

# COMMON SHALLOW-WATER GORGONIANS OF TRINIDAD

By D. Ramsaroop,  
Dept. of Biological Sciences, U.W.I., St. Augustine.

GORGONIANS are more commonly referred to as sea fans, sea feathers and sea whips. They are coelenterates and are therefore related to jelly fishes, stony corals, black corals and hydroids. These colonial animals comprise one of the most prominent and characteristic components of the marine shallow-water, hard-

bottom communities around Trinidad.

Gorgonians may be divided into hermatypes, which harbour unicellular algae termed zooxanthellae, and ahermatypes, which do not have zooxanthellae. Indications are that there exists a symbiotic relationship between these algae and their gorgonian hosts. Hermatypic forms are therefore, of necessity, confined to shallow water. In Trinidad these species are found only at depths shallower than 10 metres.

The species described in this paper are all hermatypes and thus shallow-water species, except *Pacifigorgia elegans*. *P. elegans* apart from being an ahermatype, occurs both in shallow and deeper water.

The systematic characters employed in the classification and identification of gorgonians fall into two general categories: characters related to gross morphology, and those pertaining to the microscopic calcareous skeletal elements, the spicules. Only features of gross morphology are described in this paper. Features of colonial morphology employed in identification are: size and shape of colony; pattern of branching; distribution of polyps; dimorphism of polyps; axis structure and colour. Size and shape depend upon extent and pattern of budding.

The species described here are found only along the Trinidad North Coast except *P. elegans*. They are especially predominant in the shallow bays where the substratum is rocky and where the full force of the Caribbean swells is reduced. Some of these localities include Macqueripe Bay, Cyril's Bay, Balata Bay, Damian Bay, Tyrico Bay, Chupara Bay and Toco Bay. *P. elegans*, on the other hand occurs all around the island but only where the sea floor is rocky.

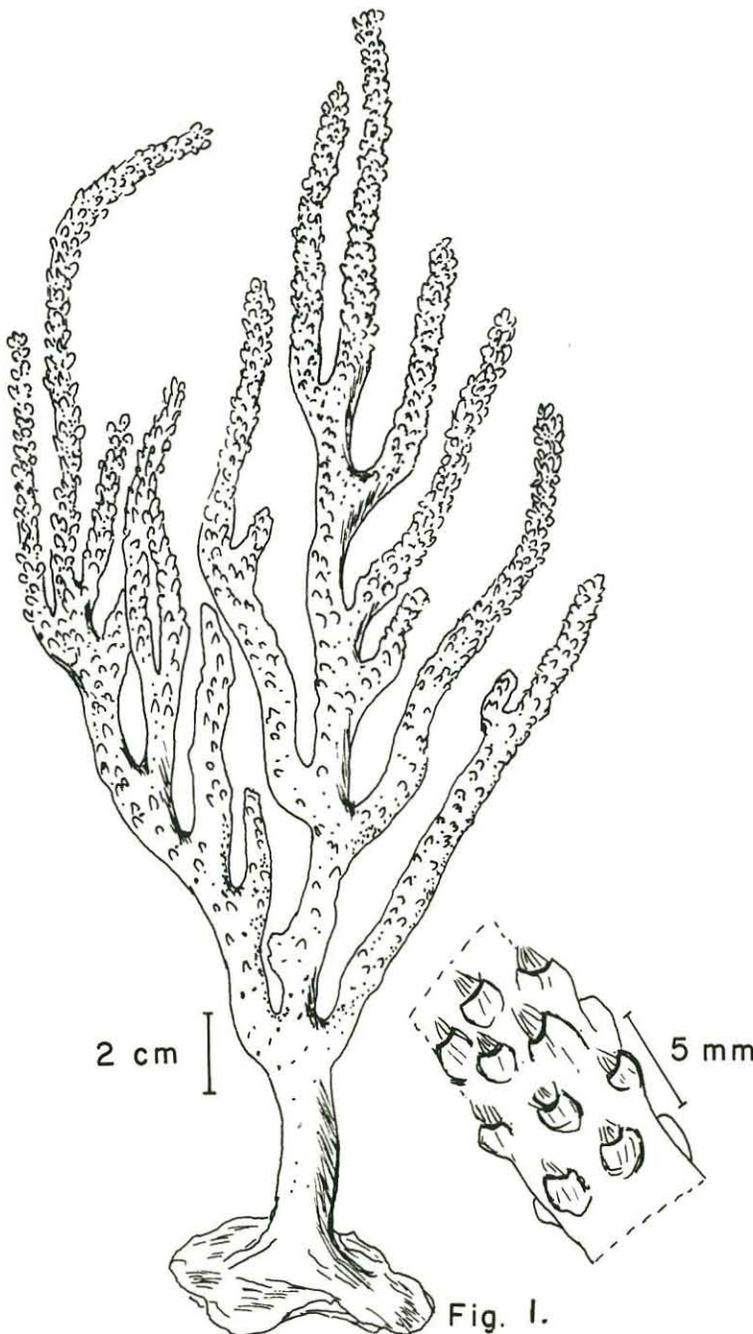
## GLOSSARY

- ANASTOMOSIS** — cross connection of branches
- CALYX** — the projecting, lower, thickened part of the body wall of polyps, often stiffened by spicules, into which the upper tentacular part of the polyp may be withdrawn.
- COENENCHYME** — the colonial jelly-like substance separating the two cellular layers of coelenterates in which the spicules (the calcareous skeletal elements) are embedded.
- POLYP** — any individual of the gorgonian colony. Each polyp usually has eight well developed tentacles.
- RIND** — the outer layer of the coenenchyme.

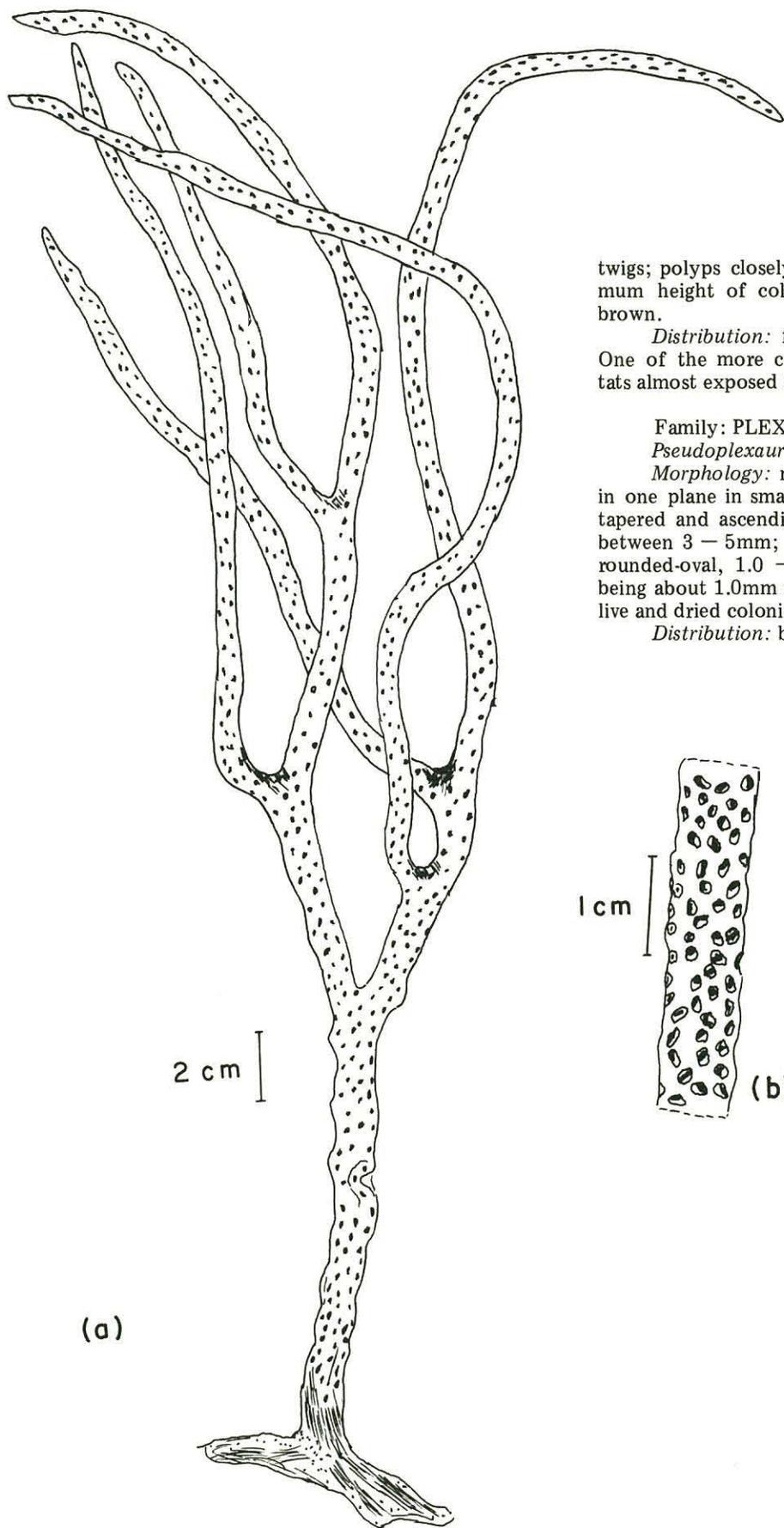
Family: PLEXAURIDAE, Gray, 1859.

*Plexaura flexuosa* Lamouroux, 1821. (Fig. I)

**Morphology:** branching lateral; small colonies branching in one plane; large colonies richly branched, appearing bushy but still broadly compressed in one plane; branches free and ascending; average circumference of terminal branchlets 1.1cm; polyp apertures pore-like; calyces not well developed; coenenchyme raised around polyp apertures, forming a small lip below each; lips smaller or absent around apertures in lower regions of colonies, but become progressively pronounced towards endings of



***Plexaura flexuosa* Lamouroux, 1821.**



twigs; polyps closely spaced, especially on terminal twigs; maximum height of colony 65cm; colour in life and when dried, brown.

*Distribution:* from the low tide level down to 12 metres. One of the more common shallow water species. In reef habitats almost exposed at low tide.

Family: PLEXAURIDAE, Gray, 1859.

*Pseudoplexaura porosa* (Houttuyn) 1772. (Fig. 2)

*Morphology:* main axis short, branching dichotomous, and in one plane in smaller colonies; branches free, cylindrical, little tapered and ascending vertically; diameter of terminal branches between 3 – 5mm; calycular projections absent; polyp apertures rounded-oval, 1.0 – 1.5mm in diameter and very closely set, being about 1.0mm apart; maximum height of colony, one metre; live and dried colonies, brown.

*Distribution:* between 3 – 12 metres.

Fig. 2. Pseudoplexaura porosa (Houttuyn) 1772 .

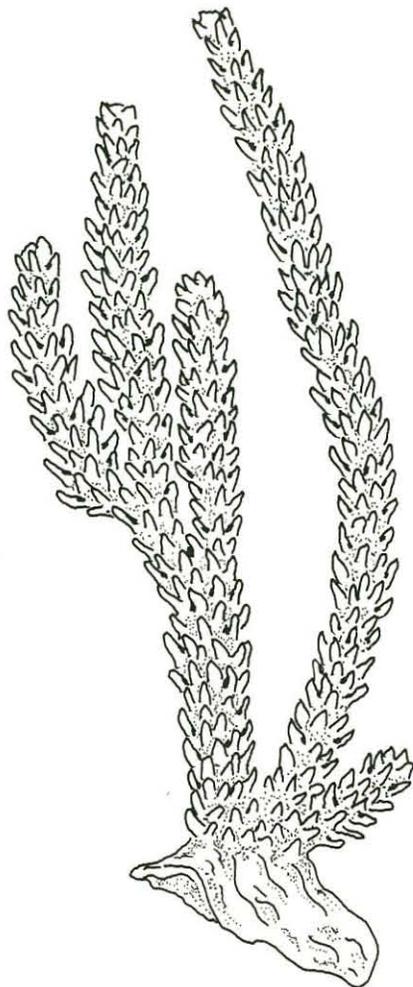
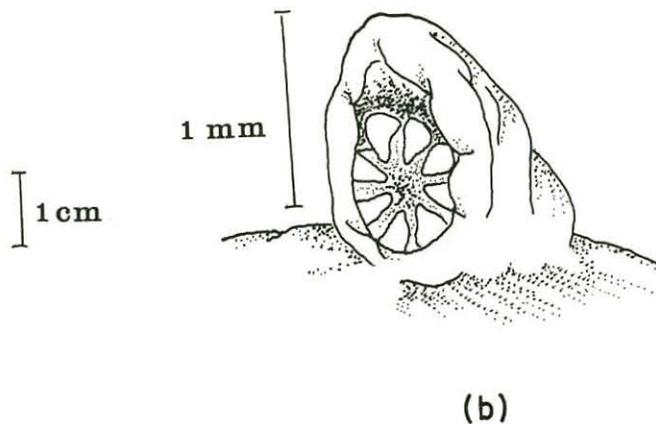


Fig. 3. Eunicea (Euniceopsis) tourneforti  
Milne Edwards & Haime, 1857



(a)

Family: PLEXAURIDAE, Gray, 1859.

*Eunicea (Euniceopsis) tourneforti* Milne, Edwards & Haime, 1857. (Figs. 3,4,5)

*Morphology:* branching dichotomous; branches free, ascending and in some colonies candelabrum-like; smaller colonies usually branched in one plane; branching increased in larger colonies, but colonies still greatly compressed in one plane; branches usually stout, stiff, cylindrical and lacking any taper; diameter of terminal twigs between 5 – 15mm; branches from deeper colonies, much thicker; calyces well developed, standing out prominently from the surface of the rind and with a well developed upturned lower lip; maximum height of colony, 40cm; live colonies brown to dark-brown; dried colonies blackish brown or dark grey.

*Distribution:* between 1 – 12 metres. Colonies in reef habitats stunted and almost exposed at low tide.

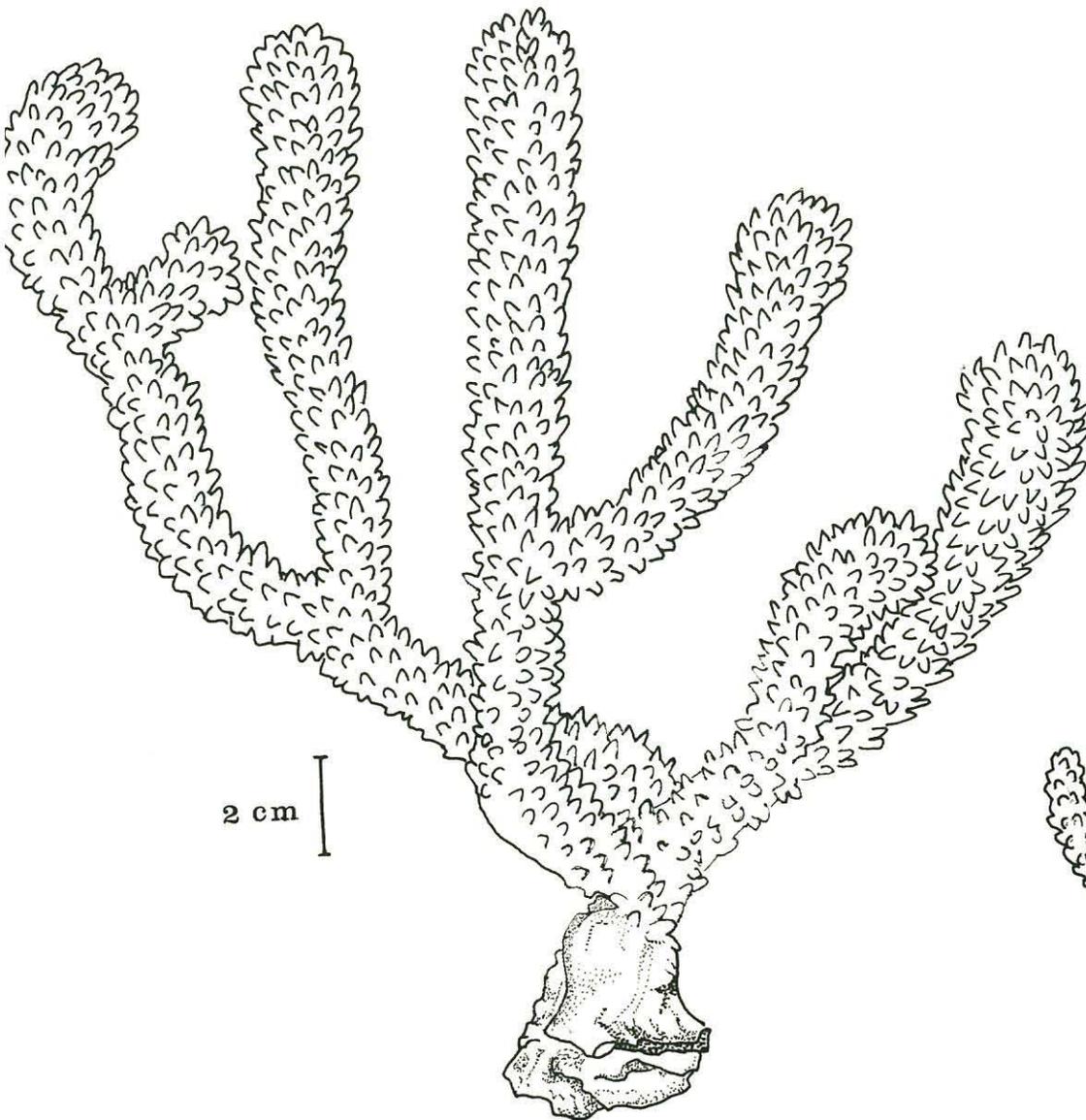


Fig. 4. Eunicea (Euniceopsis) tourneforti  
Milne Edwards & Haime, 1857

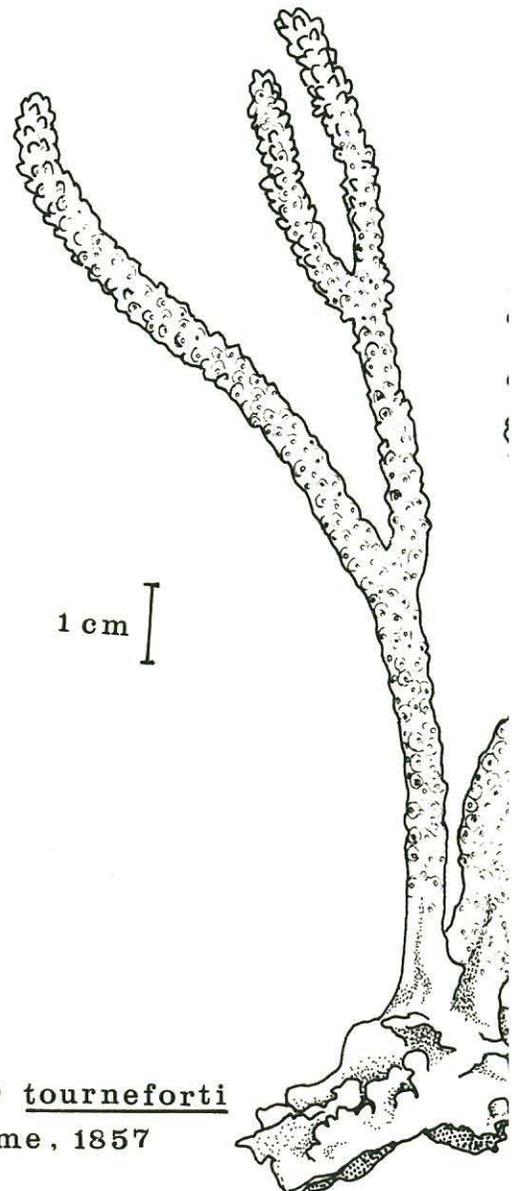


Fig. 5. Eunicea (Euniceopsis) tourneforti  
Milne Edwards & Haime, 1857

Family: PLEXAURIDAE, Gray, 1859.

*Muriceopsis flavida* (Lamarck), 1859. (Fig. 6)

*Morphology*: main axis absent in most colonies; several main branches arising from the basal disc region; in small colonies branching in one plane; large colonies richly branched out broadly compressed in one plane; branching pinnate; pinnules cylindrical; branches and pinnules free and ascending; circumference of terminal branchlets between 4 – 8mm; lower lip of calyces projecting, and directed obliquely upwards; maximum height of colony 40cm; both live and dried colonies varying from olive green to olivaceous yellow.

*Distribution*: between 1 – 10 metres.

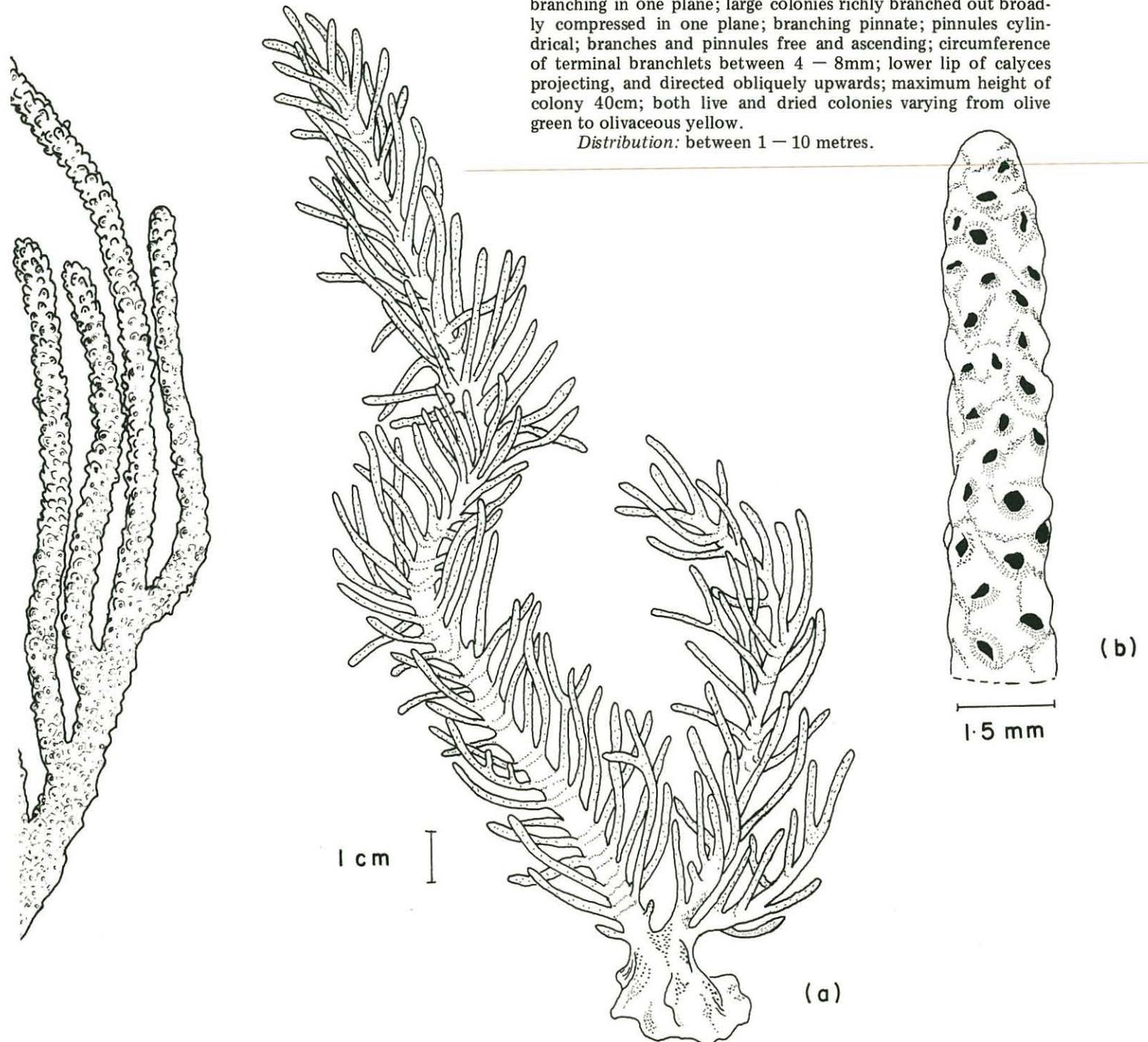
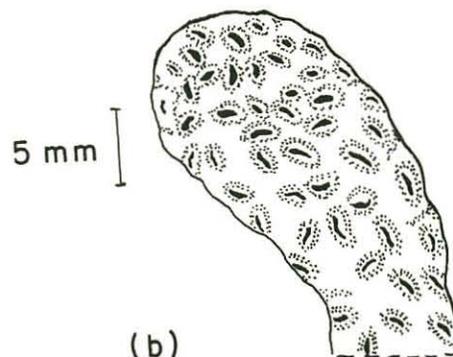
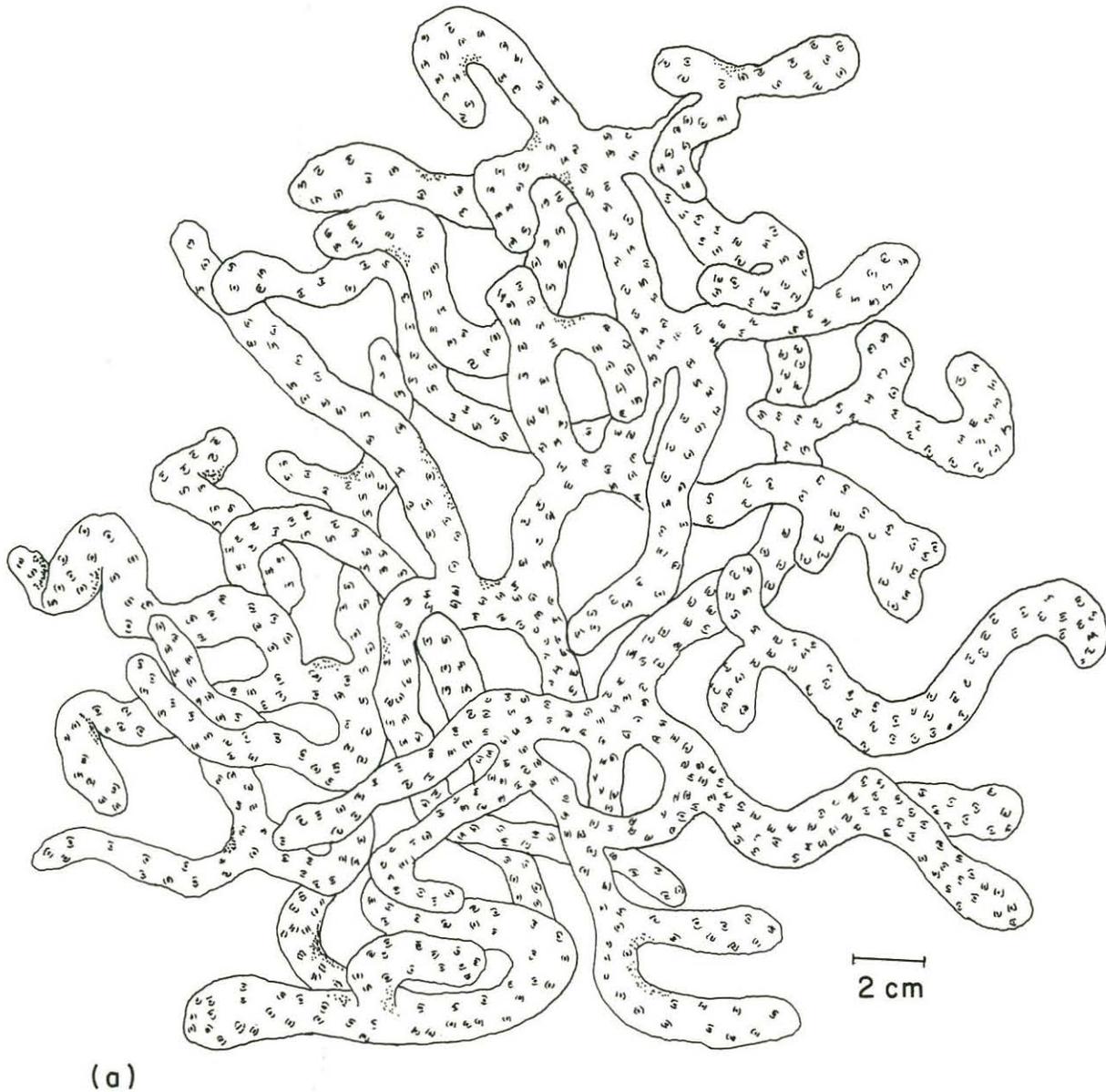


Fig. 6. *Muriceopsis flavida* (Lamarck) 1859.

Fig. 7. Plexaurella dichotoma (Esper) 1791.



Family: PLEXAURIDAE, Gray, 1859.

*Plexaurella dichotoma* (Esper), 1701. (Fig. 7)

*Morphology*: branches stout, short and crooked; branching horizontal; colonies oriented in a horizontal plane with colony spreading over the substratum; endings of branches slightly bulbous, average circumference being 4.5cm; polyp apertures slit-like; calyces absent, with a slight elevation of the rind around the apertures instead; about 26 polyps per square cm; polyps absent in areas of contact with substratum; on vertical surfaces of colony, polyps fewer (about 15 per sq. cm), calycular apertures larger, and elevation of rind higher; colonies often exceeding one square metre in size; live colonies brown; dried colonies varying between brown and black.

*Distribution*: from the low tide level down to 10 metres. In reef habitats colonies almost exposed at low tide.

*Remarks*: In other Caribbean areas colonies, bushy; branching dichotomous; branches ascending, long and straight or short and crooked depending upon the habitat (Bayer, 1961).

Family: PLEXAURIDAE, Gray, 1859.

*Plexaura* sp. cf. *P. nutans* (Duchassaing & Michelotti) 1860. (Fig. 8).

*Morphology*: colonies poorly branched in several planes; several main branches arising from a short main axis; branching lateral; branches free, generally ascending with longer branches tending to droop; colonies thick-branched, with all main and auxillary branches having a similar diameter; average circumferences of branches 8cm; calyces not very prominent, with rind forming an elevated rim around each polyp aperture; polyps about 5mm apart; maximum height of colony one metre; colour in life light brown, dried colonies brown.

*Distribution*: between 5 – 10 metres in Trinidad.

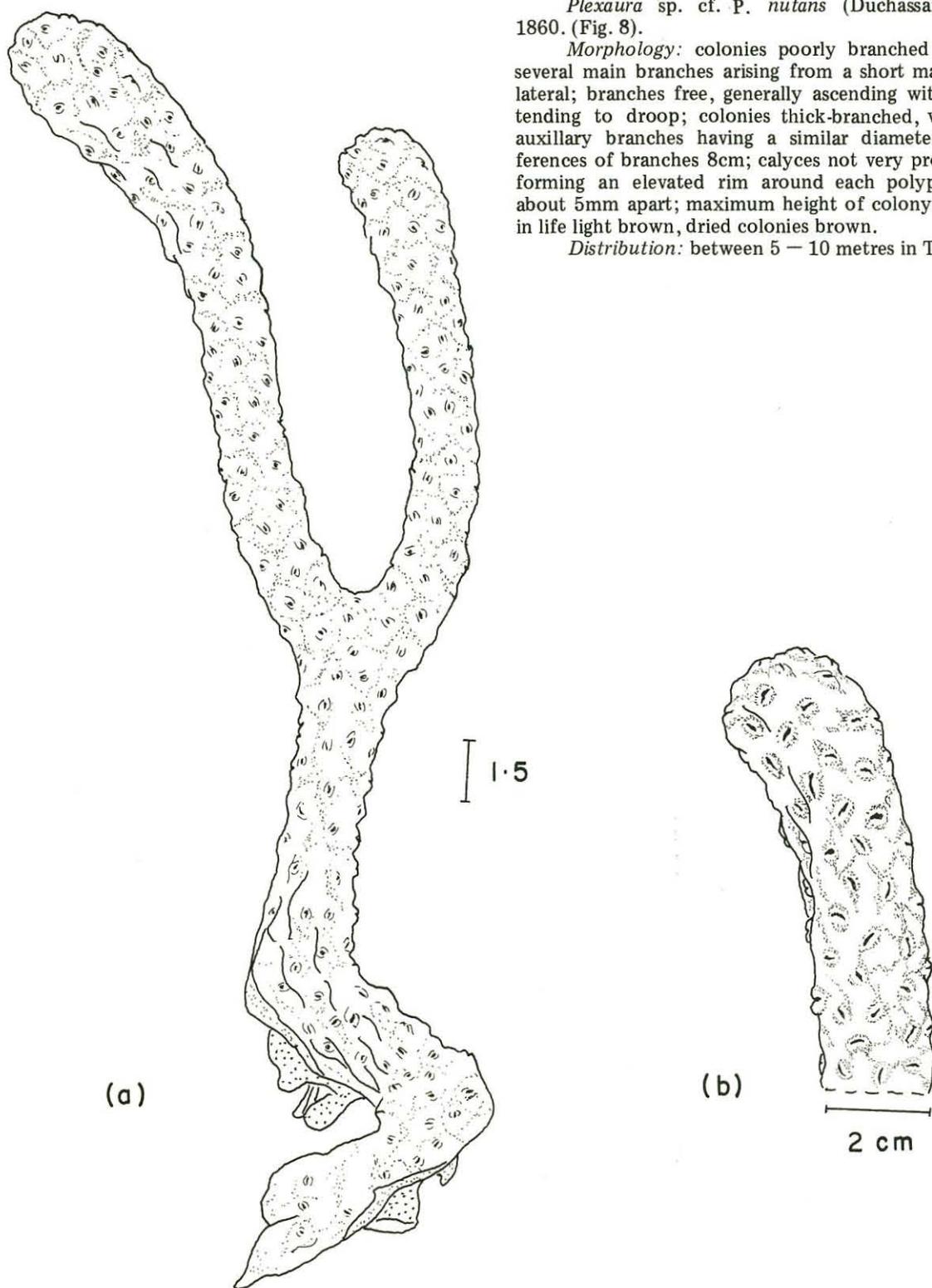


Fig. 8. Plexaurella spp. cf. P. nutans.

Family: PLEXAURIDAE, Gray, 1859.

*Muricea elongata* Lamouroux, 1821. (Fig. 9).

*Morphology*: main axis generally short, branching dichotomously; branching broadly in one plane in smaller colonies; larger colonies richly branched in several planes producing bushy forms; branches free, ascending and tapering distally; circumference of terminal twigs varying between 1.1 – 0.7 cm; calyces closely crowded, sharply pointed and upwardly directed; average height of calyces 1mm; maximum height of colony 40cm; colour in life buff, dried specimens yellowish-brown

*Distribution*: between 2 – 12 metres in Trinidad.

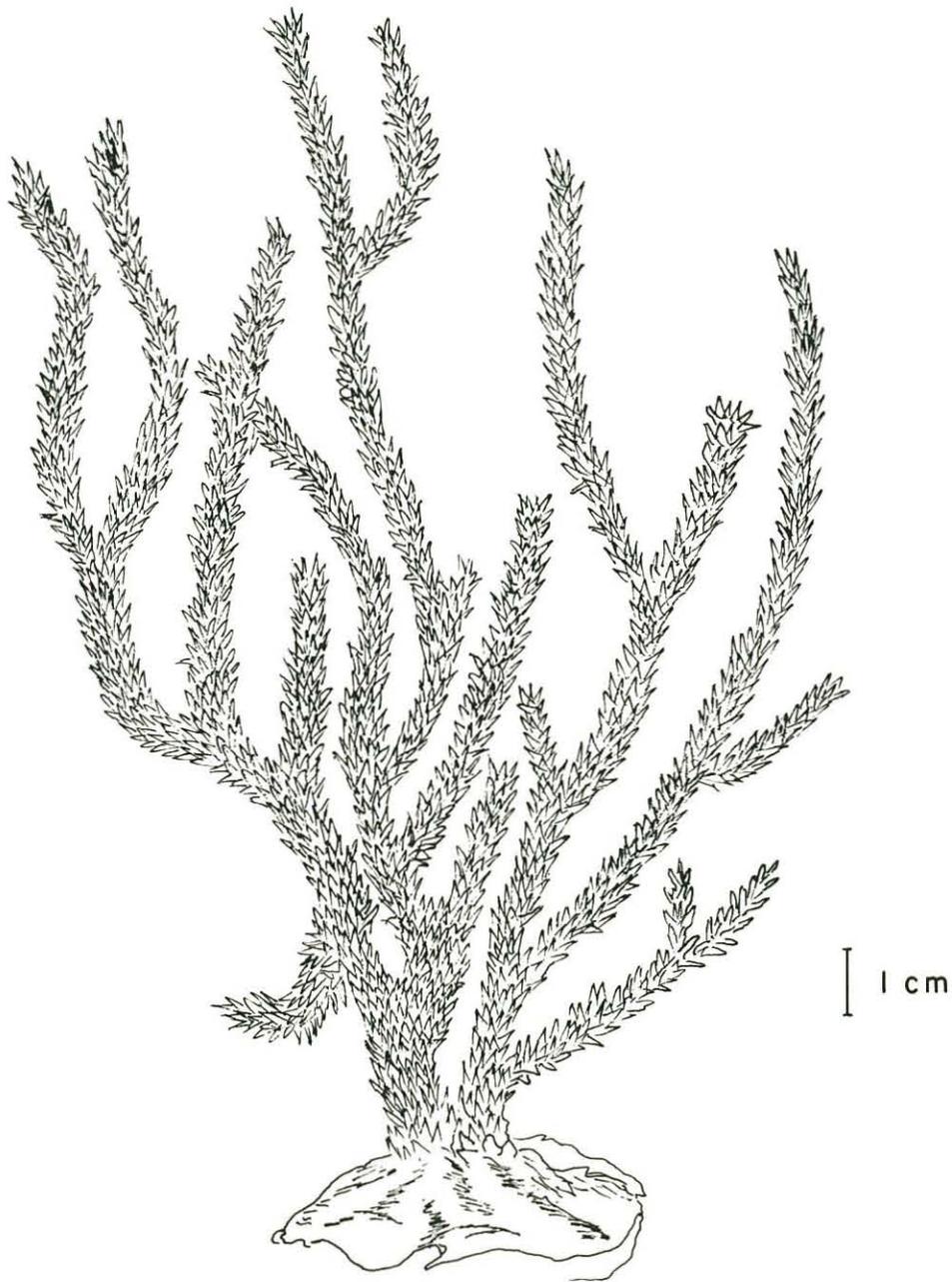
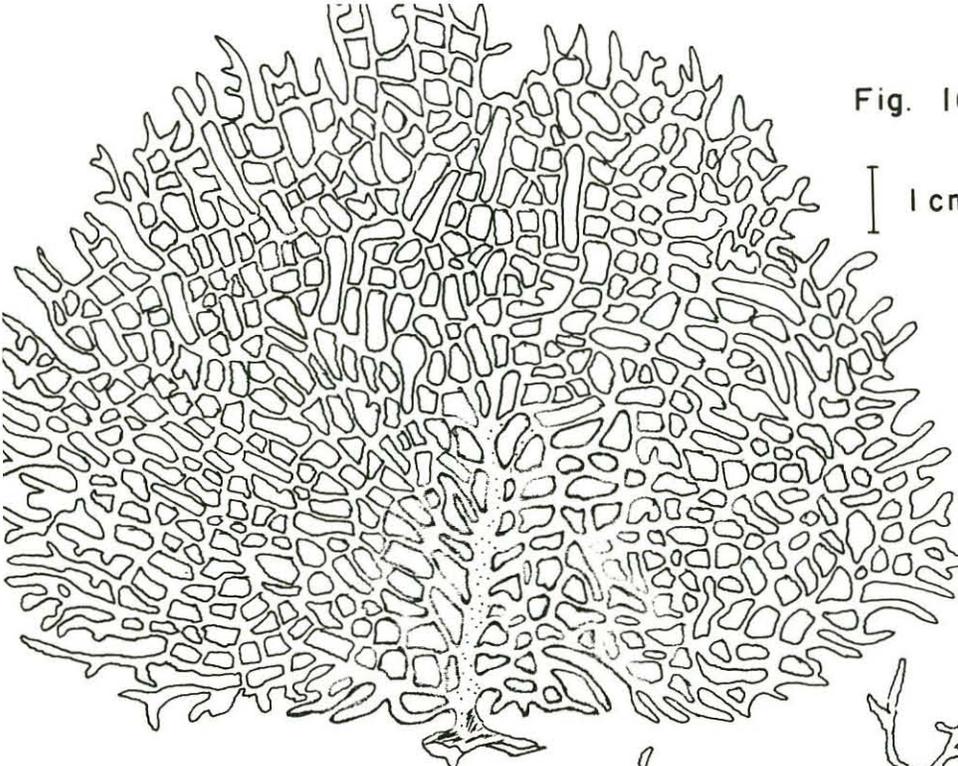


Fig. 9. Muricea elongata Lamouroux, 1821.

Fig. 10. Pacifigorgia elegans (Milne, Edwards & Haime) 1857.

1 cm



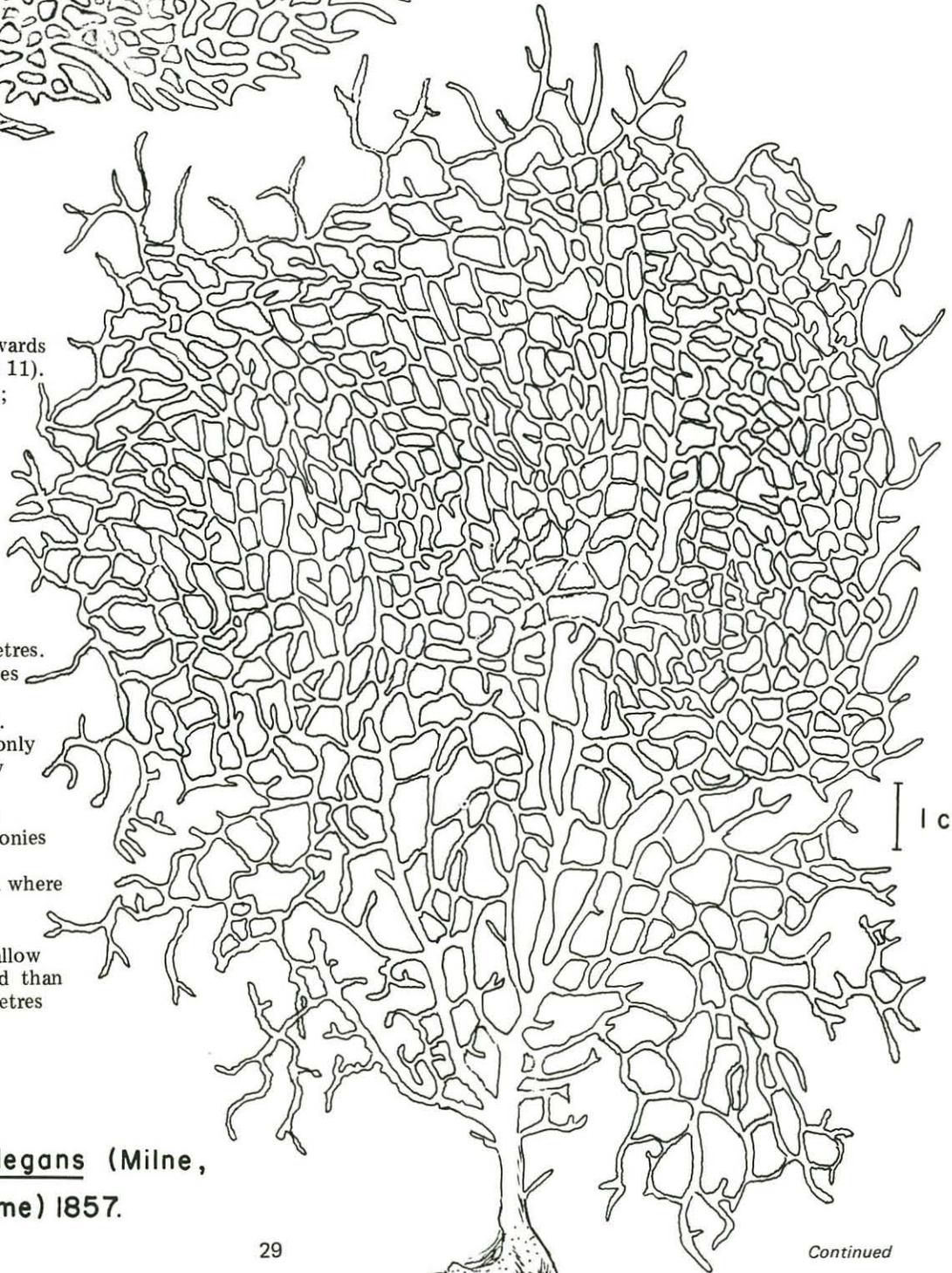
Family: GORGONIIDAE,  
Lamouroux, 1812.

*Pacifigorgia elegans* (Milne, Edwards & Haime) 1857. (Figs. 10 and 11).

*Morphology:* main axis short; branching in one plane; branches closely and regularly anastomosing; branchlets varying between 0.7 - 2.0mm in circumference; calyces slightly protruding; polyps arranged in alternating rows along meshes of fan; maximum height of colony 25cm; live and dried colonies bright reddish-purple, yellow, pink, white.

*Distribution:* between 1 - 25 metres.

*Remarks:* Reddish-purple colonies were the most common and were found at all the localities mentioned. White colonies have been observed only at Centipede Island, pink and yellow colonies only at Challenger Shoals. Colonies were most common between 5 - 15 metres. Below 15 metres colonies were smaller in number and size. Colonies above 10 metres were found where there was some shading effect, as at the sides of large boulders or under overhanging rocks. Colonies from shallow water (Fig. 10) were thicker branched than colonies occurring deeper than 15 metres (Fig. 11).



1 cm

Fig. 11. Pacifigorgia elegans (Milne, Edwards & Haime) 1857.

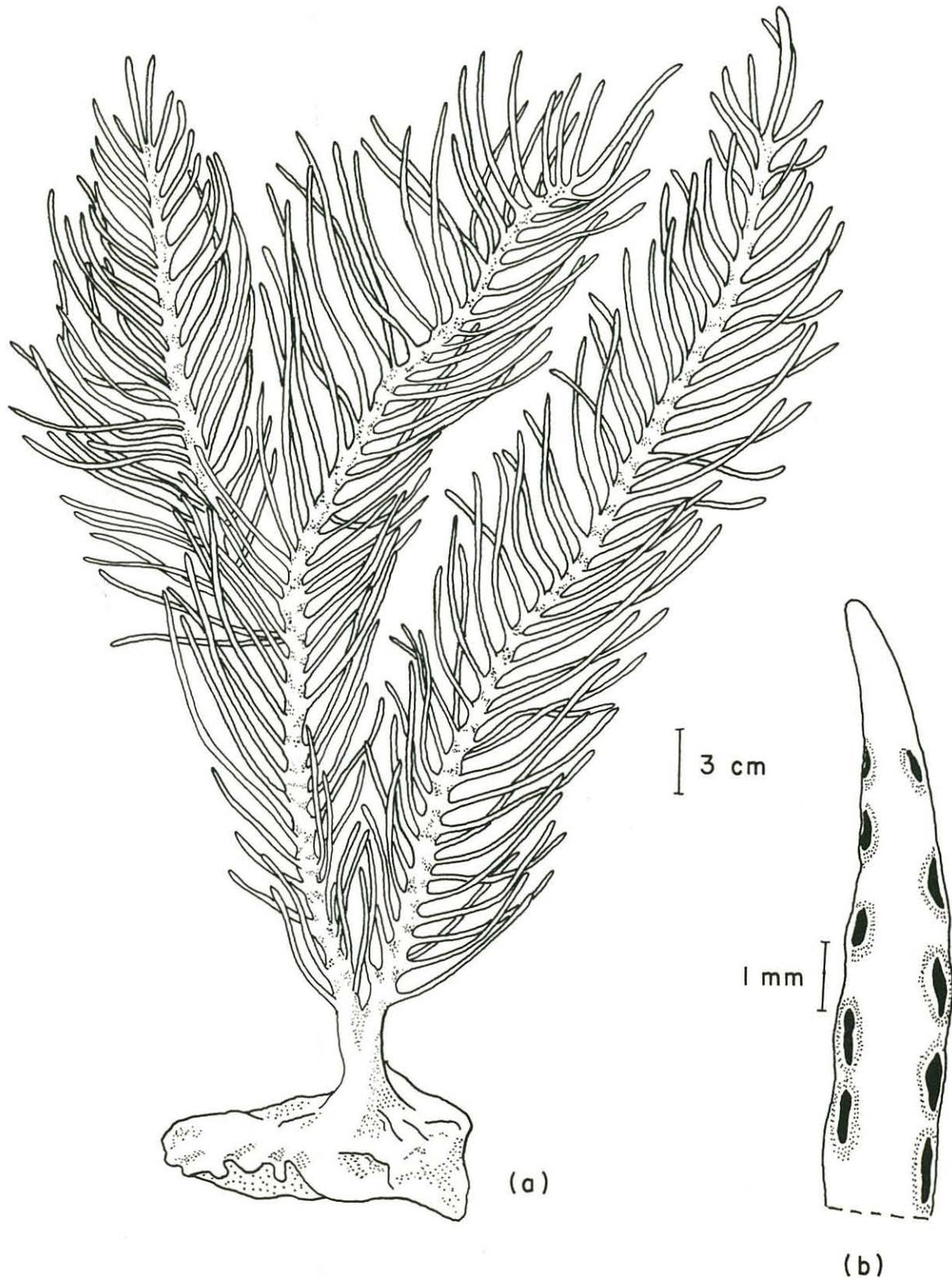


Fig. 12. Pseudopterogorgia acerosa (Pallas, 1766).

Family: GORGONIIDAE, Lamouroux, 1812.

*Pseudopterogorgia acerosa* (Pallas) 1766. (Fig. 12)

*Morphology*: main axis generally short; in some colonies several main branches arising from the basal disc region; basal disc becoming quite extensive in larger colonies; branches ascending; branching pinnate; smaller colonies branching in one plane; in larger colonies branching increased, planar appearance lost, colonies appearing bushy instead; branches tending to be flattened

with pinnules arising from the flattened edges; pinnules somewhat flattened, tapering distally and becoming progressively shorter towards tips of branches; polyps arranged in two alternating double rows, one along each edge of a pinnule (Fig. 12b); polyps absent from main branches, calyces low and indistinct; calycular apertures slit-like; maximum height of colony 2 metres; colour in life buff, light brown when dried.

*Distribution*: between 3 – 10 metres.

Family: GORGONIIDAE, Lamouroux, 1812.

*Gorgonia ventalina*, Linnaeus 1785. (Fig. 13).

*Morphology*: main axis short, branching anisotomously; branches ascending and in one plane; branchlets regularly and closely anastomosing, producing a meshwork and giving colonies a fanlike appearance; branchlets rarely growing outwards from the surfaces of the fan, sometimes small accessory fans growing

outwards from surface of primary fan; calyces absent, calycular apertures small and slit-like; polyps in four rows along branchlets with two rows on each edge; maximum height of colony, 125cm; live and dried colonies greyish-white or light yellow, peripheral regions may be purple.

*Distribution*: between 1 – 10 metres.

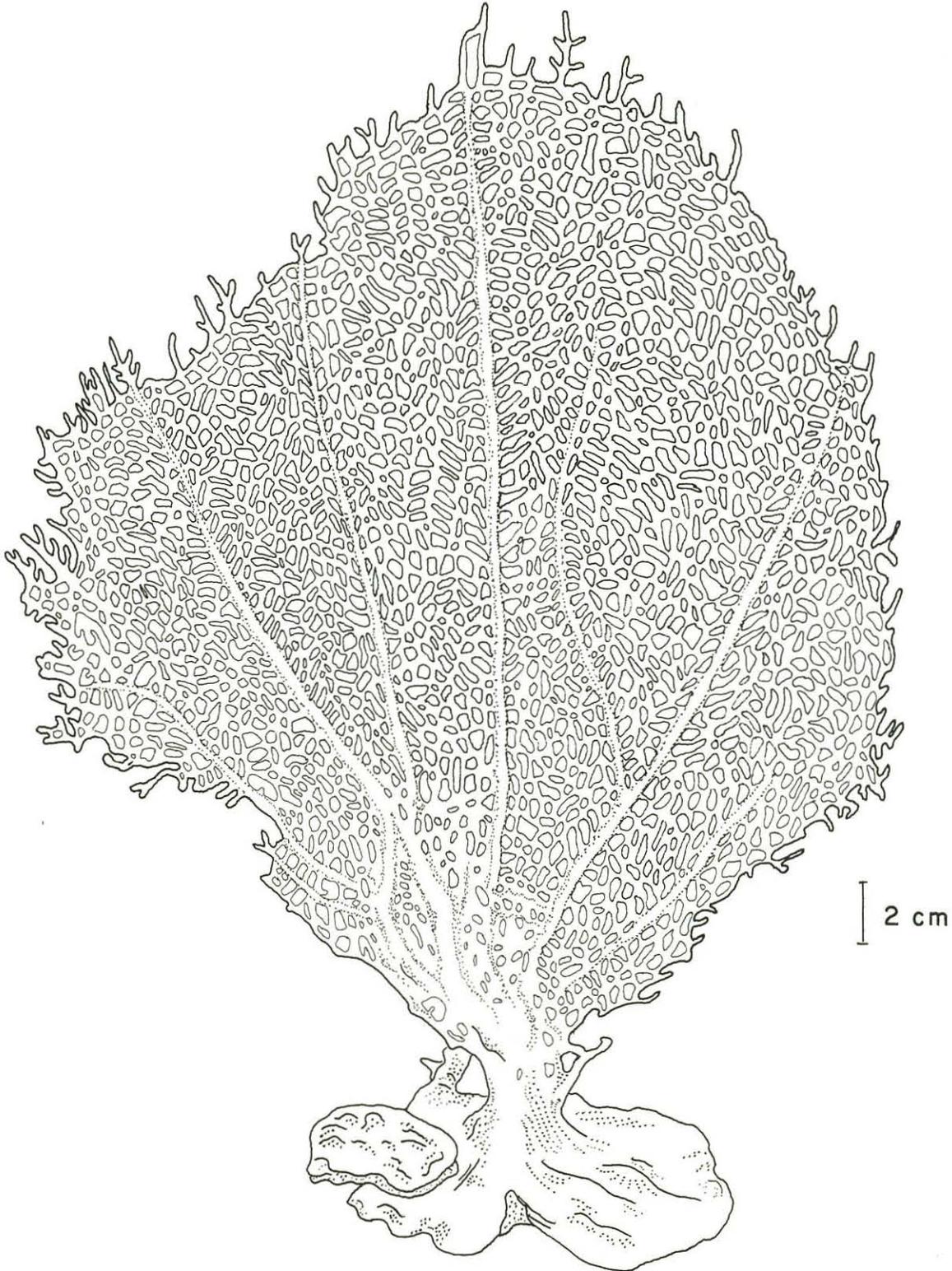


Fig. 13. Gorgonia ventalina, Linnaeus, 1785.

Family: GORGONIIDAE, Lamouroux, 1812.

*Pterogorgia citrina* (Esper) 1792. (Fig. 14).

**Morphology:** main axis generally short; in some colonies several main branches arising from the basal region; branching anisotomous and broadly in one plane; in larger colonies branching generally in several planes but colonies still appearing broadly compressed in one plane; branches and branchlets free, ascending and somewhat flattened; flattening of branches and branchlets along the plane of flattening of colony itself; calyces low but distinct; calycular apertures slit-like; polyps arranged in two rows, one along each of the edges of the branches (Fig. 14b); maximum height of colony 36cm; live and dried colonies greenish-yellow or olivaceous-grey; some yellowish colonies having reddish-purple calyces appearing as marginal spots; in some cases endings of branchlets completely purple.

**Distribution:** between 1 – 12 metres.

#### ACKNOWLEDGEMENTS

Thanks are due to Professor J. S. Kenny and Dr. P.R. Bacon for their advice and assistance, and also to Misses J. Messiah and M. Alkins for their help with the illustrations.

#### REFERENCES

- BAYER, F.M. (1961) — *The Shallow water Octocorallia of the West Indian region*. Martinus Nijhoff: The Hague. 373 pp.
- RAMSAROOP, D. (1976) — *Studies on the Octocorallia of Trinidad*. Ph.D. Thesis. University of the West Indies, Trinidad.

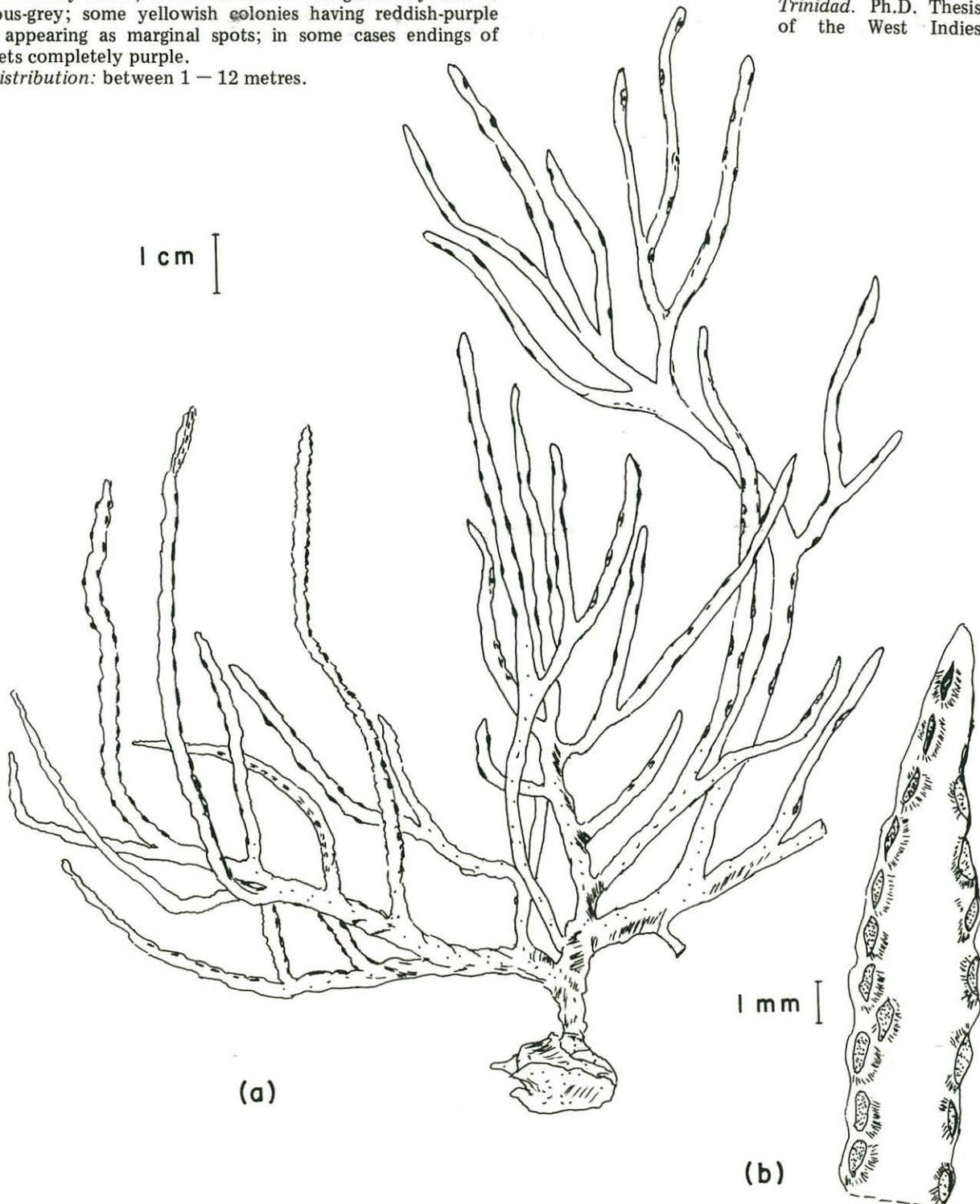


Fig. 14. *Pterogorgia citrina* (Esper) 1792.