular circle, whose diameter is to that of the frustule in the ratio of two to three. These circles are the extremities of the tubular organisms, and, like the parietes, are so thin that when dried on a glass they collapse. It may be noted, however, that the parietes, though very delicate, contain siliceous matter, as they resist exposure to a red heat.

Although the tubuliform part of this interesting organism bears a resemblance to the *Rhizosoleniæ*, no calyptriform extremities have ever been observed, hence its true generic position cannot be determined with certainty. It can only be examined when mounted in the dry state.

An organism which is pretty abundant in the surface of the Sea of Arafura is shown in Plate XXIX. fig. 8. It is of ovoid form, and terminates at one of its slightly prolonged extremities in a small flat circular area, from which a strong solid conical point arises. At its opposite extremity an opening is seen, which doubtless serves for the reception of the salient extremity of the succeeding frustule. The parietes are slightly and indistinctly striated, but the small terminal circle is surrounded by short but somewhat more protuberant lines. Although the appearance presented by the pointed extremity recalls the calyptra of a *Rhizosolenia*, it is at present impossible to determine whether the organism really belongs to this genus or is a sporangial form. It is clear, however, that it is a normal form, as many similar specimens have been observed.

*Rhizosolenia arafurensis*, n. sp. (Plate XXX. fig. 12.)

Frustula cylindrica, non annulata; parietes partibus subtrapezoidalibus compositæ; calyptra desinit in elongatum, obtusum, tubularem mucronem; striæ imperviæ. In mari Arafura.

Although in all other recent and fossil *Rhizosoleniæ* the terminal mucrones are solid, the form shown at fig. 12 has this part tubular and obtuse. The frustular walls are composed of subtrapezoidal pieces, the separating quasi-sutural lines being merely thinner and more transparent strands. The striæ ornamenting the various parts are exceedingly delicate, but their presence is argued by the slight tint that may often be recognised under the microscope.

On Plate XXX. figs. 11 and 14, two other forms of *Rhizosolenia* are represented, in