

Notes on various British Anthozoa.

By

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I. *Sagartia ornata* (Holdsworth).

THIS species is described and figured by Gosse in his *Actinologia Britannica*, quoting its original discoverer Holdsworth, who obtained a number of specimens at the entrance of Dartmouth harbour from among the roots of *Laminaria*. In Section III of the Appendix, Gosse (p. 355) adds: "I have taken this at Torquay. It has also been found at Mizen Head, and sent me from Banff. The markings are true to the description, and leave no doubt of its distinctness as a species."

I recently (July, 1910) obtained specimens at Aberystwyth, attached to a fixed stone at the bottom of a deep pool near low-water mark on the reefs below the University. Dr. Fleure recognised them as having occurred some ten years previously in crevices on the reefs below the Castle; that colony, however, disappeared, this being the first subsequent rediscovery. The colony consisted of an adult, on either side of which was situated a young individual, and from the irregular form and development of these I consider them to have recently originated by fission from the base of the large specimen.

The adult, although agreeing in the main with the plate and descriptions of Holdsworth and Gosse, showed some variation, chiefly in lack of distinctness and definition of the colouration, which had a somewhat blurred appearance.

Size when expanded: height of column, 5 mm.; diameter, 10 mm. Outline of base irregular. Column—smooth, with suckers on the upper portion. Faintly grooved longitudinally by the insertion of the mesenteries. Disk: convex during expansion, smooth. Mouth of fair size, raised, tumid, the throat somewhat ribbed.

Tentacles fairly numerous (about eighty-six), rather stout, tapering to the tip, held flexed outwards during expansion. Acontia fairly freely emitted.

Colours: Column, flesh colour, the suckers pale. Disk, semi-transparent umber, with a light yellowish area around the mouth; the yellow rays irregular; a cycle of twelve white irregularly shaped (not cordate) spots on the disk between the yellow rays. Gonidial radii white. Throat pink.

Tentacles, light umber, with three white or yellowish rings; the area between the second and third rings rich dark umber. Slight dark lateral longitudinal streaks near the tentacle bases.

II. *Bunodes thallia*, Gosse.

I have been so fortunate as to discover a considerable number of this rare species, which varies in an interesting manner. It was originally described by Gosse, who obtained a colony at Lydstep, and he mentions four specimens subsequently discovered near Ilfracombe. G. Y. and A. F. Dixon have described a variety with white tentacles from the Ore Stone, near Torquay, and I have since taken both varieties in the neighbourhood of Padstow and Port Isaac, and a few small examples near Newquay. A few years ago I searched the original Lydstep locality in the hope of rediscovering this species, but without success, nor did I find it anywhere in that district. Gosse (p. 196) says: "About a dozen individuals of different sizes were associated in the dark angles and pools of a little insular rock exposed at spring-tide, that lies just off the cove called the Drock, near Lidstep. They were not troglodyte in habit, but adherent to the open rock, and therefore easily detached. The species is social; clustering together in groups, mutually pressing each other's sides." The Newquay specimens were small, typical in form and colouration, and were adhering to the under surfaces of stones at St. Columb Porth. Polzeath, between Padstow and Port Isaac, is the locality where I have found most specimens. A number of small specimens occurred attached to the lower side of stones which were more or less fixed in pools on the reefs. The greater number, many of considerable size, were found in situations very similar to those mentioned by Gosse; shallow pools, or low detached rocks surrounded by fine sand, which also lined the floor of all the pools and covered the anemones with the exception of the tentacles. So exactly did the grey and olive frecklings of these organs resemble the sand and byssal threads of the *Mytilus* colonies which abounded there, that only prolonged scrutiny and even feeling with the hands enabled me to ascertain the numbers present. The summit of the column was almost invariably covered with fragments of shell and sand attached by the suckers on prominent warts; and even when exposed the general hue of the column

greatly resembled the olive-coloured algæ growing in the pools. All these specimens were normally coloured, the chief variation being the warts. In those individuals which lived affixed beneath stones the warts were frequently by no means strongly developed, and the whole column lighter in colour (in one instance dirty white). Those living exposed in the shallow pools possessed very conspicuous warts, especially toward the summit, where they were crowded, prominent, or even somewhat clavate.

An isolated colony of about a dozen specimens was discovered in Port Quin Bay, nearer Port Isaac. They were of the variety described by G. Y. and A. F. Dixon, from Torquay. Living in a long crack between two bare, rounded rocks in a pool about half-way up the reef, their opaque white tentacles (which are also slightly longer and more tapering in this variety) gave them the appearance of a colony of some species of *Sagartia*. The pattern of the disk showed some variation, but in most cases the raying was obscure, dull grey and umber predominating. The rays were more pronounced in the younger examples.

III. The Actinian Fauna of Salcombe.

Allen and Todd (3) enumerated eight species as found in the estuary. During a recent visit I examined the reefs on either side of the harbour mouth, with the result that six further species were discovered. This is partly owing to the fact that I collected rather further seaward than Allen and Todd, although several occurred within the area they examined.

The following are the additional species:—

1. *Sagartia miniata*. Rocks between South Sands and Splat Cove, a few specimens.
2. *S. nivea*. Reefs near Mill Bay, a few. Molt Point, one specimen.
3. *S. sphyrodeta*. Between South Sands and Splat Cove, a few.
4. *S. pallida*. Splat Cove, two on the under side of a stone in a pool on the reef. Normal size.
5. *Bunodes verrucosa*. Molt Point, a few. Mill Bay, not uncommon.
6. *Corynactis viridis*. Very abundant in sheltered positions on the reefs between Mill Bay and the Blackstone.

IV. Actiniae collected between Bolt Tail and the River Avon, South Devon.

The following observations were made during January and February, 1910. The species obtained were all littoral. The examination of the coast was as thorough as the weather would permit, but many days

were lost through rough seas, etc. The Actinian fauna of the S. Devon coast is now fairly well known. A recent short search on reefs near Sidmouth (December 25th, 1909) produced only a solitary specimen of *A. equina*; E. J. Allen and R. A. Todd record that species and also *Anemonia sulcata* from the Orcombe Rocks at the mouth of the Exe. Many records from Teignmouth, Torquay and district, and Dartmouth are given by Gosse and others. Allen and Todd enumerate eight species from Salcombe; and the rich fauna of the Plymouth area is well known. My only excuse, therefore, for these notes is that they help to link up the Plymouth and Salcombe records as regards this group.

The following species were obtained: 1, *Actinia equina*; 2, *Anemonia sulcata* (*Anthea cereus*); 3, *Cereus pedunculatus* (*S. bellis*); 4, *Sagartia miniata*; 5, *Sagartia rosea*; 6, *Sagartia venusta*; 7, *Sagartia nivea*; 8, *Sagartia sphyrodeta*; 9, *Phellia mureocincta*; 10, *Bunodes verrucosa* (*B. gemmacea*); 11, *Tealia coriacea* (*T. crassicornis*).

The rocks in the area explored consist mainly of slates, grits, and conglomerate; there is some sand in the bays, and a large area of it at the River Avon. With the exception of Hope Cove, the whole region is very storm-swept.

The chief peculiarity of the district is that, with the exception of *A. equina*, *A. sulcata*, and *S. sphyrodeta* (occasionally in very sheltered angles and hollows), all the species have their habitat under fixed stones. It is practically useless to look for them under any stone which is easily moved, and usually it is a matter of careful observation to decide the most likely spots, to then remove some stone less firmly fixed than the rest, loosen and remove others, until finally the lower layers are reached; there, fixed and sheltered from stormy seas and moving stones, will be found such anemones as inhabit this coast. I ascribe this habit of life to the attrition of much coarse grit and shingle, which is to be found in almost every pool. A result of this enforced hidden existence is that the individuals are smaller than usual, and the pigmentation weaker. Particularly is this the case in the various species of *Sagartia*, tending in many instances to the obliteration or disappearance of typical markings, rendering a clear separation of the various species and varieties a matter of some difficulty.

Actinia equina. This species is neither very abundant nor large in the area examined, with the exception of the remarkable variety *fragacea*. This, though never common, occurs in most places and always of large size, and I can bear out all that Gosse states regarding this variety (see p. 177). The handsome colouration, large size, absence of the blue basal line, and in this area different distribution—(it is

usually solitary and extends downward into the *Laminarian* zone)—renders it most conspicuous.

Anemonia sulcata is the only really abundant species on many reefs; colouration and size normal.

Sagartia miniata. One normally coloured, and one specimen of the variety *brunnea* (Gosse, p. 43)—both from beneath stones. Hope Cove.

Sagartia rosea. Ten specimens were obtained from a reef-pool between Thurlstone Sand and Hope Cove. In the pool, which was sheltered by a large rock, stood many slabs of slaty rock, on edge, and wedged together. By loosening one, all were in time examined, and the anemones discovered attached to the lower sides and edges of the stones. They were small and easily detached. The column elongate, when expanded almost pellucid white, in some slightly tinged with pink, the mesenteries showing very plainly; grooved, studded with numerous minute scattered whitish suckers to which adhered fragments of sand, etc., and in a few a brown mucous coat was present when first obtained.

Disk, semi-transparent white; mouth, rose-red; throat and stomodaeum, orange-red, showing through the integuments during expansion. Tentacles, rose, with a darker core when contracted, forty-eight to seventy in number.

These specimens manifested an intense dislike for light, and always crept under stones; at night the column was greatly lengthened, and then presented a most graceful pillar-like appearance, the rose-red throat and stomodaeum being very striking. They were all singularly insensitive, and it was a long time before I could procure the expulsion of acontia; finally one was extruded from the mouth.

Sagartia nivea. A few specimens from under stones, mostly of the variety *obscurata* of Gosse. From Hope Cove I obtained an abnormally developed example. Diameter 10 mm. expanded. The abnormality consisted of some sixty of the tentacles, comprising three-quarters of the circumference, remaining short and obtuse, and of the olivaceous hue of the summit of the column. The inner cycle about 2 mm. in length, the outer more like papillae than tentacles. The remaining thirty were normal in size and colouration, white, slender, and about 5 mm. long. The anemone had the appearance of never being properly expanded.

S. venusta. Normal in colour, but small.

S. sphyrodeta. Both varieties are present in the district, *candida* fairly abundant; *wanthopsis* at Hope Cove under stones, among *Laminaria*.

Phellia mureocincta. Two specimens, Warren Point, attached to the under side of stones, top of the Laminarian zone.

I can now extend the range of this species to four localities: Torquay (Gosse), Thurlestone, Zennor and Polzeath (these two in Cornwall). This would seem to indicate that the species is not so very rare, but when contracted within its covering it so resembles the many excrescences or fragments of debris so abundant under all stones in tide pools that probably it is often overlooked. A note on the Zennor specimens has already appeared in the Journal (September, 1907). I will only add that the Thurlestone examples agreed with them. The investing "coat" was easily detached, and did not adhere about the base; after its removal the anemones became restless and roamed until they obtained sufficient fragments to form a new covering, when they again became stationary. They only expanded at night, and when contracted and the covering was removed resembled, as Gosse observes, "a young *Sagartia viduata*." Tentacles 36. The Polzeath specimen was very small and only obtained by chance. Having observed several specimens of *Mytilus barbatus* mingled with *M. edulis* in a small cave, I detached them and put them in a collecting bottle full of water; on arriving home I observed the anemone fully expanded upon one of the *M. barbatus*, mingled with *Sycon coronata*, etc.

V. *Hoplangia Durotrix*, Gosse.

Originally mistaken by Gosse for *Phyllangia americana*, and subsequently described in *Actinologia Britannica*, p. 338, from specimens dredged in Weymouth Bay in 1858, when a colony of "from 50 to 100 specimens of this little coral, clustered in groups," was obtained, some of which came into his hands. The animal was not described, being too decomposed. Gosse states, however, that the discoverer spoke of it as resembling *Caryophyllia*, and "told me that he remarked numerous tentacles, but did not notice whether they were knobbed."

During a recent visit to Plymouth I examined a colony of more than thirty specimens, chipped off Wembury reef by W. Searle, 2nd September, 1909. The corals were of varying sizes, as Gosse says, "clustered in groups," on the stone. They agreed with the original Weymouth specimens. Diameter of largest unbroken individual, 5 mm.; height varied up to 10 mm.; outline varied, some being oval, others nearly circular. The colony had been killed partially expanded, and showed a considerable number of thick, obtuse tentacles, which do not appear to be knobbed. Searle tells me that the animals were colourless, or at any rate, he did not notice any colours like those of *Caryophyllia*.

LITERATURE.

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