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TWO NATURALLY OCCURRING ABNORMALITIES OF THE DIATOM *PODOCYSTIS ADRIATICA*.<sup>1 2</sup> While frustular aberrations of diatoms are common in cultures (2, 5), they are uncommonly observed in natural samples. This paper describes two abnormal forms of the epiphytic diatom *Podocystis adriatica* (Kütz.) Ralfs.

During a routine examination of Rhode Island marine algae for epiphytic diatoms, a fertile female specimen of *Grinnellia americana* (C.Ag.) Harv. was observed to harbor several scattered brown clusters of diatoms. After oxidation of the material with nitric acid, washing with distilled water, and mounting in Hyrax, the diatoms proved to be exclusively *Podocystis adriatica*. Among the several normal cells were occasional occurrences of the abnormality shown in fig. 1-A and one specimen of the abnormality in fig. 1-B (normal frustules are shown in fig. 1-C, D, E). These aberrations correspond to the "marginal" and "surface-pattern" abnormalities described by Conger (1).

The cause of marginal deformities (fig. 1-A) has been attributed to crowding of the cells (2) and to sudden chemical environmental changes (1). The surface-pattern deformity (fig. 1-B), in this case being expressed as an anastomosing and poorly defined pseudoraphe in the upper portion of the frustule, is believed to be a result of disturbance in the formative stages (1). A surface abnormality involving the raphe canal in *Surirella*, was induced by continuous light exposure (2). These abnormalities were thought to occur during auxospore formation (3) but Conger (1) contends that most of them are initiated during the vegetative phase.

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What appears to be the same deformity as in fig. 1-B was described by Meister (4) as *P. spathulata* forma *anastomosans* from Sumatra (Island Sabang) material, but these forms probably have no taxonomic validity.

It cannot be determined what was the cause of these abnormalities. Since the host plant was below the level of

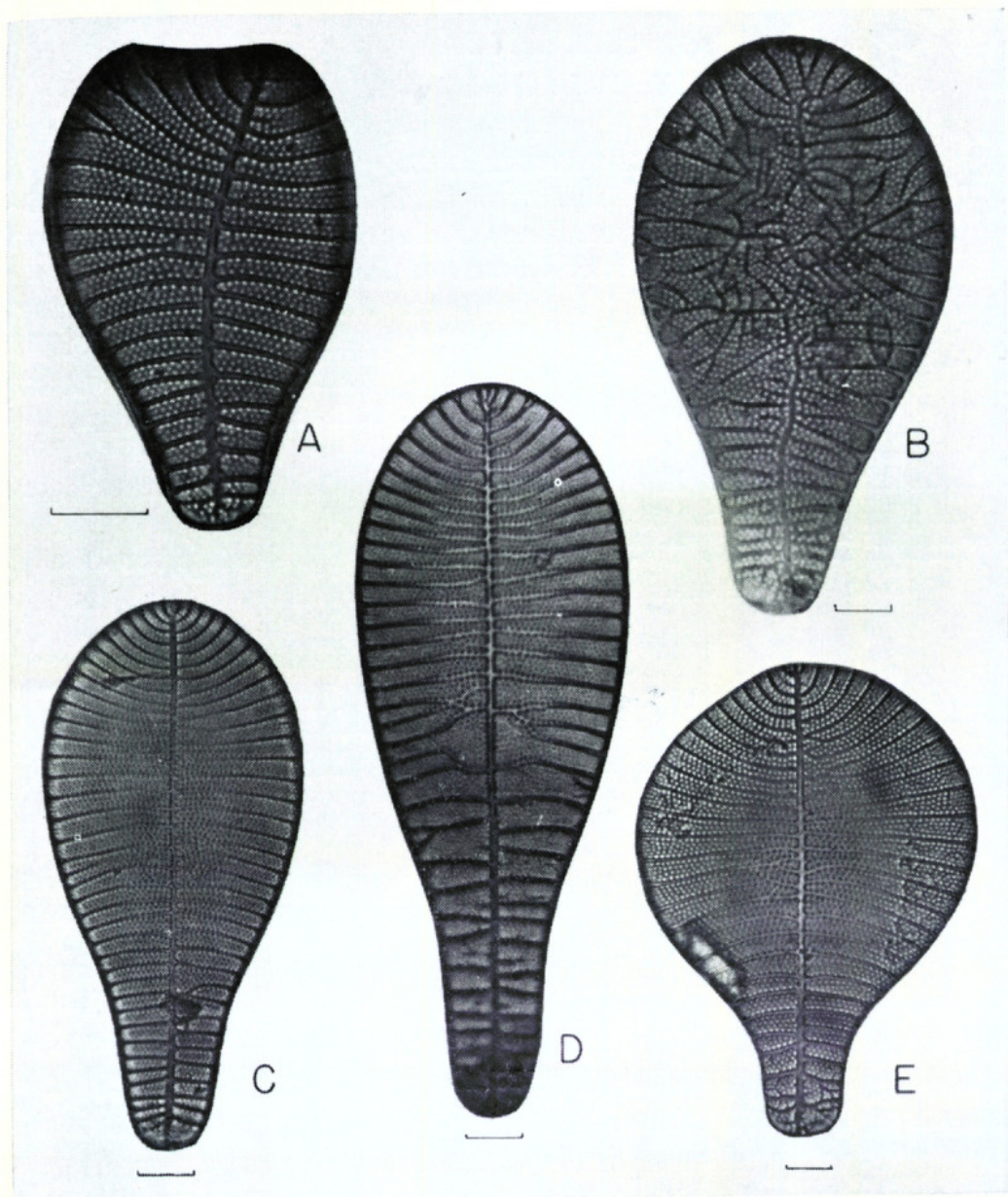


Fig. 1, Plate 1383. *Podocystis adriatica* (Kutz.) Ralfs (A) Marginal deformation; (B) Surface-pattern deformation; (C-E) Variations of normal frustules. (length of lines is 10u)

spring tides, a sudden exposure to atmospheric conditions is improbable. Neither did there appear to be undue crowding of the frustules on the host. Specimens attached to adjacent *Grinnellia* plants did not exhibit frustule abnormalities. Presumably the initiatory factor for these aberrations was localized.

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### A CASE OF ALBINISM AND OF PRESUMPTIVE SELF-COMPATIBILITY IN ULMUS L.

In late spring of 1964, large numbers of albino elm seedlings were noticed beneath an elm tree located near the northeast corner of Phillips Brooks House, Harvard Yard, Harvard University, Cambridge, Massachusetts. A quick count of normal and albino seedlings indicated approximately three times as many normal green seedlings as albino seedlings, the 3:1 ratio characteristic of progenies derived from self-pollination of individuals heterozygous for single gene recessive albinism. Time did not then permit a more detailed study.

On June 17, 1966 this elm tree was again visited. The ground beneath was well covered with new seed, some of



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