

Notes on Indo-Pacific Scleractinian Corals. Part 7¹ *Catalaphyllia*, a New Genus of Reef Corals

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IN HIS MONUMENTAL BOOK on the Great Barrier Reefs of Australia Saville Kent described (1893, pp. 39–40, 158, pl. 25, f. 3, chromo pl. 4, f. 7) the polyps of a hermatypic coral that he found in shallow water on the reefs at Warrior Reef (lat 9° 45' S), Thursday Island (lat 10° 35' S), and Albany Pass (lat 10° 45' S). He identified this coral correctly as a member of the Eusmiliidae and considered it to represent a new species, *Pectinia jardinei*. His reference to *Pectinia* is at present confusing, for that genus, as interpreted today, characterizes the family Pectiniidae, a group quite distinct from the eusmiliids, but at that time *Pectinia* comprised what is now known as *Meandrina*, a West Indian form. Saville Kent seems to have overlooked the very close resemblance of the flabello-meandroid corallum of "*Pectinia*" *jardinei* to that of *Euphyllia fimbriata* which he recorded from the same reefs.

Since 1893 Saville Kent's species has been quite overlooked, although, as will be shown, it has been recognized under a number of names and described as early as 1848.

Saville Kent's excellent photograph of the partly expanded living colony of his "*Pectinia*" *jardinei* (1893, pl. 25, f. 3), his color sketch of another example (1893, chromo pl. 4, f. 7), Yonge's photograph of a juvenile (1930*b*, pl. 39, f. B), and the color photographs of Catala (1964, pl. 2, f. 2; pl. 3, f. 7), show polyps strikingly different from those of *Euphyllia*, a difference more than specific. Recently I was able to observe a number of living colonies through the courtesy of Dr. R. L. A. Catala in the Aquarium de Nouméa, New Caledonia, and

confirmed the supposition that this coral indeed represented a new genus of eusmiliid in spite of the homeomorphy of the skeleton with that of *Euphyllia*. In small recognition of his contributions to the study of the tropical marine fauna, the new genus is named for Dr. Catala.

ORDER *Scleractinia*

SUBORDER *Caryophylliida*

FAMILY *Eusmiliidae*

GENUS *Catalaphyllia*, new genus

Type Species

Rhipidogyra plicata Milne Edwards and Haime 1848. Syntype (Paris) figured by Matthai (1928, pl. 41, f. 1).

CORALLUM

Corallum forms large, flabello-meandroid colonies from a small base. Valley broad, sinuous, continuous or sometimes discontinuous. Wall septothecal, costate, finely granulate, lacking exotheca and epitheca. Septa thin, slightly exsert, margins entire. Columella absent or very weakly trabeculate. Endotheca coarsely vesicular.

Polyps

Oral disc very broad when fully expanded, with a central series of protuberant peristomes. Tentacles forming a single row around the margin of the oral disc, tapering gently with small terminal knobs. Edge-zone very narrow.

Remarks

In all respects save two minor characters, the corallum of this form is identical with that of *Euphyllia*, especially *E. fimbriata* (Spengler). The endothecal vesicles are coarser and fewer and the wall is externally more granulated. The polyps (Fig. 1*b*), however, are quite different from those of the type species of *Euphyllia*, *E.*

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glabrescens (Chamisso and Eysenhardt), which have a relatively small oral disc with longer, less tapering tentacles with swollen bulbous tips, forming four or five rows over much of the disc (Quoy and Gaimard, 1826, pl. 96, f. 9; Saville Kent, 1893, pl. 25, f. 2; chromo pl. 4, ff. 2–6; Yonge, 1930a, f. 6). The polyps of *E. fimbriata* have not been described.

Catalaphyllia plicata
(Milne Edwards and Haime) 1848

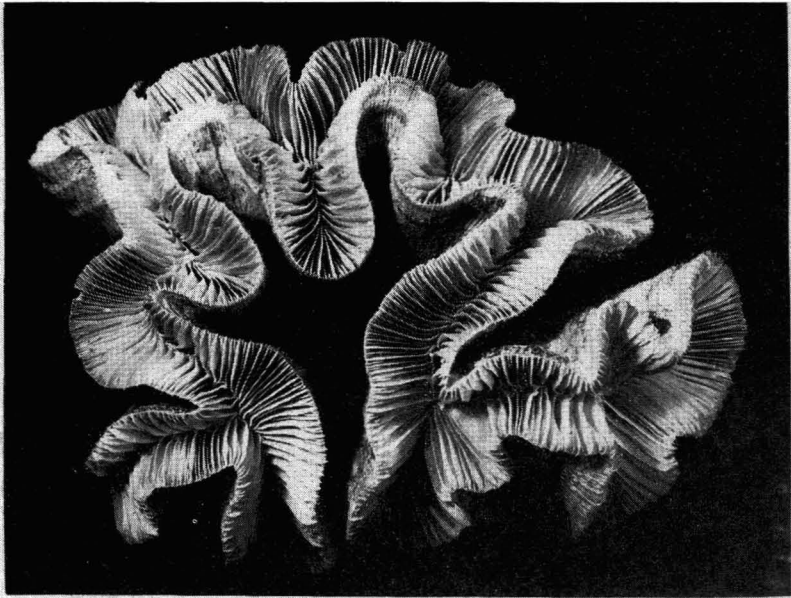
Figures 1 a–f

- Rhipidogyra plicata* Milne Edwards and Haime 1848. Ann. Sci. Nat. (3), v. 10, p. 282.
- Euphyllia plicata* Milne Edwards and Haime 1851. Archives du Muséum d'histoire naturelle, Paris, vol. 5, p. 54.
- Euphyllia plicata* Milne Edwards and Haime 1857. Hist. Nat. Corall, v. 2, p. 195.
- Pectinia jardinei* Saville Kent 1893. The Great Barrier Reef of Australia, pp. 39–40, 158, pl. 25, f. 3, chromo pl. 4, f. 7.
- Flabellum multiflore* Gardiner 1905. Fauna and Geogr. Maldive and Laccadive Archipel., v. 2, p. 954, pl. 93, f. 28, 29.
- Euphyllia picteti* Bedot 1907, Revue suisse de zoologie, vol. 15, p. 161, pl. 10, ff. 35–38; var. *flexuosa*, p. 164, pl. 10, ff. 39, 40.
- Flabellum multiflore* Faustino 1927. Bur. Sci. Philippine Is., Mem. v. 22, p. 57, pl. 4, ff. 1, 2.
- Euphyllia picteti* Matthai 1928. Cat. Madreporaria. Brit. Mus. Nat. Hist., v. 7, p. 182.
- Euphyllia fimbriata* Matthai 1928 (*pars*). Cat. Madrep. Brit. Mus. Nat. Hist., v. 7, p. 179, pl. 41, f. 1 (*E. plicata* M. E. and H.), non pl. 40, f. 1; pl. 52, f. 1; pl. 59, f. 1.
- Flabellum* Yonge 1930. A Year on the Great Barrier Reef, p. 132, pl. 39, f. B (upper of two figures).
- Euphyllia picteti* Yabe, Sugiyama, and Eguchi 1936. Sci. Repts. Tôhoku Univ. (2), Spec. Vol. 1, p. 17, pl. 10, ff. 3, 4; var. *flexuosa*, p. 18, pl. 10, ff. 1, 2.
- Euphyllia picteti* Ma 1937. Palaeontologia Sinica, Serv. B, v. 16, p. 37, pl. 1, f. 1; var. *flexuosa*, p. 38, pl. 10, f. 1.
- Euphyllia picteti* Eguchi 1938. Palao Tropical Biological Station Studies, no. 3, p. 338.
- Flabellum vacuum* Crossland 1952. Scientific Reports of the Great Barrier Reef Expedition, vol. 6, p. 106, pl. 1, ff. 1, 3.
- Euphyllia picteti* Wells 1955. Report of the Great Barrier Reef Committee, vol. 6, p. 26.
- Flabellum multiflore* [sic] Squires 1958. Bulletin. Geological Survey of New Zealand. New Zealand Geol. Surv., Paleont. Bull. 29, p. 69.
- Euphyllia picteti* Ma 1959. Oceanographica Sinica, Spec. Vol. 1, p. 79, pl. 152, f. 2; var. *flexuosa*, pl. 151, f. 2 a–b.
- Euphyllia picteti* Nemenzo 1960. Natural and Applied Sci. Bull. (Philippines), v. 17, p. 211, pl. 2, f. 1.
- Euphyllia picteti* Catala 1964. Carnival under the Sea, pl. 2, f. 2; pl. 3, f. 4; pl. 11, f. 4; pl. 13, f. 2.
- Euphyllia picteti* Smith 1970. The Hidden Sea, p. 48, color pl.

Description

Corallum and polyps have the characters of the genus. Corallum fixed by a small base in early monostomatous flabelloid stage (Fig. 1c), breaking loose, lying free and becoming trochoid, developing flabello-meandroid colonies (Fig. 1a), up to 50 cm broad. Valley 20–30 mm in width, 15–20 mm deep. Septa are thin, 9–12 per centimeter at the wall, slightly exsert, margins sloping evenly to bottom of valley where four or five larger ones may bend to meet, forming a very weak columella. Sides of septa with rows of fine, faint trabecular granules normal to margin (Fig. 1a). Wall septothecal, thin, with low costae corresponding to all septa. Costae and intercostal furrows more or less evenly granulated (Fig. 1e). Endotheca coarsely vesicular, two or three vesicles appear in interseptal spaces in transverse section; in longitudinal section (Fig. 1f) they are 3–5 mm apart (1.5–2 mm in *E. fimbriata*).

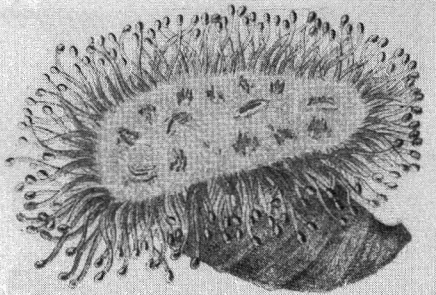
Polyps usually with brilliant fluorescent green oral disc, tentacles gray-brown with flecks of green, their tips pink (Catala, 1964, pl. 2, f. 2), or dusky purple with pink-tipped tentacles, or dusky-purple column and tentacles and green disc. Under ultraviolet radiation the oral disc is brilliant green, the tentacles bright blue with red-violet tips (Catala, 1964, pl. 11, f. 4).



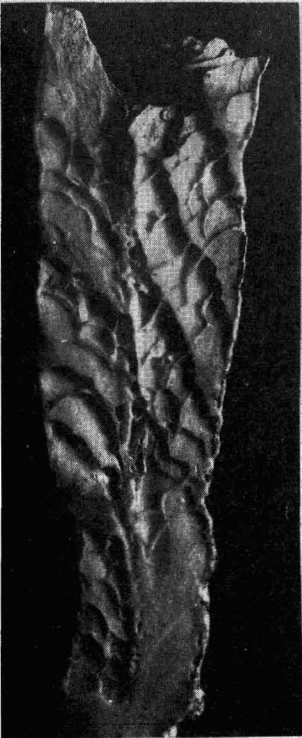
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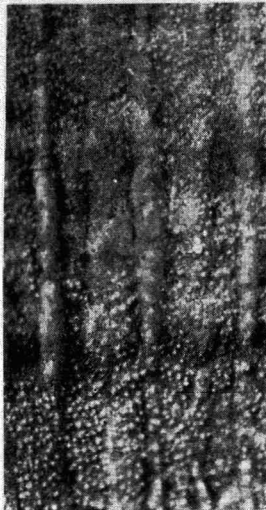
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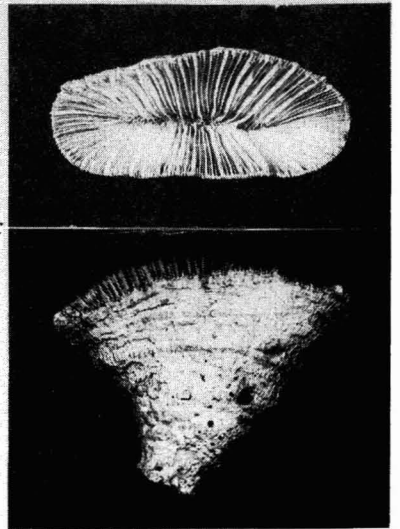
b



f



e



c

Remarks

As the iconography of this species is fairly extensive (see especially Bedot (1907), Catala (1964), Matthai (1928), and Yabe, Sugiyama, and Eguchi (1936)), only a few figures are introduced in this note. Saville Kent's color sketch, while not wholly accurate, is reproduced in monochrome (Fig. 1*b*), for it does illustrate the aspect of polyp and corallum in the early detached trochoid condition.

Milne Edwards and Haime distinguished their *E. plicata* from *E. fimbriata* by the wider valleys, larger endothecal vesicles, and granulated wall. Fortunately one of their syntypes, from an unknown locality, is still in Paris and has been figured by Matthai as *E. fimbriata* (1928, pl. 41, f. 1).

Euphyllia fimbriata is alone amongst the several species of *Euphyllia* in having a flabello-meandroid growth form, and it may prove, when the polyps are examined, to be a second species of *Catalaphyllia*.

Occurrence

Maldive Islands, 45–50 m; Lacépède Islands, northwestern Australia (lat 16° S); Amboina; Philippines: Mindanao, 180 m, and southern Philippines; Pescadore Islands, Formosa Straits (lat 23°40' N); Palau Islands; Great Barrier Reefs: Thursday Island south to Port Newry (lat 21° S); New Caledonia, 30–40 m.

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FIG. 1. *Catalaphyllia plicata* (M. E. and H.). *a*, Calicular aspect of part of a colony from Port Newry, Queensland (lat 21° S.), growing in about 1 meter of muddy water, $\times 0.5$; *b*, sketch of early stage by Saville Kent (1893, chromo pl. 4, f. 7, "*Pectinia jardinei*"), northern Great Barrier Reefs, $\times 0.4$; *c*, calicular and lateral aspects of juvenile corallum ("*Flabellum vacuum*," "*F. multifore*"), 35 m, Banc Gail, New Caledonia, $\times 0.5$; *d*, septa of preceding specimen, $\times 4$; *e*, granulate surface of costae and wall, 35 m, Banc Gail, New Caledonia, $\times 10$; *f*, vertical section, showing coarse endothecal vesicles, 35 m, Banc Gail, New Caledonia, $\times 1$.