NOTES.

THE FRUITING OF CATENELLA OPUNTIA.—Algologists, and more especially those who have devoted themselves to a study of the reproductive organs of the Rhodophyceae, are well acquainted with the fact that many types produce cystocarpia and antheridia only at rare intervals. This is especially true of *Catenella Opuntia*.

The first record of the discovery of sexual fructifications in the genus *Catenella* occurs in a paper published in the Transactions of the Linnean Society by Goodenough and Woodward in 1797 (Observations on the British Fuci, with particular descriptions of each species, vol. iii, p. 219). They noticed that certain specimens of the plant had the articulations modified in a peculiar manner, but from their description it is difficult to tell whether these were cystocarpia or tetragonidangia.

According to Greville (Algae Britannicae, p. 167), Lightfoot (Fl. Scot., vol. ii, p. 961) believed that fructifications of *Catenella Opuntia* occurred at the articulations of the frond; Sir J. E. Smith attributed a reproductive function to the smaller joints of the internal filaments, and Dawson Turner (Synop. Brit. Fuci, 1802, p. 388) noticed certain bodies on the frond which he held to be of the nature of fructifications. Greville himself doubted the accuracy of these observations.

Harvey (Phycologia Britannica, pl. 88, vol. iii) gave an imperfect description of the cystocarps of *Catenella Opuntia* obtained from material found by Mrs. Griffiths at Torquay. They have also been imperfectly figured by Crouan (Florule Finist., tab. xvi, Fig. 108), while J. G. Agardh (Epicrisis System. Florid., p. 586) described these structures from a single small specimen, the only one in his possession. Material bearing cystocarps has also been collected by Buffham (Quekett Micr. Club Journal, Ser. 2, iii, p. 257), but he gives no description of them. Harvey-Gibson (Journ. Linn. Soc. Bot., vol. xxix) states that unpublished observations on the cystocarps of *Catenella Opuntia* had been made by Schmitz from specimens obtained from the Berlin Herbarium in 1885, gathered on the coast of Normandy and also at Ostend in 1832. No further finds of cystocarp-bearing plants are recorded until Harvey-Gibson collected fruiting material at the end of October, 1890, and again in June, 1891, on Puffin Island, North Wales. He described the fructifications in the Journal of the Linnean Society (Bot.), vol. xxix, p. 68. His material was collected from the protected faces of rocks near high-water mark.

At the beginning of August in the present year (1912) I collected plants of *Catenella Opuntia* bearing abundant cystocarpic fruit, in a similar situation on Hilbre Island, Cheshire. Although the plant occurs plentifully on the less exposed faces of the rocks near high-water mark, towards the southern end of the main part of the island, the only specimens I found in the fruiting condition grew in a small crevice in the rocks which from its shape and position afforded special protection to the plants.

I will gladly communicate fruiting specimens to any algologist who may desire to add such to his collection.

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