



Notes on the Dispersal of *Sagartia luciae* Verrill

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NOTES ON THE DISPERSAL OF SAGARTIA
LUCIÆ VERRILL.

G. H. PARKER.

STUDENTS of the New England sea anemones have for some years past been acquainted with a small but striking species of *Sagartia* that inhabits, often in great numbers, the higher tidal pools and similar situations on our coast. This sea anemone is about a quarter of an inch in height, slightly less in diameter, and of a dark green color; it is usually striped vertically with a few orange lines and has a cluster of some forty-eight whitish tentacles. It was described nearly four years ago under the name *Sagartia luciæ* by Verrill ('98), who first observed it in 1892 and annually after that for six seasons near New Haven. On the authority of W. R. Coe, Verrill reports it common at Woods Hole in 1898. He suggests that it may have been introduced into the region about New Haven on oysters that are annually brought from the south in large quantities and planted in the waters of Long Island Sound. He notes its rapid increase in numbers. That it is multiplying and spreading considerably is indicated by the following records of earliest occurrences, which, though probably open to revision, give a rather definite idea of the direction and rate of dispersal. When not otherwise stated, these records are based on the observations of the writer.

New Haven, Conn. Verrill, who for a long time has been especially acquainted with the marine invertebrates of this region, states that he did not observe this species between 1865 and 1890. His attention was first called to it in 1892 by Miss L. L. Verrill, who found it in tidal pools at Outer

Island, Conn. It was then much less abundant than in 1898, when it was described.

Newport, R.I. This anemone was not found in the region about the Newport Marine Laboratory in 1887, nor in 1890, though in both seasons the actinians of the Newport region were extensively collected. In the summer of 1895 it was the most abundant species in the cove next the laboratory.

Woods Hole, Mass. *S. lucia* was not observed by Verrill in his very exhaustive study of the fauna of Woods Hole between 1871 and 1887. In my own collecting at that place in 1889 it was not obtained. It was reported from Woods Hole in 1898 by W. E. Coe, and, in a letter to me from T. H. Morgan, the same year is given as the earliest at which Professor Morgan is certain of its occurrence in that locality. It is now abundant on the wharves about Woods Hole, and especially on the eel-grass in the Eel Pond.

Nahant, Mass. This species was not found at Nahant between 1882 and 1898, though collections of invertebrates from this locality were made usually several times annually in the years between 1882 and 1898. In the autumn of 1899 a few specimens of *S. lucia* were found in a small high tidal pool on Little Nahant. During the summer of 1901 Albert P. Morse, without knowledge of the previous occurrence of this species at Nahant, collected specimens of it in that locality. It is now very abundant in most tidal pools on Little Nahant.

Salem, Mass. It was collected at Salem Neck, near Fort Pickering, and near the Salem end of the Beverly Bridge in the summer of 1901 by Albert P. Morse.

Salem is the most northerly locality for which I have any record of the occurrence of this species, and, since it is not included in the Preliminary Catalogue of the Marine Invertebrates of Casco Bay, Me., prepared a year ago by Kingsley ('01), it may be that Salem is not far from its present most northerly limit.

The five localities already mentioned fall into the following series when arranged according to the sequence of earliest occurrences: New Haven (1892), Newport (1895), Woods Hole (1898), Nahant (1899), and Salem (1901). This series shows,

I think, beyond a doubt that the species has migrated eastward from New Haven and northward to Salem, having covered the distance between these two extremes probably within ten years. As this actinian is remarkably hardy, thriving well in high tidal pools where the water is often temporarily much diluted and very variable in temperature, it is unlikely that the change from the warmer waters south of Cape Cod to the colder ones north of that point will noticeably retard its dispersal. Like the introduced periwinkle, *Littorina littorea* (see Bumpus, '98), this species will probably gain an extended distribution both north and south of Cape Cod, though in this instance the invasion comes from the south instead of from the north, as with the periwinkle. It is hoped that these notes will call the attention of observers to *S. luciæ*, so that definite information may be obtained as to its present distribution, both north and south, and likewise evidence of its further dispersal.

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