

Distichopora (Haplomerismos) anceps, a new Stylasterine coral (Coelenterata: Stylasterina) from deep water off the Hawaiian Islands

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Abstract.—A new species of Stylasterina from the slope off Laysan, Hawaiian Islands is described, representing the first documented record of Stylasterina for the Hawaiian islands. A new subgenus of *Distichopora* is described to contain this distinctively branched species.

Introduction

Stylasterine corals are well documented from both north and south of the Hawaiian Islands. To the north, they are common in the Bering Sea, Okhotsk Sea, Sagami Bay, Aleutian Island Chain, and off Washington and California (Fisher, 1938). To the south they have been reported from as close as the Marshall Islands and Johnston Island (Wells, 1954), which is only 600 miles SSE of Laysan. However, there are no well documented records of any Stylasterina from the Hawaiian Islands (Edmondson, 1946; Boschma, 1959, 1964). According to Boschma (1959: 134), there have been several published accounts of Stylasterine corals from the Hawaiian Islands, but these can all be traced ultimately to a large suite of corals at the Paris Museum labelled "Iles Sandwich." Boschma agrees with Moseley (1877) in supposing that, although these corals were bought in Hawaii, they were probably brought from other island groups (i.e., Marquesas) to be sold to tourists.

This material, consisting of four specimens from one station off Laysan, is the first documented record of a Stylasterine coral from the Hawaiian Islands, and represents a new species and subgenus.

Order STYLASTERINA Hickson & England, 1905

Family STYLASTERIDAE Gray, 1847

Subfamily Distichoporinae Stechow, 1921

Genus *Distichopora* Lamarck, 1816

DIAGNOSIS: Gastropores in a linear row, flanked on either side by a row of dactylopores. Colony flabelliform. Gastropores with long gastrostyles; dactylostyles absent. Type-Species: *Millepora violacea* Pallas, 1766, by monotypy.

Subgenus *Haplomerismos*, new subgenus

DIAGNOSIS: No further branching occurs after initial bifurcation of main stem.
Type-Species: *Distichopora (Haplomerismos) anceps*, by original designation.
Gender: masculine.

DISCUSSION: The 14–17 valid species of *Distichopora* are closely related, and, for the most part, can be distinguished only by careful examination and comparison (Broch, 1942: 7). *D. (H.) anceps*, however, is easily distinguished by its peculiar shape and branching; for this reason alone it deserves to be separated from the other *Distichopora* s.str. However, this growth form does not seem to justify the creation of a new genus. Although two genera in the Errininae are separated on growth form (*Errina* forms a bushy colony, *Errinopsis* has coalescent branching), other characters, such as variations in the presence and number of gastrostyles and dactylostyles, presence of unique structures (e.g., opercula and diaphragms), and structure of gastrostyles, are more important as generic characters.

The nominate subgenus *Distichopora* will contain all other species of *Distichopora* thus far described.

ETYMOLOGY: *Haplomerismos* is formed from the Greek *haplos*, meaning "single," and *merismos*, meaning "division." The combination refers to the single division of the main stem (pedicel) into two lobes after which no branching occurs.

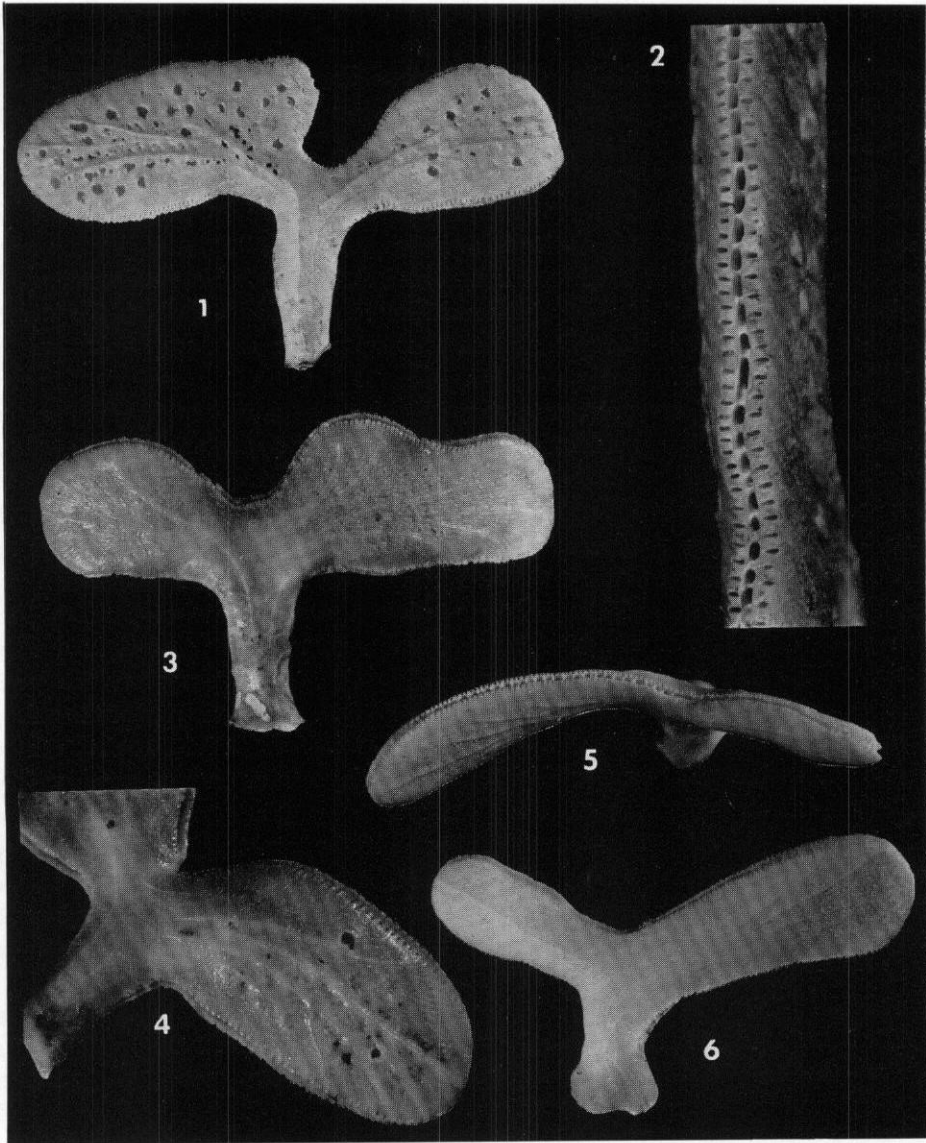
Distichopora (Haplomerismos) anceps, new species

Figs. 1–6

MATERIAL EXAMINED: Holotype, USNM 56338, Paratypes (3), USNM 56339, off Laysan, Hawaiian Islands, 25°55.32'N, 171°55.13'W, Midway (SANGO) Cruise, Haul 8, 27 July 1972, 658–736 m (Holotype dry; two Paratypes alcoholic, one dry).

DESCRIPTION: The colonies are small; the largest of the four specimens examined (Holotype) measures 26.4 mm high and 49.2 mm broad. The smallest measures 20.0 mm high and 35.2 mm broad. The ratio of height to width for the four specimens varies only from 53–57%. This species is unique in shape among all Stylasterine species. The colony is firmly attached by a stout main stem (pedicel) slightly elliptical in cross section, with the greater axis directed in the flabellar plane. The pedicel of the Holotype is 4.4 × 5.5 mm in diameter and about 12 mm tall. It supports two strongly compressed, elongated, horizontal lobes, which grow in opposite directions. In two specimens the lobes are uniplanar; in the other two specimens the lobes produce a slightly curved surface (Fig. 5). The lobes, which are 2.5–3.5 mm thick, are separated by a distinct notch or broad indentation, which is aligned with the pedicel. The lobes are invariably asymmetrical; one is either longer than the other or bears an additional small "shoulder" near the notch.

Distinct ridges or "veins" are present on both the pedicel and flabellar surfaces. The ridges begin at the base of the pedicel and may continue all the way to the distal sulcus or terminate at any point in between. Up to six additional shorter ridges, originating on the lobes, may radiate outward on each flabellar surface.



- Fig. 1. *Distichopora (Haplomerismos) anceps*, Holotype (USNM 56338), $\times 1.5$.
 Fig. 2. *D. (H.) anceps*, Holotype, arrangement of gastropores and dactylopores, $\times 15$.
 Fig. 3. *D. (H.) anceps*, Paratype (USNM 56339), $\times 1.7$.
 Fig. 4. *D. (H.) anceps*, a different paratype (USNM 56339), showing some ruptured and intact ampullae, and a discontinuous sulcus above the notch, $\times 2.5$.
 Fig. 5. *D. (H.) anceps*, a different paratype (USNM 56339), viewed from above to show curvature of flabellum, $\times 2.0$.
 Fig. 6. Same specimen as figure 5, $\times 1.9$.

The texture of the coenosteum is very smooth, almost porcellaneous. There are no warts or tubercles; however, there may be numerous, small, irregular pores between the ridges (openings of the coenosarcal canals?) and craters formed by ruptured ampullae. The color of the tissue in alcohol is light grayish brown; when bleached the corallum is white.

The sulcus is distinct and entirely restricted to the lateral edge. It is moderately deep and about 0.4 mm wide. In two of the specimens it is continuous (Fig. 5) from one lobe to the other; in the third it is interrupted for 1 mm directly over the notch (Fig. 4); and in the fourth it is interrupted twice, in the notch area, both for less than 1 mm intervals. The gastropores in the sulcus that once lined the pedicel are filled in by coenosteum, such that there is only a shallow, solid sulcus along the sides of the pedicel.

The openings of the gastropores may be either circular, measuring 0.4 mm in diameter, or elliptical, measuring 0.6×0.4 mm, with the greater axis directed in the plane of the flabellum. The gastropores are closely adjacent, separated by a thin septum. Approximately 15 occur in a 1 cm section. Each gastropore is curved, deep, and bears a long, needle-shaped gastrostyle, which is covered by short spinules. The slit-like dactylopores measure $0.3\text{--}0.4 \times 0.15\text{--}0.20$ mm and are arranged perpendicular to the sulcus. They are separated from each other by 1–4 times their own width; however, in a crowded arrangement, up to 30 may occur in a 1 cm section. Viewed from the side they give a slightly serrate contour to the lobe. On three of the four specimens examined, the dactylopores on one side of the sulcus (always on the concave side in curved flabella) are raised about 0.5 mm above those on the other side. On the raised side, the dactylopores are always more widely spaced, and therefore fewer in number. There are no dactylostyles or dactylostomes.

Ampullae (female?) are present in only two of the specimens examined. They are round, approximately 0.7 mm in diameter, and occur on both sides of the flabellum. They are inconspicuous when ripe, causing only slight hemispherical bulges in the coenosteum. The ampullae are arranged between the ridges and are equally spaced, not clumped. Between 15–20 occur on one side of one lobe.

COMPARISONS: Boschma (1957) listed 26 nominal species of *Distichopora* worldwide, 21 of which were listed as Indo-Pacific. He (Boschma, 1959) later reduced the Indo-Pacific species to eight valid species, two species of uncertain standing, and one species of uncertain generic position. There are an additional five species from the western Atlantic and one fossil species from the Eocene of Paris, which brings the total to 14 valid and three questionable species. *D. (H.) anceps* is easily distinguished from all of these by its distinctive branching.

ETYMOLOGY: The specific name is the Latin *anceps*, meaning two-headed.

TYPE-LOCALITY: Off Laysan, Hawaiian Islands: $25^{\circ}55.32' N$, $171^{\circ}55.13' W$, 658–736 m.

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References Cited

- Boschma, H.** 1957. List of the described species of the order Stylasterina. Zool. Verh. Mus. Leiden, no. 33. 72 p.
- Boschma, H.** 1959. Revision of the Indo-Pacific species of the genus *Distichopora*, Bijdr. Dierk., 29: 121-171, pls. 1-16, 5 text-figs.
- Boschma, H.** 1964. On variation in *Stylaster sanguineus*. K. Nederland. Akad. Wetensch. Amsterdam. Proc., ser. C, 67 (4): 183-194, pls. 1-2, 4 text-figs.
- Broch, H.** 1942. Investigations on Stylasteridae (Hydrocorals). Skr. Norske Vidensk.—Akad. Oslo, Matem.-Naturv., 1942 (3): 113 p., 6 pls.
- Edmondson, C. E.** 1946. Reef and shore fauna of Hawaii. Bernice P. Bishop Mus., Spec. Pub. 22, 295 p., 163 figs. Honolulu.
- Fisher, W. K.** 1938. Hydrocorals of the North Pacific Ocean. Proc. U. S. Nat. Mus., 84: 493-554, pls. 34-76.
- Moseley, H. N.** 1877. Preliminary note on the structure of the Stylasteridae, a group of stony corals which, like the Milleporidae, are Hydroids, and not Anthozoans. Proc. Roy. Soc. London, 25: 93-101.
- Wells, J. W.** 1954. Recent corals of the Marshall Islands. Bikini and nearby atolls, part 2, Oceanography (Biologic). U. S. Geol. Sur. Prof. Pap. 260-I, i-vi, 385-486, pls. 94-185.