University of Queensland Papers

DEPARTMENT OF ZOOLOGY

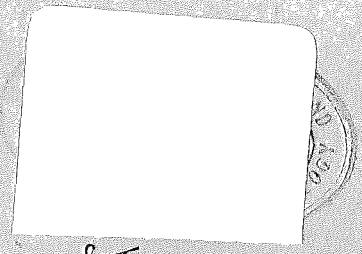
Volume I. 1959 Number 6

Faunistic Records from Queensland

Part V.—Marine and Brackish Water Hydroids

BY

PAMELA R. PENNYCUIK, M.Sc.



Glossary of Terms p. 143
Key to Athecata p. 157
Key to Thecata p. 168.

THE UNIVERSITY OF QUEENSLAND PRESS
BRISBANE

14th JULY, 1959

DEPARTMENT OF ZOOLOGY

VOLUME I 1959 NUMBER 6

Faunistic Records from Queensland

Part V.—Marine and Brackish Water Hydroids

BY

PAMELA R. PENNYCUIK, M.Sc.*

Department of Zoology,

University of Queensland.

* Present address: Department of Physiology, University of Queensland.

THE UNIVERSITY OF QUEENSLAND PRESS
BRISBANE

14th JULY, 1959

Wholly set up and printed in Australia by
WATSON, FERGUSON and COMPANY
Brisbane, Q.
1959

Part 5—Marine and Brackish Water Hydroids

By Pamela R. Pennycuik

A collection of 86 species and 4 varieties of hydroids from Queensland is discussed; 4 of these are new species, viz.: *Staurocoryne heroni, Stylactella niotha, Bimeria currumbinensis, Garveia clevelandensis.* References and distribution records are given and, where necessary, additional information on morphology is included and affinities discussed. References to descriptions and distribution records of the 32 Queensland hydroids not represented in the collection are tabulated. Keys to all Queensland families, genera and species precede each classificatory group. Distribution of all Queensland species, both within and beyond the State are set out in table form. Examination of this shows that the Queensland hydroid fauna is predominantly Indo-West-Pacific in origin but also includes a small south-east-Australian-New Zealand element; there is a hint that there is a minor discontinuity in the distribution of these two types somewhere between the southern end of the Great Barrier Reef and the New South Wales border. The classification followed is indicated, and a glossary given of new terms for the hydrothecal structures in the Aglaopheniidae and Plumulariidae, and of terms not found in standard text books.

Introduction

Records of Queensland hydroids occur only in reports on material from wider areas, or on more extensive collections from restricted localities. They are found in the following papers: Busk (1852), Kirchenpauer (1864, 1872, 1876), Allman (1883, 1886, 1888), Bale (1884, 1888, 1914b, 1915, 1919), von Lendenfield (1885), Kirkpatrick (1890), Weltner (1900), Harvey Johnston (1917), Briggs (1918), Briggs & Gardiner (1931), Totton (1931), Hastings (1932), Blackburn (1938). Further records occur in the unpublished manuscripts of Monro (1940), Reik (1946), and Biggs (1951).

This paper is, primarily, a report on a new collection of Queensland hydroids. Additional information is given on the distribution and morphology of known species and new species are described. Complete synonymies have not been compiled, but sufficient references are quoted to provide sources of adequate descriptions, figures, distribution records and synonymies. The reasons for the inclusion of references are indicated in brackets after each entry. Authorities followed in the classification of debatable groups are indicated below.

In addition, an attempt has been made to increase the usefulness of the paper to ecologists and to students by the inclusion of (i) a glossary of terms not included in standard text books, (ii) a distribution table of all known Queensland species (Table I), (iii) a biogeographical discussion, (iv) a table of references to descriptions and distribution records of 32 Queensland species not represented in the collection (Table III), (v) keys to families, genera and species. In all families, except the Aglaopheniidae, these keys are given to all Queensland genera and sometimes to closely related genera which will probably be found here at a later date (these latter have been marked with an asterisk *). These are followed by keys to local species. In the Aglaopheniidae it is impossible to identify the genus in the absence of the gonosome; one key is therefore given to all species within the family.

This new collection brings the number of hydroids reported from Queensland to 118 species and 4 varieties;* 59 species had been reported previously, 27 of these are represented in the present collection. Of the 86 species and 4 varieties in the collection 59 species and 4 varieties are reported from the state for the first time, 4 of these are new species, 2 are unnamed species and one variety is unnamed. The collection is by no means complete; it includes no medusae, no fresh water forms and no specimens from depths greater than 10 fathoms; further, the preponderance of the material is from isolated localities along the east coast of the state; from Port Douglas in the north to the New South Wales border.

Specimens have been drawn from numerous personal collections, from material gathered during student excursions and from the collection of the writer. The collectors of species new to Queensland have been acknowledged in the text by insertion of their initials after the locality record. These include Dr. M. C. Blackburn, Professor W. Stephenson, Mr. R. Endean, Mr. N. M. Haysom, Mr. J. J. Davis, Mr. K. Dickson, Mr. W. Dowd, Mr. N. Evans, Mr. T. Hailstone, Mr. J. L. Wassell, Miss D. F. Sanders, Miss L. Freeman, Miss V. A. Biggs, Miss H. Wilson, and Miss C. Gillam. Without the help of these people my records would have been much more limited; my thanks to them are therefore most sincere, especially to Dr. Blackburn who sent me his entire collection of Queensland material, including some given to him by the late Professor O. W. Tiegs of Melbourne.

My thanks are also due to Dr. N. A. H. Millard, of the University of Cape Town, who kindly supplied me with specimens of *Plumularia warreni* from South Africa; to Mr. Pescott, Director of the National Museum of Victoria, for his generosity in lending me specimens from Bale's collection for comparative purposes; to Miss J. Hope Macpherson of the same institution, for the identification of shells; to Miss Patricia M. Ralph, of Victoria University College who kindly lent me specimens and with whom I had much helpful discussion; and to Mr. G. Mack, Director of the Queensland Museum, for use of the Museum library.

Finally, I should like to thank Professor W. Stephenson, Professor of Zoology, University of Queensland, for his encouragement and advice during the preparation of the paper.

Grants from the University of Queensland, Commonwealth Research Projects Committee, the Great Barrier Reef Committee and the State Government made the collecting trips outside Brisbane possible.

Classification

Athecata: Where possible, Russell's divisions, based primarily on medusa structure, have been used for both families and genera (Russell, 1953). This has been supplemented, where necessary, by Fraser's classification (Fraser, 1937).

Clavidae: Hand & Gwilliam (1951) have been followed in re-establishing this as the family name. *Cordylophora* has been transferred to the Bougainvilliidae for reasons discussed in the text.

Bougainvilliidae: In the main Rees' (1938) generic names and diagnoses have been used, but *Aselomaris* has been replaced by *Atractylis* on the authority of Berrill (1948), and *Cordylophora* has been transferred to this family.

* *Sertularella divaricata* (Busk, 1852) reported by Bale (1915, p. 287) from "Eight miles east of Sandon Bluff, Queensland 35–40 fathoms" has not been considered a Queensland species since Sandon Bluffs are located in New South Wales.

Zancleidae: Russell and Rees (1936) have been followed in regarding *Coryne* vel *Syncoryne cylindrica* Kirkpatrick 1890 as a species of *Zanclea.*

Hydractiniidae: Hydractinia and *Stylactella* have been regarded as the only two valid genera in the family, on the authority of Kramp, 1932 (*fide.* Iwasa, 1934). Iwasa's definition of *Stylactella* has been adopted, with the minor modification that forms with cylindrical gasterozooids not contracted at the base have been included in this genus, i.e., *S. halecii, S. siphonis* and the species in the present collection have been referred to this genus rather than to *Halerella* Stechow 1922.

Thecata:

Campanulariidae: Classification of this group has been reduced to its simplest form, because the life histories of most species in this particular collection are unknown. The generic names adopted are those used as subfamily names by Russell (1953) in his classification of the medusae.

Haleciidae: Blackburn (1938) has been followed in adopting the name *Hydrodendron* for species previously grouped under *Diplocyathus, Ophiodissa* and *Ophiodes.*

Campanulinidae: Rees (1939) has been followed in assigning species of *Campanulina* in which the gonosome is not known, to the genus *Opercularella.*

Plumulariidae: Generic definitions are derived from Nutting (1900) (*Nemertesia*—as *Antennularia*), Billard (1913) (*Monosteachas, Polyplumaria*), Bedot (1921), (*Antennella, Plumularia*), and Totton (1931) (*Pycnotheca, Halicornopsis, Halopteris, Schizotricha*).

Aglaopheniidae: This has been considered as a separate family on the authority of Leloup (1932b). The generic boundaries are derived from the same author but the terms *Bithecocarpus* and *Trithecocarpus* have been dropped.

Lafoeidae: Totton (1931) discussed various genera in this family. His definition of *Lictorella* is the one followed here (p. 165).

Syntheciidae: Generic definitions of Billard (1925) have been adopted for *Hincksella* and *Synthecium.*

Sertulariidae: Generic definitions are derived mainly from Billard (1925). Three genera (*Thyroscyphus*, *Cnidoscyphus* and *Parascyphus*) have been included in this family on the authority of Splettstösser (1929). Definitions of these genera are derived from the same author. The preoccupied name *Idia* has been replaced by *Idiellana,* following Cotton and Godfrey (1942).

Glossary

Terms defined below include those about which there is a certain amount of confusion, those restricted to certain families, and a few new terms proposed for intrathecal structures in the Aglaophiniidae. Sources of family terms are: Nutting, 1900 (Plumulariidae, including Aglaopheniidae), Nutting, 1904 (Sertulariidae), Splettstösser, 1929 (*Cnidoscyphus, Thyroscyphus, Parascyphus*), Totton, 1931, Leloup 1932b (terminology of hydrocladia modified to protect the gonosome in the Aglaopheniidae). General terminology will be found in any comprehensive zoological text book, *e.g.,* Hyman (1940).

Abcauline Surface; surface of a sessile hydrotheca directed away from the hydrocaulus.

Adcauline fold, ridge; see *Intrathecal structures.*

Adcauline Surface; surface of a sessile hydrotheca directed towards the hydrocaulus.

Adnate; fused; applied to the section of a sessile hydrotheca in contact with the hydrocaulus.

Annular fold; see *Intrathecal structures.*

Apophysis; projection at the upper end of a stem internode bearing a branch.

Coenosarcal bridge; cytoplasmic bridge, running from coenosarc to perisarc.

Diaphragm; circular, shelf-like projection, dividing the hydrotheca into a large upper chamber and a small lower chamber, the spherule or basal space (Campanulariidae).

Ectodermal lining (of hydrotheca); layer of ectoderm lining the hydrotheca, arising from the ring-fold, and continuous with the roofing plate. (*Cnidoscyphus, Thyroscyphus, Parascyphus*).

Hydrocladium (= *Pinnule*); terminal branchlet bearing hydrothecae (Plumulariidae, Aglaopheniidae).

In a number of genera of the Aglaopheniidae, certain of these hydrocladia are modified to protect the gonangia. They are often known as *phylactocarps.* These modified branchlets are of several orders.

(i) *Primary hydrocladia* (= *gonocladia* of Totton); modified hydrocladia belonging to the same series as the unmodified hydrocladia of the rest of the colony, These may, or may not, bear secondary hydrocladia.

(ii) *Secondary hydrocladia I* (= *crêtes basales* = *gonohydrocladia* of Totton). Hydrocladia, often much modified, springing from the primary hydrocladia. This series is found only in association with the gonosome; it is not represented in the trophosome.

(iii) *Secondary hydrocladia II* (= *costae*); a third order of modified hydrocladia forming the ribs or costae of the corbulae of *Thecocarpus* and *Aglaophenia.* Each springs from a secondary hydrocladium I.

(iv) *Secondary hydrocladia III* (= *costal apophysis*) much modified hydrocladia springing from secondary hydrocladia II; found only in certain species of *Thecocarpus.*

Internal tooth; tooth-like perisarcal process projecting into the hydrothecal cavity, muscles are often attached to these. (Sertulariidae).

Intrathecal structures; flexures, folds and ridges of perisarc projecting into the hydrothecal cavity (Aglaopheniidae). These include:

(a) *Abcauline structures.*

(i) *Prenematophoric flexure:* a bending of the abcauline hydrothecal wall anterior to the point where the median nematotheca becomes free from the hydrotheca. This flexure is not accompanied by any thickening of the hydrothecal wall.

(ii) *Prenematophoric fold:* a sharp bending of the abcauline hydrothecal wall anterior to the point where the median nematotheca becomes free from the hydrotheca; this is accompanied by a crescentic thickening of the hydrothecal wall.

(iii) *Prenematophoric ridge:* a semi-circular partition attached to the abcauline wall and extending well across the hydrothecal cavity anterior

to the point where the median nematotheca becomes free from the hydrotheca.

(iv) *Postnematophoric ridge:* a semi-circular partition attached to the abcauline wall and extending across the hydrothecal cavity posterior to the point where the median nematotheca becomes free of the hydrotheca.

(b) *Adcauline structures.*

(i) *Adcauline fold:* a crescentic fold of the adcauline wall just anterior to the aperture from the internode to the hydrotheca.

(ii) *Adcauline ridge:* a semi-circular partition from the adcauline wall arising either just anterior to the aperture from the internode to the hydrotheca, or—more rarely—at the level of the base of the lateral nematothecae.

(c) *Annular structures.*

(i) *Annular fold:* a fold completely circling the hydrothecal cavity just anterior to the aperture from the internode to the hydrotheca.

Nematophore; used to include protective zooid (*sarcostyle*) and its theca (*sarcotheca, nematotheca*).

Opercular flaps; thin, perisarcal flaps stretching between hydrothecal teeth, serving to close the hydrothecal opening.

Phylactocarp; hydrocladium modified to protect gonangia (see *Hydrocladium*).

Pinnule; see *Hydrocladium.*

Postnematophoric ridge; see *Intrathecal structures.*

Prenematophoric flexure, fold, ridge; see *Intrathecal structures.*

Pseudotheca; expanded perisarc at the termination of a hydranth stalk into which an athecate hydranth can be withdrawn (Bougainvilliidae).

Punctae; bright spots, arranged in a ring round the hydrotheca (Haleciidae).

Ring-fold; annular fold projecting from the base of the hydranth body, attached to the ectodermal lining of hydrotheca (*Cnidoscyphus, Thyroscyphus, Parascyphus*).

Roofing plate; annular ectodermal plate, attached to ectodermal lining of hydrotheca, just below the hydrothecal operculum (*Cnidoscyphus, Thyroscyphus, Parascyphus*).

Septal ridge; internal ridge-like perisarcal thickening projecting into a stem or hydrocladium.

Spherule (= *basal space*); small, usually spherical, chamber separated from the main part of the hydrotheca by the diaphragm.

Distribution

The relationship between the Australian hydroid fauna and those of other Indo-Pacific regions has been considered in passing by a number of taxonomists (Bale 1884, Thornely 1904—*fide* Ritchie 1911, Ritchie 1911, Jarvis 1922) and by Fraser (1940) in a paper on the distribution of hydroids in the Pacific. These authors showed affinities between the Australian hydroid fauna and those of the East Indies (Fraser 1940), India (Thornely 1904—*fide* Ritchie 1911), Africa (Warren 1908, Jarvis 1922), Japan (Fraser 1940) and New Zealand (Bale 1884, Fraser 1940). Their opinions on the relative degrees of relationships varied; Bale (1884) considered Australia to have most in common with New Zealand, Ritchie (1911) saw a closer relationship with the Indian Ocean and Fraser (1940)

showed that, of all Pacific regions, Australia had most in common with the East Indies.

The hydroid fauna has been little used for the demarcation of biogeographic provinces in waters round the Australian coast. Bale (1884) found indications of a discontinuity on the northern New South Wales coast; Blackburn's figures for percentages common between South Australia and the other States hint at a south-eastern Australian fauna, separated from a Western Australian fauna in the west, and a north-eastern fauna in Queensland.

This discussion is confined to consideration of the relationship between the Queensland hydroid fauna and the faunas of other seas, and the variation in distribution of this fauna along the Queensland coast. In making these comparisons a number of difficulties were encountered: in obtaining literature; in comparing unequally collected areas; in comparing different types of collection, for example, shore collections made by specialists in the group with general dredged collections; and in confused synonymies (see Fraser, 1940).

Literature problems were largely overcome for the distribution of species within Queensland, but in determining world-wide distributions much reliance was placed on more recent papers giving comprehensive lists of distribution records for the species discussed. These included Billard (1913, 1925), Briggs (1918), Leloup (1932a, 1935, 1937a, 1937b, 1938), Blackburn (1937a, 1937b, 1938, 1942), Fraser (1937, 1938, 1948), Vervoort (1941, 1946). A number of papers, mostly in German journals, have not been consulted and some distribution records have undoubtedly been overlooked.

The problems of comparing unequally collected areas and different types of collection were encountered both in considering distribution within and beyond Queensland. Little could be done about this but more reliance was placed on the results when it was realised that hydroids are widely distributed bathymetrically (Nutting 1904, Billard 1913). Examination of the Queensland hydroid list showed that 35 per cent. are definitely known to occur in both littoral and deeper water habitats, and another 12 per cent. are doubtfully thought to occur in both places. Several of the lesser known species may be equally widely distributed. In considering distribution within Queensland, bathymetric differences were reduced still further by the fact that all specimens were taken from 30 fathoms or less.

Synonym difficulties were encountered, and several still remain unresolved. These have been indicated in the main body of the paper, and also in Table I by questioning the distribution entries.

In view of these shortcomings, conclusions are tentative and may need modification in the light of later information.

Table I summarises the information on which this discussion is based; the Queensland coast is divided latitudinally into five regions, two of which are subdivided longitudinally into two. (Carpentaria has yielded only one species, *Sertularia conferta* (Kirchenpauer, 1864), reported only once and of doubtful validity. This division has been omitted.) The Queensland divisions adopted are:—

(1) 10°–14°S; localities in Torres Strait, *viz.*, Thursday I., Murray I., Somerset I., Warrior I., Brother's I., Orman Reef, Flinders Passage and Albany Passage.

(2) 14°–18°S; localities in the Cairns, Port Douglas area, *viz.*, Fitzroy I., the mouth of the Johnstone River; Low Is., Lizard I., Cape Kimberley, Linden Bank, Ribbon Reef, June Reef, Penguin Channel and Papuan Passage.

(3) 18°–22°S; localities between Mackay and Townsville, *viz.*, Port Denison, Port Molle, Holborn I., Cumberland I., Gloucester Passage, Lupton, Henning and Hardy Reefs, South Molle I., Hamilton I., Palm I. and Brisk I.

(4) 22°–26°S; localities from Bundaberg to Rockhampton. This region has been subdivided into:—

(a) Bay and coastal region; localities in Port Curtis, *viz.*, Barney Point, mouth of the Calliope River, Curtis I., Picnic I., Double Heads near Rockhampton, and Pialba near Bundaberg.

(b) Ocean and island region; 24° 52'S, 152° 38'E, N.E. Bundaberg Light, and islands and reefs in the Capricorn group, *viz.*, Heron Is., Wilson I., North West I., Wistari Reef and North Reef.

(5) 26°–28°S; localities from the New South Wales border to north of Moreton Bay. This region has been subdivided into:—

(a) Bay region; localities within Moreton Bay, *viz.*, Caloundra Heads, Myora, Dunwich, Cleveland, Bribie I., Bird I., Green I., St. Helena I., Peel I., King I., Mud I., Hamilton Point; and the fresh and brackish water habitats, Waraba Creek, Caboolture, Oxley Creek, Enoggera Creek and the Brisbane River.

(b) Ocean beach region; Point Lookout and Currumbin.

In grouping countries and islands outside Queensland into regions, only 4 known or suspected biogeographical boundaries were taken into consideration, *viz.*: between the Philippines and Japan and between Japan and Hawaii (Fraser, 1940); between South Australia and Western Australia and New South Wales and Queensland (Blackburn, 1942—hydroids, Stephenson & McNeill, 1955—stomatopods.) The remaining divisions were purely arbitrary. As no Queensland species, other than one or two cosmopolitan forms, have been reported from the Arctic or Antarctic, these two divisions have been omitted from the discussion. The regions adopted are:—

(6) *South-east Australia;* extending from the Queensland-New South Wales border to the South Australian-Western Australian border.

(7) *Lord Howe Island;* this was considered a separate division following Endean's finding that much of the echinoderm fauna of Queensland extended to Lord Howe Island though not to New South Wales (Endean, 1953).

(8) *North-west Australia;* from the South Australia-West Australia border to the Gulf of Carpentaria.

(9) *East Indies;* from the Andaman Is. in the west to the Loyalty Is. in the east, the Philippine Is. and Indo-China in the north to Christmas I. and the Louisiade Archipelago in the south.

(10) *New Zealand;* including the Kermadec Is.

(11) *Pacific;* including the Hawaiian Is. and Polynesia.

(12) *Pacific coast of America;* from Peru to Alaska.

(13) *Japan and China;* from the Tropic of Cancer north.

(14) *India, Suez;* from the Bay of Bengal to Suez in the west and to the Maldive Is. in the south.

(15) *East and South Africa;* the Seychelles, Chagos Archipelago, Madagascar, Zanzibar, Natal, False Bay and Marion I.

(16) *Atlantic-Mediterranean.*

The numbers and percentages common to Queensland and the various other regions are given at the foot of Table I. 15 (12%) of the Queensland species

TABLE I—Distribution of Queensland species

(Records from literature are indicated by crosses (x), new records by circles (o).)

	Queensland							S.E. Aust.	Lord Howe	N.W. Aust.	E. Indies	New Zealand	Pacific	E. Pacific	Japan	India, Suez	S.E. Africa	Atlantic
	10°—14° S	14°—18° S	18°—22° S	22°—26°S		26°—28°S												
				Bay	Oc. Is.	Bay	Ocean											
Tubularia crocea (Agassiz 1862)						o					×			×				×
Coryne (?) *multitentaculata* (Warren 1908)		o														×	×	
Staurocoryne heroni sp. n.		o			o													
Solandaria fusca (Gray 1868)					o			×	×				×					
Cladocoryne floccosa Rotch 1871	×			o							×			×	×	×		×
Zanclea cylindrica (Kirkpatrick 1890)	×																	
Zanclea protecta Hastings 1930		×												×				×
Halocordyle disticha (Goldfuss 1820) var. *australis* (Bale 1884)				o		o	o	×		×	×	×			×	×	×	x?
Halocordyle wil (Ba 191		o						×										
Endocrypta parasitica (Kirk 1914)		×										×						
Stylactella niotha sp. n.		o			o													
Asclomaris aren (?) (Al 186							o	×										x?
Bimeria australis Blackburn 1937						o		×										
Bimeria currumbinensis sp. n.							o											
Cordylophora lacustris Allman 1871-72						o		×				×			×			×
Garveia clevelandensis sp. n.						o												
Leuckartiara octona (Fleming 1823)		×				o					×		×			×		×
Eudendrium album Nutting 1898				o										×		×		×
Eudendrium capillare Alder 1856		o					o			×	×		×	×	×		×	×
Eudendrium generale von Lendenfeld 1885	×							×								×		
Eudendrium infundibuliforme Kirkpatrick 1890	×																	
Myrionema amboinense Pictet 1893		xo	o								×							
Campanularia africana Stechow 1923		o						×		×					×		×	

	Queensland							S.E. Aust.	Lord Howe	N.W. Aust.	E. Indies	New Zealand	Pacific	E. Pacific	Japan	India, Suez	S.E. Africa	Atlantic
	10°—14° S	14°—18° S	18°—22° S	22°—26°S		26°—28°S												
				Bay	Oc. Is.	Bay	Ocean											
Campanularia delicatula (Thornely 1900)		xo						x			x				x			
Campanularia johnstoni Alder 1856					o		o				x	x		x				x
Campanularia volubilis (?) (Linnaeus 1767)	x													x?				x?
Obelia australis von Leadenfeld 1885							o	x				x				x?		
Obelia bicuspedata Clark 1875 var. *picteti* Leloup 1932						o					x					x		
Obelia longicyatha Allman 1877		o				o					x			x	x		x	x
Obelia nodosa Bale 1924						o						x						
Orthopyxis caliculata Hincks 1853						o	o	x				x		x			x	x
Orthopyxis compressa Clark 1876						o		x?						x				x
Orthopyxis crenata (Hartlaub 1901) f. *subtropica* Ralph 1957					o	o				x		x						x
Orthopyxis delicata Trebilcock 1928		o	o				o					x						
Halecium delicatulum Coughtrey 1876							o	x			x	x		x	x	x	x	x
Halecium lighti Hargitt 1924						o					x							
Halecium sessile Norman 1867		o		o				x			x				x			x
Hydrodendron dichotomus (Allman 1888)	x							x?		x?	x				x			
Phylactotheca cacinformis Ritchie 1907		o												x			x	x
Opercularella humilis Bale 1924							o					x						
Antennella indivisa (Bale 1882)		o			o			x										
Antennella secundaria (Gmelin 1788-1793)	x?	o	o	o	o	o		x			x		x		x	x	x	x
Halopteris campanula (Busk 1852)	x		x					x			x	x			x	x		
Halopteris diaphana (Heller 1868)		o	o	o	o						x			x		x	x	x
Halopteris polymorpha (Billard 1913)		o	o								x							
Halopteris zygocladia (Bale 1914)					x													
Monostaechas quadridens (McCrady 1859)	x				o					x	x		x		x	x		x
Nemertesia cylindrica (Kirchenpauer 1876)	x			xo							x							

	Queensland																	
				22°—26°S		26°—28°S												
	10°—14° S	14°—18° S	18°—22° S	Bay	Oc. Is.	Bay	Ocean	S.E. Aust.	Lord Howe	N.W. Aust.	E. Indies	New Zealand	Pacific	E. Pacific	Japan	India, Suez	S.E. Africa	Atlantic
Plumularia badia Kirchenpauer 1876	x		x	o		o				x	x					x		
Plumularia halecioides Alder 1859		o	o	o										x		x		x
Plumularia obliqua (Johnston 1847)		o			o			x							x			x
Plumularia pulchella Bale 1882		o						x		x		x					x	
Plumularia scabra Lamarck 1816	x										x							
Plumularia setacea Ellis 1755				o		o	o	x			x	x		x		x		x
Plumularia spinulosa Bale 1882					o			x	x	x		x			x		x	
Plumularia warreni (?) Stechow 1919							o										x	
Plumularia warreni Stechow 1919 var. *pambanensis* Gravely 1927		o	o	o	o	o										x		
Plumularia sp.		o	o	o														
Polyplumaria cornuata (Bale 1884)		x	x								x							
Pycnotheca mirabilis (Allman 1883) var. *warreni* Totton 1931				o	o							x?		x?	x?		x?	
Pycnotheca pro (Ba 188		x						x							x?			
Aglaophenia cupressina Lamouroux 1816	x	x	o		xo					x	x					x?	x	
Aglaophenia delicatula (Busk 1852)	x				ox						x					x	x	
Aglaophenia phyllocarpa Bale 1888			x															
Aglaophenia sinuosa Bale 1888			x															
Aglaophenia (?) *rubens* Kirchenpauer 1876			x															
Aglaophenia (?) *squarrosa* Kirchenpauer 1876			x															
Cladocarpus sibogae Billard 1913					x						x							
Halicornaria hians (Busk 1852)	x			x	o					x	x	x			x		x	
Halicornaria longicornis (Busk 1852)	x	x		o				x			x							
Lytocarpus philippinus (Kirchenpauer 1872)	x	xo	x	o	o	xo					x		x	x		x	x	x?
Lytocarpus phoeniceus Busk 1852	x	x	xo	o	o	o			x		x	x	x		x	x	x	x?
Pentandra balei von Lendenfeld 1885	x																	

	Queensland							S.E. Aust.	Lord Howe	N.W. Aust.	E. Indies	New Zealand	Pacific	E. Pacific	Japan	India, Suez	S.E. Africa	Atlantic
	10°—14° S	14°—18° S	18°—22° S	22°—26°S Bay	22°—26°S Oc. Is.	26°—28°S Bay	26°—28°S Ocean											
Thecocarpus angulosus Lamarck 1816	x	x	x	x														
Thecocarpus armatus (Bale 1914)					x			x										
Thecocarpus brevirostris (Busk 1852)	x		x		o				x		x		x			x	x	
Thecocarpus phyteuma (Kirchenpauer 1876)			o		o						x		x					
Hebella calcarata (L. Agassiz 1862)		o		o		o		x	x		x	x		x	x	x	x	x
Hebella calcarata (L. Agassiz 1862) var. *contorta* Marktanner-Turneretscher 1890					o		o	x	x		x							
Hebella costata Bale 1884	x	o		o		xo				x	x	x			x?	x	x	
Hebella crateroides Ritchie 1910		x									x						x	
Hebella dyssymmetra Billard 1933 var. *trigona* Billard 1942 ..		o									x							
Lictorella antipathes (Lamarck 1816)	x							x			x							
Lictorella rufa (Bale 1884)			x					x			x							
Hincksella cylindrica (Bale 1888)						o		x						x?				
Hincksella sibogae Billard 1918		x									x							
Synthecium megathecum Billard 1924	x?				o						x		x?		x?	x?		
Synthecium patulum (Busk 1852)	x				o	o		x		x	x	x	x		x	x		
Cnidoscyphus torresii (Busk 1852)	x	x								x	x				x		x	
Diphasia digitalis (Busk 1852)	x		o	o		o				x	x				x	x	x	x
Diphasia mutulata (Busk 1852)	x										x					x	x	
Diphasia scalariformis Kirkpatrick 1890	x										x				x			
Diphasia sub-carinata (Busk 1852)	x							x										
Dynamena cornicina McCrady 1858		o	o	o	o	o		x			x			x	x	x	x	x
Dynamena crisioides Lamouroux 1824		xo	o	o	o	xo	o	x	x		x			x	x	x	x	x
Dynamena gibbosa Billard 1924				o	o	o					x							
Dynamena heterodonta (Jarvis 1922)		o									x						x	

	Queensland																	
	10°—14° S	14°—18° S	18°—22° S	22°—26°S Bay	22°—26°S Oc. Is.	26°—28°S Bay	26°—28°S Ocean	S.E. Aust.	Lord Howe	N.W. Aust.	E. Indies	New Zealand	Pacific	E. Pacific	Japan	India, Suez	S.E. Africa	Atlantic
Dynamena obliqua (Lamouroux 1816)					o	o	o	x	x								x	
Dynamena quadridentata (Ellis & Solander 1786)		xo						x			x	x	x	x	x	x	x	x
Dynamena quadridentata (Ellis & Solander 1786) var. *elongata* Stechow & Müller 1923					o						x				x			
Idiellana pristis (Lamouroux 1816)	x	x	x	xo		xo				x	x	x			x	x	x	x
Salacia hexodon (Busk 1852)	x		xo	o		x				x	x					x		
Salacia sinuosa (Bale 1888)			x					x	x		x							
Salacia tetracythara Lamouroux 1816	x		xo	x	o	xo		x			x		x			x		
Salacia tetracythara Lamouroux 1816 var.				o														
Sertularella diaphana (Allman 1885)						xo					x		x		x			x
Sertularella lata (Bale 1882)	x							x					x?					
Sertularella longitheca (Bale 1888)			x					x										
Sertularella minuscula Billard 1924			o		o						x					x		x
Sertularella quadridens Bale 1884	x		x	x		xo				x	x	x						
Sertularella robusta Coughtrey 1875						o		x				x						
Sertularella sp.		o			o													
Sertularia borneensis Billard 1924					o						x							
Sertularia (?) *conferta* (Kirchenpauer 1864)																		
Sertularia distans (Lamouroux 1816) var. *gracilis* (Hassall 1848)		o	o		o						x					x		x
Sertularia loculosa Busk 1852					o	o		x			x				x	x	x	x
Sertularia minima Thompson 1879			o	o		o	o	x	x			x	x				x	x
Sertularia trigonostoma Busk 1852	x			o							x							

	Queensland																
				22°—26°S		26°—28°S											
	10°—14° S	14°—18° S	18°—22° S	Bay	Oc. Is.	Bay	Ocean	S.E. Aust.	Lord Howe	N.W. Aust.	E. Indies	New Zealand	Pacific	E. Pacific	Japan	India, Suez	S.E. Africa	Atlantic
Sertularia turbinata Lamouroux 1816		o		o		o	o	×			×						×	×
Thyroscyphus bedoti Splettstosser 1929			o								×							
Thyroscyphus campanulatus (Warren 1908)					o					×	×					×	×	
Thyroscyphus sibogae Billard 1930		o											×					
Totals	36	46	35	32	38	37	17	44	10	19	67	26	17	22	33	38	36	38
Percentage of Queensland Total	30%	38%	29%	26%	31%	30%	14%	36%	8%	16%	55%	21%	14%	18%	27%	31%	30%	31%

and varieties are peculiar to that region. These include small, gymnoblastic forms, species which have been reported only once, two unidentified species and one unidentified variety. More intensive collecting in other regions and re-examination of inadequately described material (for example, some of Kirchenpauer's and von Lendenfeld's species) will almost certainly reduce this figure.

Examination of the numbers in common between Queensland and other regions supports Bale's original contention that the Queensland hydroid fauna had more in common with the islands to the north (67 = 55%) than with south-eastern Australia (44 = 36%) (Bale, 1884). This, coupled with relatively high figures in common with China and Japan (33 = 27%), India (38 = 31%), and Africa (36 = 30%), suggests that the Queensland fauna is composed, to a large extent, of widely distributed Indo-West-Pacific species. Distribution of these species eastward across the Tasman Sea and Pacific Ocean appears to be limited. 20 (= 16% of all Queensland species) common to New Zealand and Queensland are Indo-West-Pacific species. The remaining 6 species are peculiar to Australia and New Zealand. Only 17 (14%) Queensland species are found in the Pacific and 22 (18%) on the intensively collected Pacific coast of North America. This pattern of distribution is not a new one; Stephenson and McNeill (1955) made similar findings for the stomatopods.

Queensland does not mark the southerly limit of distribution of Indo-West-Pacific species in Australia. 32 out of 44 species common to Queensland and south-east Australia are Indo-West-Pacific or cosmopolitan forms. The remaining 12 (including 5 doubtfully recorded from other regions) are found only in south-east Australia and New Zealand. All hydroids common to Lord Howe I. and Queensland and to Western Australia and Queensland are also Indo-West-Pacific species.

The existence of 12 Australian species which do not extend into the Indo-West-Pacific (two of these extend to New Zealand) suggests the possibility of an indigenous south-east Australian fauna spreading north into Queensland. This is further supported by the low percentages common to South Australia and Indo-West-Pacific regions found by Blackburn (1942). Percentages common to Queensland and the Indo-West-Pacific are, relatively, much higher.

There is some evidence of a spread of this south-east Australian fauna into New Zealand (or in the reverse direction) though the degree of relationship does not appear to be nearly as great as originally postulated by Bale (1884). Blackburn (1942) found 4 and possibly 5 species peculiar to South Australia and New Zealand. 5 and possibly 6 Queensland species are peculiar to Australia and New Zealand, 4 of these have not been found further south than Queensland, but these are mostly small and might well have been overlooked.

The high number of species common to Queensland and the Atlantic-Mediterranean region is probably due, in part to the spread of Indo-West-Pacific tropical forms into the Mediterranean (Billard, 1913, 1925) and Caribbean Seas, but it also reflects the magnitude of the latter region and the intensive collecting done there. Also a number of species reported as common to the two regions are probably not identical species but rather closely related sub-species or varieties (for example, *Aselomaris arenosa* (Alder, 1862), *Campanularia volubilis* (Linnaeus, 1767), *Lytocarpus philippinus* (Kirchenpauer, 1872), and *Lytocarpus phoeniceus* (Busk, 1852).

In considering distribution along the Queensland coast there is evidence of a minor discontinuity between the southern end of the Great Barrier Reef and the Queensland-New South Wales border. Examination of Table II shows that of

TABLE II

Number of south-eastern Australian species having their northern most limit in each region, and number of Indo-west-Pacific species having their southern-most limit in each region.

		Number of S.E. Australian species with their northern-most limit in each region	Number of Indo-W-Pacific species with their southern-most limit in each region
10°—14° S		2	4
14°—18° S		5	9
18°—22° S		1	4
22 —26° S	Bay	0	5
	Ocean and Islands	1 — 1	15 — 20
26°—28° S	Bay	4	17
	Ocean	3 — 7	3 — 20

the 16 south-east Australian-New Zealand species (including 5 doubtfully reported from other localities) found in Queensland 7 have their northern-most limits south of Cape Moreton, 3 of these in ocean beach habitats, 4 in Moreton Bay. Of the 57 Indo-West-Pacific species which do not extend into south-eastern Australia 20 have their southern-most limit at the southern end of the Great Barrier Reef or in Port Curtis, and 17 have their southern-most limit in Moreton Bay. Only 3 species have their southern limit in Australia on the south coast ocean beach. These are *Eudendrium capillare* Alder, 1856, which extends to Lord Howe I., *Campanularia johnstoni* Alder, 1856, which is known to be a cosmopolitan species, and *Plumularia warreni* Stechow, 1919, which may be identical with *P. caliculata* Bale, 1888, a species reported from New South Wales. The ocean beach, therefore, is probably not the true southern limit of these particular species.

Moreton Bay harbours a number of tropical species which are not represented on the Queensland coast south of about 25°S (Endean, Kenny & Stephenson, 1956). The 17 tropical hydroids reported from this locality may well fall in the same category and the true demarcation between northerly tropical species and south-eastern Australian species may be at about the latitude (25°S) at which these authors found the changeover in the dominant littoral animals.

TABLE III

A table of references to descriptions and distribution records of 32 Queensland species not represented in the collection. (In this table D preceding the entries indicates the source of an adequate description, Q the source of Queensland distribution records).

Zanclea cylindrica (Kirkpatrick, 1890); D, *ibid.*, p. 605, pl. XIV, fig. 1 (as *Coryne* vel. *Syncoryne cylindrica*); Q, *ibid.*, p. 605.

Z. protecta Hastings, 1930; D, *ibid.*, p. 552, text figs. 1-6, *ibid.*, 1932, p. 450; Q, *ibid.*

Endocrypta parasitica (Kirk, 1914); D, Briggs & Gardiner, 1931, p. 186; Q, *ibid.*, p. 187.

Eudendrium generale von Lendenfeld, 1885; D, *ibid.*, p. 351, pl. VI (as *E. generalis*), Bale, 1919, p. 335; Q, Kirkpatrick, 1890, p. 607 (as *E. generalis*).

E. infundibuliforme Kirkpatrick, 1890; D, *ibid.*, p. 606, pl. XIV, fig. 3; Q, *ibid.*, p. 607.

Campanularia volubilis (Linnaeus, 1767); D, Hincks, 1868, p. 160, pl. XXIV, fig. 2; Q, Busk, p. 401 (identification doubtful).

Hydrodendron dichotomus (Allman, 1888); D, *ibid.*, p. 17, pl. VIII, figs. 1-3 (as *Diplocyathus dichotomus*), Leloup, 1938, p. 5, text-fig. 2, pl. I, fig. 2 (as *D. dichotomus*); Q, Allman, 1888, p. 17; Kirkpatrick, 1890, p. 604 (as *D. dichotomus*).

Halopteris campanula (Busk, 1852); D, Bale, 1884, p. 124, pl. X, fig. 5 (as *Plumularia campanula*), *ibid.*, 1888, p. 776, pl. XX, figs. 1-6 (as *P. campanula*); Q, Bale, 1884, p. 125, von Lendenfeld, 1885, p. 477 (as *P. torresia*).

H. zygocladia (Bale, 1914); D, *ibid.*, 1914b, p. 171, pl. XXXVI, fig. 2; Q, *ibid.*, p. 172.

Plumularia scabra Lamarck, 1816; D, Bale, 1884, p. 129, pl. XVIII, fig. 5 (as *P. effusa*); *ibid.*, 1919, p. 342, pl. XVII, figs. 4-5; Q, Busk, 1852, p. 400 (as *P. effusa*), Allman, 1883, p. 28 (as *Acanthella effusa*); Kirkpatrick, 1890, p. 611 (as *A. effusa*).

Polyplumaria cornuata (Bale, 1884); D, *ibid.*, p. 132, pl. XI, figs. 1, 2 (as *Plumularia cornuata*); Billard, 1913, p. 53, pl. III, fig. 33, pl. IV, figs. 35, 36; Q, Bale, 1884, p. 132, Briggs & Gardiner, 1931, p. 191.

Pycnotheca producta (Bale, 1881); D, *ibid.*, 1888, p. 774, pl. XIX, figs. 1-5 (as *Azygoplon productum*), *ibid.*, 1894, p. III (as *Kirchenpaueria producta*); Q, Blackburn, 1938, p. 317.

Aglaophenia phyllocarpa (Bale, 1888); D, *ibid.*, p. 793, pl. XXI, figs. 9-10; Q, *ibid.*, p. 794.

A. (?) *rubens* Kirchenpauer, 1876 (no gonosome, genus in doubt); D, Bale, 1884, p. 157, pl. XVIII, fig. 9; Q, *ibid.*, p. 157.

A. sinuosa Bale, 1888; D, *ibid.*, p. 790, pl. XXI, figs. 1, 2; Q, *ibid.*

A. (?) *squarrosa* Kirchenpauer, 1876 (no gonosome, genus in doubt); D, Bale, 1884, p. 156, pl. XVIII, fig. 10; Q, *ibid.*

Cladocarpus sibogae Billard, 1911; D, Bale, 1915, p. 304, pl. XLVII, figs. 1-5 (as *Cladocarpella multiseptata*), *ibid.*, 1919, p. 356 (as *C. multiseptata*); Q, *ibid.*, 1915, p. 306.

Pentandra balei von Lendenfeld, 1885; D, *ibid.*, 1885, p. 490, pl. XIV, fig. 18, pl. XVI, figs. 26-7; Q, *ibid.*, p. 490.

Thecocarpus angulosus (Lamarck, 1816); D, Allman, 1883, p. 33, pls. IX, XX, figs. 1-3 (as *Acanthocladium huxleyi*), Bale, 1884, p. 161, pl. XV, fig. 6, pl. XVII, fig. 8 (as *Aglaophenia huxleyi*), Billard, 1913, p. 85, text figs. LXX-LXXIII; Q, Busk, 1852, p. 396 (as *Plumularia huxleyi*), Bale, 1884, p. 162 (as *Aglaophenia huxleyi*), Kirkpatrick, 1890, p. 604 (as *Acanthocladium huxleyi*), Weltner, 1900, p. 589 (as *Acanthocladium studeri*), Briggs & Gardiner, 1931, p. 193.

T. armatus (Bale, 1914); D, *ibid.*, 1914b, p. 175, pl. XXXVIII, figs. 3, 4 (as *Aglaophenia armata*), Briggs, 1915, p. 314, pl. X, fig. 2 (as *A. armata*); Q, Bale, 1914b, p. 177 (as *A. armata*).

Hebella craterioides Ritchie, 1910; D, *ibid.*, 1910 C, p. 6, pl. IV, fig. 1; Q, Briggs & Gardiner, 1931, p. 189.

Lictorella antipathes (Lamarck, 1816); D, Allman, 1888, p. 35, p. XVII, figs. 1, 2 (as *L. halecioides*), Totton, 1931, p. 165; Q, Allman, 1888, p. 36, Kirkpatrick, 1890, p. 609 (as *L. halecioides*).

L. rufa (Bale, 1884); D, *ibid.*, p. 54, pl. i, fig. 1 (as *Campanularia rufa*), *ibid.*, 1914c, p. 90 (as *Zygophylax rufa*); Q, *ibid.*, 1884, p. 54.

Hincksella sibogae Billard, 1918; D, *ibid.*, 1925, p. 122, text-fig. 1, pl. VII, fig. 1; Q, Briggs & Gardiner, 1931, p. 190.

Cnidoscyphus torresii (Busk, 1852); D, Bale, 1884, p. 52, pl. ii, fig. 3 (as *Campanularia torresii*), Splettstösser, 1929, p. 70, text-figs. 68-77, p. 125; Q, Busk, 1852, p. 402 (as *Laomedea torresii*), Bale, 1884, p. 52 (as *Campanularia torresii*), Allman, 1888, p. 25 (as *Thyroscyphus simplex*), Kirkpatrick, 1890, p. 604 (as *Campanularia torresii*).

Diphasia mutulata (Busk, 1852); D, Bale, 1884, p. 101, pl. IX, figs. 6-9, Billard, 1933, p. 16, pl. I, fig. 4, text-fig. 6; Q, Busk, 1852, p. 391 (as *Sertularia mutulata*), Bale, 1884, p. 102.

D. scalariformis Kirkpatrick, 1890; D, Billard, 1925, p. 216, text-figs. LV, LVI; Q, Kirkpatrick, 1890, p. 609.

D. sub-carinata (Busk, 1852); D, Bale, 1884, p. 102, pl. IV, fig. 1, pl. XIX, fig. 18; Q, Kirkpatrick, 1890, p. 604.

Salacia sinuosa (Bale, 1888); D, Billard, 1925, p. 204, pl. VIII, fig. 29, text-fig. XLVIII; Q, Bale, 1888, p. 772 (as *Thuiaria sinuosa*).

Sertularella lata (Bale, 1882); D, *ibid.*, 1884, p. 120, pl. VII, fig. 4 (as *Thuiaria lata*); Q, Kirkpatrick, 1890, p. 604 (as *T. lata*).

S. longitheca (Bale, 1888); D, *ibid.*, p. 762, pl. XVI, figs. 5, 6, Ritchie, 1911, p. 840, pl. LXXXVIII, fig. 7; Q, Bale, 1888, p. 762.

Sertularia conferta Kirchenpauer, 1864; D, Bale, 1884, p. 93, pl. VIII, fig. 9; Q, *ibid.*, p. 93.

Order ATHECATA.

Key To Families.

1.	Hydranth tentacles branched	*Cladocorynidae*
–.	Hydranth tentacles unbranched	2
2.	Hydranth tentacles scattered	3
–.	Hydranth distal tentacles (capitate) scattered; well developed basal tentacles (filiform), in single whorl	*Halocordylidae*
–.	Hydranth tentacles in whorls in marine forms; scattered in specimens from brackish or fresh water	5
3.	Hydranth tentacles filiform; medusae with numerous solid marginal tentacles	*Clavidae*
–.	Hydranth tentacles filiform or capitate; medusae with two or four hollow marginal tentacles bearing cnidophores, gonads interradial	*Zancleidae*
–.	Hydranth tentacles capitate; poorly developed filiform tentacles occasionally present at base of hydranth	4
4.	Coenosarc supported externally by tubular perisarc; medusae with four hollow marginal tentacles, gonads completely surrounding stomach	*Corynidae*
–.	Coenosarc supported internally by reticular chitinous skeleton	*Solanderiidae*
5.	Hydranth tentacles in two whorls	*Tubulariidae*
–.	Hydranth tentacles in one whorl	6
6.	Hydranth with trumpet-shaped manubrium	*Eudendriidae*
–.	Hydranth with conical manubrium	7
7.	Hydranth springing from hydrorhiza, without perisarcal covering	*Hydractiniidae*
–.	Colony usually branched, with perisarc covering the branches and often with a pseudotheca protecting the hydranth	8
8.	Medusa with branched oral tentacles inserted on mouth tube some way above its opening	*Bougainvilliidae*
–.	Medusa with 4 perradial mouth lips with simple, folded, or much crenulated margins	*Pandeidae*

TUBULARIIDAE.

Genus *Tubularia.*

Tubularia crocea (?) (Agassiz, 1862).

Tubularia crocea (Agassiz) Allman, 1871-2, p. 416 (descr.); Ritchie, 1910b, p. 829 (descr.); Fraser, 1937, p. 51, pl. 9, fig. 41 (descr. fig.).

Colonies reach 4 cm. in height, taller than those figured by Fraser. Stems are, very occasionally, branched at right angles to the parent stem and show occasional ringing. Basal tentacles number 17 to 22, oral tentacles c.20. In these specimens the gonophores are no more than knobs just above the basal tentacles.

Dimensions:—

Hydranth height	2 – 3 mm.
diameter	1 – 1.6 mm.
Hydranth bulb height	1 – 1.25 mm.

Identification is doubtful because of the immaturity of the gonophores. The hydranth shows a constriction below the basal tenacles as described by Ritchie, and for this reason the colony has been identified as *T. crocea* rather than *T. sphaerogonia* Hargitt, 1927, which agrees in all other trophosomal characters with the specimens from Moreton Bay.

Locality.—Scott's Point, Moreton Bay (28.iv.1955, on rock about M.L.W., coll. K.E.D.).

CORYNIDAE.

Key To Genera.

1.	Hydranth with reduced filiform tentacles	2
–.	Hydranth with no reduced filiform tentacles	3

2.	Gonophores free-swimming medusae	**Stauridosarsia*
–.	Gonophores fixed sporosacs	*Staurocoryne*
3.	Gonophores free-swimming medusae	**Syncoryne*
–.	Gonophores fixed sporosacs	*Coryne*

Genus *Coryne*.

Coryne (?) *multitentaculata* (Warren, 1908).

Clavatella multitentaculata Warren, 1908, p. 278, pl. XLV, figs. 7–9 (descr. fig.).
Syncoryne sp. Gravely, 1927, p. 8, pl. II, fig. 3 (fig.).

Gravely has been followed in placing this species tentatively in the Corynidae. Mature gonophores have not been found; for this reason the species has been transferred from *Syncoryne* to *Coryne* where the gonophores are fixed. The form of the hydranths is indistinguishable from Gravely's figure; their colours, dimensions and tentacle numbers agree perfectly with Warren's description. There seems no doubt that the forms described by the two authors are identical.

Locality.—Low Is. (21.viii.54, under coral rock in *Montipora* pool on the windward slope of the reef above L.W.S.).

Genus *Staurocoryne*.

Staurocoryne heroni sp. n. (Pl. I, Fig. 1).

Trophosome.—Hydranths stalked, arising singly from a creeping hydrorhiza. Hydranth pedicles short, encased in a smooth tube of perisarc narrowed at its origin from the hydrorhiza and expanding gradually upwards to the base of the hydranth. Young hydranths with a basal whorl of 4 to 6 filiform tentacles, and about 12 small capitate tentacles arranged, only approximately, in 3 whorls of 4 in the central region, and 4 large capitate tentacles arranged in 1 whorl round the mouth. Older hydranths without filiform tentacles, and with capitate tentacles increased to 16 in 4 poorly defined whorls.

Gonosome.—Absent.

Dimensions.—

Hydrorhiza diameter	0.10 – 0.13 mm.
Pedicle length	0.09 – 1.40 mm.
proximal diameter	0.077 – 0.13 mm.
distal diameter	0.12 – 0.35 mm.
Hydranth length	0.46 – 1.90 mm.
Filiform tentacle length	0.046 – 0.12 mm.
Diameter of heads of capitate tentacles in proximal whorls	0.031 – 0.12 mm.
Diameter of heads of capitate tentacles in distal whorl	0.064 – 0.15 mm.

This species may readily be distinguished from the 4 species of *Staurocoryne* described by Rees (1936). It differs from *S. filiformis* and *S. lovenii* in the lack of a branched hydrocaulus, from *S. pintneri* in the presence of smooth perisarc surrounding the hydranth pedicles, and from *S. wortheyi* in the presence of 4 instead of 3 whorls of capitate tentacles.

Localities.—Heron I. (21.viii.1949, young colony of small hydranths on exposed surface of honeycomb rock in deep pool region behind reef crest). Low I. (21.viii.1954, mature colonies on weed in *Montipora* pools, eastern reef slope). Type lodged Queensland Museum, catalogue number G.2393.

SOLANDERIIDAE.

Genus *Solanderia.*

Solanderia fusca (Gray, 1868).

Ceratella fusca (Gray) Spencer, 1892, p. 8, pls. 2, 3, 3a (descr., figs.).

Solanderia fusca (Gray) Briggs, 1918, p. 34 (synonymy, dist.).

Localities.—Heron I. (17.ix.1938, coll., M.B.; 15,20,24.viii.1948; 22.viii.1949, common on the under surfaces of coral boulders in pools in all regions of the reef); North West Reef (25.viii.1948).

CLADOCORYNIDAE.

Genus *Cladocoryne.*

Cladocoryne floccosa Rotch, 1871.

Cladocoryne floccosa Rotch, Philbert, 1936, p. 1, 8 text-figs. (descr. figs. synonymy); Vervoort, 1941, p. 190 (dimen. dist.).

Cladocoryne haddoni Kirkpatrick, 1890, p. 605, pl. XIV, fig. 2 (descr. fig.).

Of all descriptions of *Cladocoryne floccosa* these specimens most closely correspond with that of Kirkpatrick (1890) for *C. haddoni;* not only in size and the presence of two whorls of branched tentacles, but also in habitat. The dimensions of the parts of the colony are closest to those of Ritchie (1910a), and are much smaller than those quoted by Vervoort (1941). This difference is probably due, in part, to contraction at the time of preservation.

Dimensions.—

Hydrocaulus length	1.7 mm.
Hydrocaulus diameter	0.092 mm.
Greatest length of hydranth	0.37 mm.
Greatest width of hydranth	0.18 mm.
Diameter of head of unbranched tentacle	0.032 mm.

Locality.—Port Curtis (viii,1916). *Qld. distribution.*—Murray I. (Kirkpatrick, 1890).

ZANCLEIDAE.

Genus ZANCLEA.

Key to species.

1. Perisarc exceedingly delicate not continued beyond the base of the hydranth; hydranth with only one kind of nematocyst. 0.009 mm. x 0.007 mm. ..... *protecta*
–. Perisarc more strongly developed; hydranths with large nematocysts 0.032 mm. x 0.016 mm. in addition to small variety ..... *cylindrica*

HALOCORDYLIDAE.

Genus *Halocordyle.*

Key to species.

1. Capitate tentacles reduced to one oral whorl of 4 or 5 ..... *wilsoni*
–. 9–14 capitate tentacles present, 4 grouped into an oral whorl, the rest scattered over the body of the hydranth ..... *disticha* var. *australis*

Halocordyle disticha (Goldfuss, 1820) var. *australis* (Bale, 1884) (Pl. I, figs. 3–7).

Halocordyle disticha (Goldfuss) var. *australis* (Bale) Stechow, 1925, p. 194 (synonymy); Vervoort 1941, p. 192 (discuss. dist.); Vervoort 1946, p. 290 (discuss.).

Pennaria australis Bale 1884, p. 45 (descr.).

Halocordyle cooperi Warren 1906, p. 73, pl. IX (descr. fig.).

The relationship of *Halocordyle disticha* var. *australis* to *H. disticha* is still obscure.

Bale (1884) distinguished *australis* on the smoothness of the hydrotheca pedicle after the initial 5 or 6 annulations. Since then the variability of pedicle annulation in this variety has been pointed out by Pictet (1893), Leloup (1932a), and Vervoort (1946), and, recently, Berrill (1952) has shown that in *H. tiarella* the annulation or non-annulation of a stolon depends on the rapidity of growth pulses; slow pulses giving rise to annulated, rapid pulses to smooth perisarc. Undoubtedly external conditions would alter growth rate and therefore the degree of annulation. This, then, is an unsatisfactory specific or varietal character.

Hargitt (1924) maintained the distinction between the two species on the grounds that gonophores were fixed in *H. disticha* and free in *H. australis*. The report of freedom of the gonophore appears to be based on von Lendenfeld's (1885) account of *Pennaria rosea* (now considered a synonym of *H. disticha* var. *australis*). Apparently no attempt has been made to verify this point. Two or three attached gonophores in Mr. Dall's Moreton Bay material appeared to have shed their products, but these may have been broken in handling. The life history and factors affecting it badly need re-investigation.

Berrill (1952) pointed out that capitate tentacles of mature hydranths of *H. disticha* are often headless. This condition was observed only in immature Currumbin specimens of *H. disticha* var. *australis*. Allman (1871-2) failed to record this feature in his specimens of *H. disticha* so it is possible that this is not a constant condition in this species either.

Allman (1871-2) figures hydranths and Berrill (1952) hydranths and gonophores of *H. disticha* from which dimensions can be calculated. Berrill's dimensions, together with the dimensions of Bale's original Port Jackson material, and Queensland material, are set out below (Table IV). (The dimensions of the Australian material cover a wider range than those calculated for Leloup's Indian specimens (1932a) and the dimensions given by Warren for *H. cooperi*). Examination of these figures shows that both hydranths and gonophores of *P. disticha* var. *australis* are considerably smaller than those of *H. disticha;* only Mr. Dall's Moreton Bay specimens approach them in size.

Possible distinctive features between the two forms appear to be reduced to: (i) smaller hydranth size in var. *australis* (0.5—1.5 mm. length as opposed to 2 mm.); (ii) all capitate tentacles with capitate heads in sexually mature hydranths; and, doubtfully, (iii) the presence of free gonophores.

Localities.—Moreton Bay (1918, coll. O. W. Tiegs; 1952, coll. W. Dall); Facing I., Port Curtis (viii. 1918, coll. O. W. Tiegs); Caloundra Heads 23.ix.1950 in rock pool at M.T.L.); Currumbin (1.vii.1951, common in rock pools above L.W.S.).

Halocordyle wilsoni (Bale, 1913) (Pl. I, fig. 8).

Halocordyle australis Bale, 1894, p. 94 (descr.).

Pennaria wilsoni Bale, 1913, p. 116 (name change); Blackburn, 1937b, p. 176, figs. 8, 9 (additional descr., fig.).

These specimens have been identified only doubtfully as *Halocordyle australis*.

TABLE IV

(Dimensions of *Halocordyle disticha* var. *australis*, in m.m.)

	Hydranth length	Hydranth diameter	Filiform tentacle length	Filiform tentacle diameter	Capitate head diameter	Gonophore length	Gonophore diameter	Pedicle length	Pedicle diameter
Halocordyle disticha (after Berrill)	2.00	0.6	up to 2.00	0.083	0.16	1.66	0.68	..	..
Halocordyle disticha var. *australis* (Bale) (mounted)	0.45–0.97	0.17– .40	up to 0.93	0.04–0.06	0.08– .12	up to 0.40	up to 0.16	0.38–1.5	0.10–0.17
H. disticha var. *australis* (Moreton Bay-Tiegs) (mounted) ..	0.40–0.71	0.13–0.21	up to 0.38	0.056–0.08	0.06–0.066	0.56–0.89	0.30–0.33	0.46–1.4	0.093–0.16
H. disticha var. *australis* (Moreton Bay-Dali)	0.82–1.53	0.26–0.40	up to 1.1	0.046–0.066	0.10–0.14	up to 1.4	up to 0.66	0.53–2.53	0.093–0.16
H. disticha var. *australis* (Currumbin)	0.85–1.30	0.33–0.40	up to 0.66	0.086–0.093	0.066–0.13	..	..	0.33–0.56	0.13–0.17
H. disticha var. *australis* (Facing Island-Tiegs) (mounted) ..	0.66–0.81	0.26–0.46	0.69–0.77	0.053–0.08	0.093– .10	..	..	0.32–0.66	0.12–0.16

The main differences are:—(i) The branches usually bear only a terminal hydranth, very occasionally one secondary hydranth. It is therefore not possible to determine whether these are arranged alternately or uniserially. (ii) Branches are ringed at their origin, above the points of origin of secondary branches and at intervals along their length; none are ringed throughout. (iii) Hydranth pedicles (Bale's *polypiferous ramuli*) are only ringed throughout in very young hydranths. Undoubtedly this condition would disappear when the rapid phase of pedicle growth took place (Berrill, 1952). Specimens figured by Blackburn do not appear to be ringed throughout.

It is possible that these differences are due to the age of the colonies, their habitat, which undoubtedly causes stunting of colonies in other species, and to the water temperature in which they developed. Both Leloup (1932a) and Vervoort (1946) express the opinion that pedicle ringing is a very variable character in *Halocordyle disticha* var. *australis;* the same may possibly apply in this species.

Trophosome.—Colony pinnate, up to 1.75 cms. in height; hydrocaulus with groups of about 7 annulations at intervals throughout its length, usually just above the point of origin of a branch. Branches usually arranged alternately but occasionally irregularly, usually making an angle of about 80° with the hydrocaulus. Each branch with 1 terminal hydranth and, occasionally, 1 secondary hydranth directed slightly towards the front; with 6 to 12 rings at its base and with groups of 5 or 6 rings at intervals along its length. Hydranth pedicles ringed throughout only in very young polyps, otherwise with smooth sections alternating with ringed sections (cf. Berrill, 1952, figs. B, C, D, E for *P. tiarella*). Hydranth with usually 10 basal tentacles, sometimes as few as 6, and 4 or 5 oral tentacles. Basal tentacles with very noticeable nematocyst batteries concentrated on the aboral surface and at the tip. Oral tentacles capitate. In the living hydranth, body reddish; reddish globules also noticeable in the endoderm of the tentacles.

Gonosome.—Absent.

Dimensions.—(Preserved specimens) :—

Hydranth length	0.46 – 1.00 mm.
greatest diameter	0.26 – 0.50 mm.
Pedicle diameter	0.11 – 0.20 mm.
Basal tentacle length	up to 0.66 mm.
diameter	,, ,, 0.13 mm.
Oral tentacles, head diameter	,, ,, 0.13 mm.

Locality.—Low Is. (21, 22, 24, 25.viii.1954, under coral rocks in shallow *Montipora* pools, from M.T.L. to L.W.S. exposed to much wave action).

Hydractiniidae.

Key to genera.

1. Hydrorhiza reticular, spines and nematozooids usually absent ..... *Stylactella*
–. Hydrorhiza encrusting with a naked layer of coenosarc, colonies usually polymorphic, spines usually present ..... **Hydractinia*

Genus *Stylactella.*

Stylactella niotha sp. n. (Pl. I, fig. 2).

Host snail.—*Niotha albescens* Dunker.

Trophosome.—Hydrorhiza tubular, forming a rather regular quadrangular meshwork running along the grooves on the snail shell; coated with white flocculent material round gasterozooid and sporosac bases. Gasterozooids arising thickly from the hydrorhiza, especially round the mouth of

the shell; white in colour in the living condition, little if at all contracted at the base, without peduncle, bearing a circlet of up to 15 filiform tentacles, alternately elevated and depressed, manubrium conical. Modified zooids and spines absent.

Gonosome.—Sporosacs clavate, arising from the hydrorhiza round the gasterozooid bases protected throughout by a very delicate clear layer (of perisarc ?).

Dimensions.—

Gasterozooid height	2 – 3 mm.
diameter	0.4 mm.
Sporosarc height	up to 0.7 mm.

The long stalk on which the gonophore is borne could be either a gonophore peduncle, or a much modified gonozooid. If it is merely a peduncle the species should be assigned to Iwasa's (1934) subgenus *Stylactella* where the gonophores are borne directly on the hydrorhiza. Of the five species attributed to this subgenus it appears to be closest to *S. elsae-oswaldae* Stechow 1921 from Naples, which has stalked gonophores as large as the hydranths. If, on the other hand, the "peduncle" should prove to be a much modified gonozooid the species would have to be assigned to the subgenus *Stylactis* and its closest relative would be *Hydractinia* (*Stylactis*) *ingolfi* Kramp, 1932. The total absence of a hypostome and the presence of a clear protective layer over gonophore and stalk are arguments against this view.

Iwasa (1934) maintained Stechow's (1922) distinction between *Stylactella* and *Halerella* on the grounds that in *Halerella* the bases of the gasterozooids are not constricted whereas in *Stylactella* they are. The gasterozooids in this species are often the same diameter throughout their length. It is considered, therefore, that *Halerella* cannot be maintained as a separate genus and that it should fall into synonymy with *Stylactella*.

Localities.—Low Is. (25.viii.1954, immature colonies on 2 immature snails from the south-eastern moat); Heron I. (10.i.1955, one colony with gonangia on mature snail from reef flat; coll. T.H.-type specimen, lodged Queensland Museum, catalogue number G2392).

Bougainvilliidae.

Key to Genera.

1.	Perisarc forming sheaths round the bases of the tentacles	2
–.	Tentacles without perisarc sheaths, gonophores fixed	3
2.	Gonophores fixed	*Bimeria*
–.	Gonophores free medusae	**Thamnostoma*
3.	Colony richly branched	4
–.	Colony unbranched	5
4.	Colony found in salt water	*Garveia*
–.	Colony found in brackish or fresh water; tentacles often scattered	*Cordylophora*
5.	Gonophores borne on hydranth stalks	*Aselomaris*
–.	Gonophores borne on hydrorhiza or rhizocaulome	**Rhizorhagium*

Genus *Aselomaris*.

Aselomaris arenosa (?) (Alder, 1862) (Pl. II, fig. 6).

? *Atractylis arenosa* Alder, Hincks, 1868, p. 88, pl. XVI (descr. fig.).

? *Wrightia sp.* Blackburn 1937b, p. 178 (descr. fig. discuss.).

The gonosome is absent in these specimens. Examination of this in both the Currumbin specimens and in Blackburn's Victorian specimens will be necessary, before deciding definitely whether or not they are identical with *Aselomaris*

arenosa. The trophosome in all three forms is so similar that there is little doubt that they all belong to the same genus.

Trophosome.—Hydranth stalked, springing directly from creeping hydrorhiza. Hydranth and pedicle surrounded by a funnel-shaped sheath of perisarc encrusted with foreign particles. Hydranth with 8 to 12 slightly knobbed tentacles arranged in 2 series, a lower depressed series of short tentacles and an upper elevated series of long tentacles. Hypostome conical.

Gonosome.—Absent.

Dimensions.—

Height of hydranth and pedicle	1.0 – 1.5 mm.
Hydranth diameter	0.15 – 0.22 mm.

Locality.—Currumbin (1.vii.1951, one small colony among other hydroids on walls of rock pool).

Genus *Bimeria*.

Key to Species.

1. Colonies up to 0.5 mm. in height, irregularly branched, with 5 hydranths at most on each hydrocaulus ..... *australis*

–. Colonies up to 1 cm. in height, hydranths arranged alternately, up to 8 hydranths on each hydrocaulus ..... *currumbinensis*

Bimeria australis Blackburn, 1937.

Bimeria australis Blackburn, 1937b, p. 177, figs. 10–12.

No gonophores are present in these specimens and the stems and basal parts of the branches are not so richly strewn with foreign particles as they were in the Victorian specimens. However, the general form of the colony and the extent of the perisarc upon hydranths and tentacles are so similar in the two forms that there is little doubt of their identity.

Locality.—Bribie I. (26.iv.1948).

Bimeria currumbinensis sp. n. (Pl. II, figs. 1-3).

Trophosome.—Colonies up to 1 cm. in height, unbranched or very occasionally branched. Hydrocaulus bearing alternate, stalked hydranths. Perisarc of hydrocaulus irregularly wrinkled, occasionally annulated in the younger parts of the colony; pedicles of hydranths usually regularly annulated, particularly above their origin from the hydrocaulus. The perisarc of the pedicles merging into the funnel-shaped pseudotheca surrounding the hydranth. Hydranths pinkish to orange in colour in life, narrow at the base expanding gradually upwards to the widest point at the bases of the tentacles; tentacles 12 in number, alternately elevated and depressed; hypostome conical. Pseudotheca extending to the bases of the tentacles and prolonged into sheaths which protect the lower third to half of each tentacle.

Gonosome.—Absent.

Dimensions.—

Hydrocaulus diameter	0.10 – 0.14 mm.
Distance from origin of one hydranth pedicle to next	0.38 – 0.62 mm.
Hydrotheca pedicle length	0.15 – 0.49 mm.
diameter	0.077 – 0.092 mm.
Pseudotheca length	0.23 – 0.34 mm.
greatest diameter	0.26 – 0.40 mm.

There are four Indo-Pacific species to which this form is related: *Bimeria vestita* Wright, 1859, which was doubtfully reported from India (Gravely, 1927); *Bimeria fluminalis* Annandale, 1915, from India; *Bimeria amoyensis* Nutting, 1927, from China, and *Dicoryne valdiviae* Stechow, 1923, from Sumatra. It may be distinguished from *B. vestita* by the lesser number of tentacles (12 instead of 16) and from *B. fluminalis* by the greater number of tentacles (8 to 10 in *B. fluminalis*). It differs further from *B. fluminalis* in having no noticeable invagination of the covering of the tentacle bases into the pseudotheca when the hydranth is contracted, and in its marine habitat (*B. fluminalis* is found in brackish water). *B. amoyensis* and *Dicoryne valdiviae* are richly branched species, while branching occurs only very occasionally in the Currumbin specimens.

Examination of the gonophores will be necessary before the genus to which this species belongs is known with certainty. Should these prove to be free medusae the species will have to be transferred to *Thamnostoma,* but for the present it is more convenient to retain it in the genus *Bimeria* where the gonophores are fixed.

Locality.—Currumbin (1.vii.1951, 23.ix.1951, and 12.xi.1951 on sponges and stems of brown algae). Type lodged in Queensland Museum—catalogue number G.2394.

Genus *Cordylophora.*

Cordylophora lacustris Allman, 1871-2. (Pl. II, figs. 4, 5).

Cordylophora lacustris Allman, 1871-2, p. 252, pl. iii (descr. fig.); Briggs, 1931 p. 279 (dist. discuss.); Hand & Gwilliam, 1951, p. 206 (descr. discuss.).

Cordylophora caspia (Pallas, 1771) Roch, 1924, p. 350 (discuss.); Hummelinck, 1936, p. 42, fig. 1 (fig.); Vervoort, 1946, p. 291 (discuss.).

Two very distinct forms of *Cordylophora caspia* have been found in Queensland, the typical, brackish to fresh water form figured by Allman (1871-2) and a brackish to salt water form which most closely resembles fig. 1b of Hummelinck (1936). No inter-grading material has been discovered, and in spite of the known variability in form in *C. lacustris* the identification of the latter material is made with some misgivings. Apart from Hummelinck's figure it most closely resembles *Bimeria francisciana* Torrey 1902 from the Pacific coast of America, and a species reported under the same name from India by Leloup (1932a). Vervoort (1946) considered both these to be identical with *C. caspia* (= *C. lacustris*). On the authority of these two, Hummelinck and Vervoort, the material has been provisionally identified as *C. lacustris*. Because of the uncertainty of the identification, a description of the material from the more saline habitat is given below.

Trophosome.—Colonies up to 7 cms. in height, monosiphonic, branched; branches arising singly, almost at right angles to the stem and arranged in all planes round the stem. Each branch annulated at the base, with two series of alternately arranged secondary branches directed laterally. Each secondary branch with about 5 annulations above its origin from the branch and bearing 1 (in the proximal parts of the colony), 2 or, rarely, 3 (in the older parts of the colony), hydranths on short wrinkled pedicles. Hydranths with about 10 filiform tentacles alternately elevated and depressed, and a conical hypostome; each hydranth protected by a loose, transversely wrinkled, pseudotheca, funnel-shaped in young hydranths, barrel-shaped in older hydranths, extending to the bases of the tentacles.

Gonosome.—Up to five gonangia, all at different stages of development, borne on the pedicles of the hydranths; each with a perisarc covered pedicle, and a pyriform membranous covering protecting the contained gonophore; these latter are, apparently, sporosacs.

Dimensions.—

Distance from one branch to next	3.0 – 6.0 mm.
Distance from one pinnule to next	1.0 – 1.6 mm.
Diameter of pinnule	0.22 – 0.26 mm.
Pseudotheca depth	0.25 – 0.65 mm.
greatest diameter	0.29 – 0.62 mm.

If this identification is correct the question arises as to whether this species belongs to the Clavidae (where the tentacles on the hydranth are scattered) or to the Bougainvilliidae (where the tentacles are arranged in a single circlet). The gonophores are sporosacs and it is therefore not possible to settle the point on medusa structure. Most brackish water animals are derived from marine rather than fresh water ancestors (Beadle, 1943). There is no evidence that the reverse is the case with the hydroida. *Hydra* which, because of its simple structure, might be thought to have evolved early and perhaps colonized brackish water has been shown by Loomis (1955) to have a glutathione-triggered feeding reaction which must have appeared very late in coelenterate evolution. It therefore seems most probable that *C. lacustris* arose from a marine ancestor; if this is the case, the high salinity form would be expected to be more like the ancestral type than the low salinity form. On this line of reasoning, it seems more logical to place *Cordylophora* in the Bougainvilliidae rather than in the Clavidae where it has been placed since the establishment of the genus.

Localities.—Scattered tentacle form : Waraba Creek, Caboolture (6.vii.1943, tidal water); Oxley Creek, Aerodrome (19.ix.1943, fresh water); Enoggera Creek (9.x.1943, fresh water). All these were collected by Reik (1946, in M.S.).

Circlet tentacle form: Brisbane River, East Brisbane.

Genus *Garveia.*

Garveia clevelandensis sp.n. (Pl. II, figs. 7–9).

Trophosome.—Colonies either branched, up to 12 mm. in height, or creeping over the surface of other hydroids, in which case little branched and seldom exceeding 3 mm. in height. Stem monosiphonic, expanding, usually gradually, upwards and merging imperceptibly into the cylindrical pseudotheca surrounding the hydranth. Perisarc with many adherent foreign particles, particularly on the walls of the pseudotheca. Hydranth cylindrical in the extended state with only the manubrium and tentacles extending beyond the pseudotheca, spindle-shaped when contracted; 6 to 12 tentacles present in one whorl, alternately elevated and depressed; manubrium conical.

Gonosome.—Only female gonangia are present; these are pyriform with a thin, clear covering and a perisarc-covered peduncle, the spadix bears one gonophore on its upper end. Developing planulae are observable in some gonangia.

Dimensions.—

Thickness of stem near base	0.077 – 0.107 mm.
Diameter of pseudotheca at aperture	0.14 – 0.26 mm.
Length of pseudotheca	0.18 – 0.43 mm.

This species appears to be intermediate between *Aselomaris* with its unbranched colonies and lack of distinction between hydranth pedicle and pseudotheca, and *Garveia* with its richly branched colonies and more marked distinction between pedicle and pseudotheca. It has been identified doubtfully as a species of *Garveia* because of the lack of medusoid structure in the gonangia.

Locality.—Cleveland (10.iv.1949, growing among and creeping over *Dynamena crisioides* on jetty piles above L.W.S.). Type lodged in Queensland Museum—catalogue number G.2395.

PANDEIDAE.

Genus *Leuckartiara.*

Leuckartiara octona (Fleming, 1823).

Leuckartiara octona (Flemming) Russell, 1953, p. 188, text-figs. 95, 96. (descr. figs. synonymy).
Perigonimus repens (Wright) Hincks, 1868, p. 90, pl. XVI, fig. 2, 2a, 2b (descr. fig.).

Locality.—Moreton Bay, 2 miles N.W. Hamilton Pt., Moreton I. (1954, on shell containing hermit crab, dredged 5 fms., sandy bottom, coll. W.S., R.E.). *Qld. distribution*—Low Is. Region (Kramp, 1953—medusa).

EUDENDRIIDAE.

Key to Genera.

1. Hydranth with 1 circlet of filiform tentacles .... *Eudendrium*
–. Hydranth with 2 or 3, closely adpressed circlets of filiform tentacles .... *Myrionema*

Genus *Eudendrium.*

Key to Species.

1. Perisarc of hydranth pedicle contracted and wrinkled at base, widening gradually to its distal extremity .... *infundibuliforme*
–. Perisarc of hydranth pedicle the same diameter throughout 2
2. Colony up to 7 cms. in height; branching alternate; female gonophores with cushions of nematocysts .... *generale*
–. Colony usually less than 2 cms. in height; branching irregular; female gonophores without nematocyst pads 3
3. Hydranth length 0.26–0.40 mm.; not more than three male gonophores to each hydranth .... *album*
–. Hydranth length up to 0.6 mm.; more than 3 male gonophores to each hydranth .... *capillare*

Eudendrium album Nutting, 1898.

Eudendrium album Nutting, 1898, p. 362, pl. xiv, fig. 1 (descr. fig.); Fraser, 1912, p. 348, fig. 5 (descr. fig.); Gravely, 1927, p. 9, pl. II, fig. 4 (descr. fig.).

Both male and female colonies were found. Male gonophores appear to be all 2 chambered, there are up to 3 present on each hydranth. Female gonophores extend well down the hydranth stem; often the hydranth itself has disappeared.

Dimensions:—

Pedicle diameter	0.066 – 0.08 mm.
Hydranth length	0.26 – 0.40 mm.
diameter	0.17 – 0.27 mm.
Manubrium diameter	0.10 – 0.16 mm.
Tentacle length	up to 0.26 mm.
diameter	up to 0.026 mm.
Female gonophore length	0.20 – 0.26 mm.
diameter	0.15 – 0.20 mm.

Male gonophore length	up to 0.27 mm.
diameter	0.12 – 0.13 mm.

Locality.—Lat. 24° 52'S. Long. 152° 48'E (14.ix.1938 on *Halophila spinulosa* dredged from 15 fms., coll. M.B.).

Eudendrium capillare Alder, 1856.

Eudendrium capillare Alder, Hincks, 1868, p. 84, pl. XIV, fig. 2. (descr. fig.—not nat. size); Vervoort, 1941, p. 193 (descr. dimen. dist.).

These specimens have been identified provisionally as *E. capillare* rather than the closely related *E. generale* for the following reasons: (i) the colony height of about 1 cm. is below that usually given for *E. generale;* (ii) the colonies branch rather irregularly which is, according to Ritchie (1910a, p. 805), typical of *E. capillare;* (iii) no signs of nematocyst pads described by Bale (1919, p. 335) for *E. generale* could be found; (iv) the dimensions of the colony parts overlap the figures given by Vervoort (1941).

Dimensions (Currumbin specimens):—

Peduncle diameter	0.09 – 0.12 mm.
Hydranth length	0.23 – 0.54 mm.
diameter	0.17 – 0.33 mm.
Manubrium diameter	0.20 – 0.23 mm.
Tentacle length	0.23 – 0.46 mm.
diameter	up to 0.046 mm.

Localities.—Currumbin (1.vii.1951, straggling colonies among sponge in rock pool); Low Is. (22, 23.viii.1954, 2 small colonies only, under coral rocks on outer reef shelf).

Genus *Myrionema.*

Myrionema amboinense Pictet, 1893

Myrionema amboinense Pictet, Briggs & Gardiner, 1931, p. 184, pl. 1, figs. 1–4 (descr., figs.).
Eudendrium griffini Light, 1913, p. 333, 2 pls. (descr., figs.).

Localities.—Challenger Bay, Palm I. (26, 27.v.1948, abundant on upper surfaces of coral fragments embedded in sandy mud below L.W.S.); Low Is. (21, 22, 25.viii.1954, very common in glades running between mangroves at the southern end of the mangrove patch. Colonies grew on mangrove roots and on rubble embedded in sand, where the water flowed continuously and was over 9 inches deep. *Qld. distribution*—Low Is. (Briggs & Gardiner, 1931).

Order THECATA.

Key to families.

1.	Hydrotheca with operculum		2
–.	Hydrotheca without operculum		3
2.	Hydrothecae free from stems and branches; operculum of numerous converging segments; margin of hydrotheca without teeth	*Campanulinidae*	p. 175
–.	Hydrothecae usually sessile; operculum of not more than four flaps; margin of hydrotheca with teeth, usually between each pair of opercular flaps	*Sertulariidae*	p. 190
3.	Hydrothecae very much reduced, usually to saucer-shaped structure	*Haleciidae*	p. 173
–.	Hydrothecae not reduced	4	
4.	Hydrothecae free from stems and branches	5	
–.	Hydrothecal sessile and usually more or less adnate to stems and branches	6	

5.	Hydrothecae tubular	*Lafoeidae*
–.	Hydrothecal campanulate	*Campanulariidae*
6.	Nematothecae present	7
–.	Nematothecae absent	*Syntheciidae*
7.	Nematothecae free; usually bithalamic	*Plumulariidae*
–.	Nematothecae fixed; usually monothalamic	*Aglaopheniidae*

p. 187
p. 169
p. 189
p. 175
p. 184

Campanulariidae.

Key to genera.

1.	Hydrothecae radially symmetrical, campanulate, thin walled	2
–.	Hydrothecae usually bilaterally symmetrical, thick-walled; colonies unbranched	*Orthopyxis*
2.	Colonies usually unbranched	*Campanularia*
–.	Colonies branched, often with a zig-zag hydrocaulus	*Obelia*

Genus *Campanularia*.

Key to species.

1.	Hydrotheca with sharply pointed teeth	2
–.	Hydrotheca with rounded teeth	3
2.	Gonotheca smooth, cylindrical (?); tapered towards the pedicle	*delicatula*
–.	Gonotheca annulated, or irregularly wrinkled and markedly compressed	*johnstoni*
3.	Gonotheca flask shaped	*volubilis*
–.	Gonotheca annulated, or irregularly wrinkled and markedly compressed	*johnstoni*
–.	Gonotheca very variable in shape, subcordate to elongate and cylindrical, not compressed	*africana*

Campanularia africana Stechow, 1923.

Campanularia africana Stechow, Stechow, 1924, p. 61 (descr. gonosome, dist.); Leloup, 1938, p. 13, fig. 9 (fig.).

Campanularia tincta (Warren, *non* Hincks) Warren, 1908, p. 337, text.fig. 18 (descr. fig.).

Mature gonothecae in these specimens reach 1.5 mm. in height; one shows 5 shallow annulations.

Locality.—Low Is. (23.viii.1954, under rock, in pool near gap B; 25.viii.1954, sexually mature colonies on weed at L.W.S., eastern reef slope).

Campanularia delicatula (Thornely, 1900).

Clytia delicatula Thorneley, Briggs & Gardiner, 1931, p. 187, text.fig. 1 (fig.); Blackburn, 1937b, p. 176, fig. 7 (descr.); Hiro, 1939, p. 173, fig. 5 (descr. fig.).

These specimens are without gonangia and are, therefore, difficult to separate from the tropical form of *C. johnstoni*. They have been identified tentatively as *C. delicatula* partly because the hydrothecal diameter : length ratio is smaller than that for Queensland specimens of *C. johnstoni* (3 : 7 in *C. delicatula* and 1 : 2 in *C. johnstoni*) and partly because the species has been reported previously from Low Is. (Briggs & Gardiner, 1931).

Locality.—Low Is. (21.viii.1954, under coral rock, mangrove park). *Qld. distribution*—Low Is. (Briggs & Gardiner, 1931).

Campanularia johnstoni Alder, 1856.

Clytia johnstoni (Alder, 1856), Ralph, 1957, p. 823, text-figs. 1, h–u; 3, a–f (descr. fig. synonymy, discuss.).

Clytia compressa Totton 1931, p. 146, text-fig. 6 (descr. fig. gonosome).

Fertile specimens were collected in two localities, Currumbin and Lat. 24° 52′S., Long. 152° 48′E. Those from Currumbin were collected in rock pools; the hydrothecae have sharply pointed teeth, the gonothecae have up to 5 annulations but do not exceed 0.72 mm. in height. Those from Lat. 24° 52′S., Long. 152° 48′E were trawled at 15 fms., the hydrothecae have blunt teeth, the gonothecae are irregularly folded and compressed (cf. Totton, 1931), and do not exceed 0.65 mm. in height.

Localities.—Lat. 24° 52′S, Long. 152°48′E (14.ix.1938, hydranths and gonozooids on *Halophila spinulosa*, trawled at 15 fms., coll. M.B.). Currumbin (12.xi.1951, on weed in pools above L.W.S.).

Genus *Obelia.*

Key to species.

1. Hydrothecal margin smooth, or undulated 2
–. Hydrothecal margin toothed 3
2. Hydrotheca almost cylindrical at the upper part, hydrothecal diaphragm oblique ..... *australis*
–. Hydrothecal walls diverging throughout their length, hydrothecal diaphragm only slightly oblique ..... *nodosa*
3. Hydrotheca with teeth arranged singly ..... *longicyatha*
–. Hydrotheca with teeth arranged in pairs ..... *bicuspidata* var. *picteti*

Obelia australis von Lendenfeld, 1885.

Obelia australis von Lendenfeld, 1885, p. 604 (original descr.); von Lendenfeld, 1885, p. 920, pl. XLIII, figs. 19–20 (descr. medusa); Bale, 1888, p. 753, pl. XII, figs. 1–2 (descr., fig. discuss.); Blackburn, 1937b, p. 175, fig. 6 (discuss.); Ralph, 1957, p. 830, text-fig. 4, a–h (descr. fig. dist.).

Numerous colonies of this species were collected. None of these exceed 1 cm. in height and branching occurs only very rarely.

Locality.—Currumbin (1.vii.1951, 23.ix.1951, 12.xi.1951, on weed and embedded in sponge).

Obelia bicuspidata Clark, 1875, var. *picteti* Leloup, 1932. (Pl. II, fig. 10).

Laomedea bicuspidata (Clark) var. *picteti* Leloup, 1932a, p. 151, text-fig. 19 (descr. fig.).

Trophosome.—Colonies up to 1 cm. in height, bearing 10–12 alternately arranged, stalked hydrothecae. Stem straight, monosiphonic with 8–10 rings above its origin from the hydrorhiza and 3–5 rings above the origin of each pedicle. Pedicles short, with 4–6 rings. Hydrotheca campanulate, with a diaphragm near the base and a slightly flared margin with paired, slender, compressed spines, extending downwards as longitudinal lines on the wall of the hydrotheca.

Hydranth, with 16–18 tentacles; wholly retractile into the hydrotheca. Manubrium spherical, larger than the remainder of the body when the latter is in the contracted state. Coenosarcal bridges to perisarc noticeable in hydrocaulus and pedicles.

Gonosome.—Young gonangia were found in axils between hydrotheca pedicles and hydrocaulus; gonothecae narrow at the base and expanding gradually to a rounded summit, borne on

short ringed pedicles. Gonophores, immature in these specimens, but probably medusae, borne in a single row of usually 3, on the blastostyle.

Dimensions.—

Hydrotheca length	0.34 – 0.40 mm.
diameter at aperture	0.20 – 0.24 mm.
Internode length	0.38 – 0.67 mm.
diameter	0.076 – 0.079 mm.

Hummelinck (1936), when grouping a large number of campanularian hydroids with bidentate hydrothecal margins under the name *Laomedea (Obelia) bicuspidata,* questioned the advisability of including *Laomedea bicuspidata* var. *picteti* (Leloup, 1932). Vervoort (1946) also was doubtful about the relationship of these two species. To me, the marked difference in colony size and in hydrothecal dimensions (*L. bicuspidata* hydrothecal height 0.675–0.75 mm., diameter 0.21–0.26 mm., *L. bicuspidata* var. *picteti,* hydrothecal height 0.3–0.45 mm., diameter 0.17–0.25 mm.) in the two forms is of sufficient importance to warrant the retention of a separate variety to accommodate this form.

These Moreton Bay specimens resemble Leloup's in colony height, hydrothecal dimensions, the single row of medusae on the blastostyle and the straight hydrocauli. They differ in the lesser number of annulations on the hydrothecal peduncles, the less variable hydrothecal dimensions, and the smaller number of gonophores on the blastostyle. The first two differences could be due to habitat and colony age; the third may not exist in mature gonangia. Until more reliable differences are discovered between the two, they will have to be regarded as identical.

Locality.—Moreton Bay (2.i.1952, on squid egg capsule, dredged at 6 metres depth, on sandy mud, 3 miles south of Woody Point pier; coll. E.G.).

Obelia longicyatha Allman, 1877.

Obelia longicyatha Allman 1877, p. 10, pl. VII. figs. 4, 5 (descr. fig. trophosome).
Clytia longicyatha (Allman) Fraser, 1912, p. 359, fig. 18 (descr. fig. gonosome).
Laomedea longicyatha (Allman) Vervoort, 1946, p. 343 (dimensions, dist.).

Localities.—Moreton Bay (1952, growing on *Halocordyle disticha* var. *australis,* coll. W.D.; 18.iv.1954, dredged at 4 fms., between Mud and St. Helena I.); Low Is. (24.viii.1954, southern reef shelf, under coral rock).

Obelia nodosa Bale, 1924.

Obelia nodosa Bale, 1924, p. 230, fig. 1 (descr.); Ralph, 1957, p. 832, text-fig. 5, i–k. (descr. fig.).

Only a few colonies were collected, none of these exceed 6 mm. in height, though in all other respects they agree with the description given by Ralph. No gonangia are present.

Locality.—Scott's Point, Moreton Bay (28.iv.1955, on rock among *Tubularia* (?) *crocea* at about M.L.W., coll. K.E.D.).

Genus *Orthopyxis.*

Key to species.

1.	Hydrothecal margin smooth	**2**
–.	Hydrothecal margin toothed	3
2.	Pedicle wrinkled	*caliculata*
–.	Pedicle smooth	*compressa*

3. Hydrotheca, in broad aspect, wide at base, expanding considerably upwards, without annular thickening round rim; teeth blunt and prominent .... *delicata*
–. Hydrotheca, in broad aspect, wide at base, expanding only slightly upwards, often with annular thickening round rim; margin extremely thin so that teeth are difficult to observe .... *crenata* forma *subtropica*

Orthopyxis caliculata (Hincks, 1853).

Campanularia caliculata Hincks, 1868, p. 164, pl. XXXI, fig. 2 (descr. fig.).
Orthopyxis caliculata (Hincks). Bale, 1914c, p. 74, pl. XI, XII, fig. 1 (synonymy, discuss.).

Localities.—Caloundra (vii.1951 on weed in pool above L.W.S., coll. V.A.B.); Currumbin (1.vii.1951, on weed in pools and on exposed rock faces above L.W.S.; 23.ix.1951, on weed and base of *Halocordyle disticha* var. *australis*).

Orthopyxis compressa (Clark, 1876).

Orthopyxis compressa (Clark) Bale 1914c, p. 80 (descr. discuss.).

The shape of the gonothecae is the only feature which satisfactorily distinguishes *O. compressa* (Clark, 1876), from *O. angulata* Bale, 1914. These structures are absent in the Caloundra specimens so it is not possible to assign them with certainty to either species. However, as only thick walled hydrothecae are present, the thin walled variety usually found in colonies of *O. angulata* being absent, they have been identified provisionally as *O. compressa.*

Locality.—Caloundra (23.ix.1950, from weed, lower inter-tidal region, coll. N.M.H.).

Orthopyxis crenata (Hartlaub, 1901) forma *subtropica* Ralph, 1957.

Orthopyxis crenata (Hartlaub) forma *subtropica* Ralph, 1957, p. 833, text-fig. 6, q–u (descr., fig., synonymy, dist.).

Orthopyxis formosus Trebilcock, 1928, p. 2, pl. 1, figs. 2–2e (descr., fig.).

These specimens often lack the thickening of the hydrothecal margin mentioned by Trebilcock. The gonothecae are much flattened and bent over so as to lie almost in contact with the hydrorhiza. They appear to contain only one medusa though a second one may possibly have been released.

Dimensions:—

Hydrotheca length	0.32 – 0.52 mm.
diameter	0.22 – 0.31 mm.
thickness of perisarc	up to 0.04 mm.
Gonotheca length	1.04 – 1.21 mm.
diameter (in broad aspect)	0.68 – 0.89 mm.

Localities.—Masthead I. (viii.1917, on weed, coll. O.W.T.); 3–4 miles N.E. Bundaberg Light (14.ix.1938, dredged at 10 fms.); Myora (15.vii.1950, on weed growing below L.W.S.).

Orthopyxis delicata Trebilcock, 1928.

Orthopyxis delicata Trebilcock, 1928, p. 3, pl. II, figs. 1–1f. (descr. fig.).

Specimens from both Queensland localities differ from those from New Zealand in their slightly greater height and the form of the hydrothecal stalk. This latter is very variable and occasionally approaches the condition figured by Trebilcock where the entire stem is spirally undulated, but, more often, there are 2–10 (usually 3–4) regular annulations below the spherule and 8–16 annulations above its origin from the hydrorhiza. The central portion is either smooth or has

a few annulations in the middle region, or is faintly undulated throughout; these undulations are, very seldom, spiral. The hydrothecal perisarc is thin at the tops of the teeth, but becomes gradually thicker towards the lowest point of the indentations where it is broad and slightly everted. Gonothecae are absent.

Dimensions:—	*Hamilton Is.*	*Currumbin*
Colony height	1.7 – 1.24 mm.	2.6 – 3.0 mm.
Hydrotheca height	0.46 – 0.58 mm.	0.30 – 0.54 mm.
Diameter at mouth	0.35 – 0.49 mm.	0.40 – 0.76 mm.

Localities.—Hamilton I. (30.v.1949, common on floating weed); Currumbin (23.ix.1951, on weed in pools); Low Is. (25.viii.1954, under coral rock at L.W.S.).

Haleciidae.

Key to genera.

1. Colony without nematophores ..... *Halecium*
–. Colony with nematophores 2
2. Nematophores vase shaped; hydrophores campanulate borne on distinct pedicillate processes ..... *Phylactotheca*
–. Nematophores conical or vase shaped; primary hydrophores arising directly from the hydrocaulus and often fused with it ..... *Hydrodendron*

Genus *Halecium*.

Key to species.

1. Hydrotheca with widely flared margin ..... *delicatulum*
–. Hydrotheca without widely flared margin 2
2. No downward perisarcal prolongation of the join between the adcauline hydrothecal wall with the internode; all hydranth tentacles uniform ..... *sessile*
–. Join between adcauline hydrothecal wall and internode prolonged downwards to separate hydranth pedicle from hydrocaulus; hydranths often with 1 or 2 large modified tentacles ..... *lighti*

Halecium delicatulum Coughtrey, 1876.

Halecium delicatulum Coughtrey, 1876, p. 26, pl. III, figs. 4, 5 (descr.); Ralph (in press, synonymy).
Halecium gracile Bale, 1888, p. 759, pl. XIV, figs. 1–3 (descr.).
Halecium parvulum Bale, 1888, p. 760, pl. XIV, figs. 4–5 (descr.).

These colonies are monosiphonic.

Dimensions:—

Colony height	up to 1 cm.
Internode length	0.33 – 0.63 mm.
diameter	0.092 – 0.11 mm.
Hydrotheca depth (diaphragm to aperture)	0.30 – 0.36 mm.
diameter at aperture	0.15 – 0.18 mm.

Locality.—Currumbin (12.xi.1951, on algae in pool above L.W.S.).

Halecium lighti Hargitt, 1924 (Pl. III, figs. 1, 2)

Halecium lighti Hargitt, 1924, p. 489, pl. 4, 13 (descr. fig.).

Vervoort (1941) stated that it was very likely that this species was identical with *Halecium sessile,* and that the modified tentacles described by Hargitt were probably artifacts due to the poor preservation of the material of this latter author. Examination of specimens from Moreton Bay shows that the modified tentacles

are not artifacts, but are present in a large number of the polyps, that the polyps are longer than those of *H. sessile,* that the hydrothecae are wider than those of the latter species, and that there is a distinctive downward perisarcal prolongation from the join of the adcauline hydrothecal wall with the wall of the internode. The modified tentacles are not present in all polyps. It therefore seems advisable at this stage to postpone Nutting's suggestion (Nutting, 1927) of erecting a new genus to accommodate it, until more is known of the soft parts of this and other members of the genus.

Punctae, which Hargitt failed to see, are noticeable half way between the diaphragm and hydrothecal margin, in hydrothecae from which the hydranths have been removed.

Dimensions:—

Branch internode length	0.38 – 0.47 mm.
diameter at base	0.107 – 0.154 mm.
Hydrotheca depth from diaphragm to margin	0.03 mm.
diameter at aperture	0.15 – 0.17 mm.
Hydranth length	up to 1.25 mm.

Localities.—Myora (3.iii.1946, coll. ?), Dunwich (4, 5.ii.1950, common on *Codium* and a black sponge at L.W.S. in places where currents were strong, coll. W.S.).

Halecium sessile Norman, 1867 (Pl. III, fig. 3).

Halecium sessile Norman, Hincks, 1868, p. 229, pl. XLIV, fig. 2 (descr.); Ritchie, 1911, p. 812, pl. LXXXVII, figs. 8, 9. (fig. dimen.); Vervoort, 1941, p. 195 (dimen. dist.).
Halecium lighti (Nutting, *non* Hargitt) Nutting, 1927, p. 202.

The dimensions of the parts of the specimens in this collection agree well with those of Vervoort. The gonosome is absent.

I have followed Vervoort in regarding *Halecium lighti* Nutting, 1927, as being identical with this species for two reasons. (i) Nutting, himself, points out the similarity between his specimens and Stechow's figure of *H. sessile* and, (ii) his specimens were fascicled, a condition not observed, so far, in *H. lighti.*

Dimensions:—

	Port Curtis	Low Is.
Side branch internode length	0.30 – 0.50 mm.	0.26 – 0.35 mm.
diameter at base	0.069 – 0.100 mm.	0.09 mm.
Primary hydrotheca length from diaphragm to margin	0.03 mm.	0.026 – 0.040 mm.
diameter at aperture	—	0.09 – 0.12 mm.
Secondary hydrotheca total length	0.077 – 0.20 mm.	—
length of basal chamber	0.046 – 0.177 mm.	—
diameter at aperture	0.115 – 0.123 mm.	—
Contracted hydranth, total length	up to 0.23 mm.	up to 0.53 mm.

Localities.—Port Curtis (viii.1916, coll. Univ. Party); Low Is. (24.viii.1954, under coral rocks on outer reef slope).

Genus *Phylactotheca.*

Phylactotheca caciniformis (Ritchie, 1907).

Ophiodes caciniformis Ritchie, 1907, p. 500, pl. xxiii, figs. 11, 12, pl. xxiv, fig. 1 (descr. fig.).
Diplocyathus caciniformis (Ritchie), Leloup, 1939, p. 4, fig. 3 (fig. hydranth); Millard, 1957, p. 186, fig. 3 (descr., fig., dimen.).

Ophiodissa expansa Fraser, 1948, p. 227, pl. 25, fig. 12 (descr. gonosome).

Millard's fascicled colonies bridge the gap between *P. caciniformis* as described prior to 1957, and Fraser's *Ophiodissa expansa*. The two have, therefore, been considered synonymous. The colonies in the present collection are smaller in all parts than those of Millard but the form is so similar that there is little doubt of their identity.

Dimensions:—

Colony height	up to 6 mm.
Stem internode length	0.37 – 0.56 mm.
diameter	0.09 – 0.10 mm.
Hydrophore pedicle length	0.06 – 0.24 mm.
diameter	0.06 – 0.09 mm.
Hydrophore length	0.16 – 0.21 mm.
diameter at aperture	0.18 – 0.21 mm.
Nematophore length	0.10 – 0.12 mm.
diameter at aperture	up to 0.08 mm.

Locality.—Low Is. (23.viii.1954, under coral rock, boulder zone).

Campanulinidae.

Genus *Operculariella*.

(?) *Operculariella humilis* (Bale, 1924) (Pl. II, figs. 11, 12).

Operculariella humilis (Bale) Ralph 1957, p. 846, text.-fig. 8, a–f (descr. fig.).

Gonophores are present on these specimens. These are attached to the hydrorhiza by short, smooth peduncles, and each contains two medusiform gonophores. These gonophores are very similar to those of *Phialella quadrata* (Forbes, 1848). Comparison of the hydranths of *O. humilis* with those of specimens of *P. quadrata* (kindly lent by Miss P. Ralph) shows that the web between the tentacle bases in the former species is no better developed than that of the latter. However, the hydranths are sturdier in *O. humilis* and dark spots are present between the tentacle bases and scattered over the body of the hydranth. These appear to be absent in *P. quadrata*. The Currumbin specimens are mostly unbranched, but, where branched, they show the same growth form as those figured by Trebilcock (1928), not the straggling growth form of *P. quadrata*. Because of these differences the two have been regarded as separate species, in spite of the similarity of the gonophores and hydrothecae.

Dimensions:—

Colony height	up to 1.44 mm.
Hydrotheca height	0.18 -- 0.26 mm.
diameter	0.10 – 0.15 mm.
Hydranth length	up to 0.46 mm.
diameter	0.08 – 0.11 mm.
Gonotheca length	0.49 – 0.65 mm.
greatest diameter	0.29 – 0.36 mm.

Locality.—Currumbin (23.x.1951, fairly common on weed in rock pool).

Plumulariidae.

Key to genera.

1. Lateral nematothecae of hydrotheca absent; hydrotheca with abcauline intrathecal ridge separating the true hydrothecal cavity from a secondary external theca 2

–.	Lateral nematothecae of hydrotheca almost always present; hydrotheca without secondary external theca	3
2.	Abcauline wall of secondary theca containing three diverticula from the true hydrothecal cavity	*Halicornopsis*
–.	Abcauline wall of secondary theca not penetrated by diverticula	*Pycnotheca*
3.	Colony unbranched	*Antennella*
–.	Colony branched	4
4.	Joint between stem internode and first branch internode strongly oblique; hydrocladia usually on only one side of stem or branches	*Monostaechas*
–.	Joint between stem internode and first branch internode transverse; hydrocladia on more than one side of stem or branches	5
5.	Hydrocladia on both sides of, and in one plane on stem and branches	6
–.	Hydrocladia arranged in three or more series on stem or branches	*Nemertesia*
6.	Hydrothecae present on stem, branches and hydrocladia	7
–.	Hydrothecae present on hydrocladia only	8
7.	Colony much branched; adcauline hydrothecal wall adnate to stem throughout its length	*Schizotricha*
–.	Branching variable in extent; part of adcauline hydrothecal wall usually free	*Halopteris*
8.	Hydrocladia simple	*Plumularia*
–.	Hydrocladia bifurcated	*Polyplumaria*

Genus *Antennella.*

Key to species.

1.	Lateral nematothecae wineglass-shaped; borne on long projections from the internode	*secundaria*
–.	Lateral nematothecae scuttle-shaped; borne on small elevations of the internode (no taller than broad)	*indivisa*

Antennella indivisa (Bale, 1882).

Plumularia indivisa Bale, 1882, p. 39, pl. XV, fig. 1 (descr. fig.).
Antennella indivisa Bedot, 1921, p. 4 (synonymy).
Plumularia campanula Bale, 1884, p. 124 (in part).

Specimens were collected in two localities, viz., Lat. 24°52′S., Long. 152°47′E. and Low Is. These differ slightly in dimensions.

Dimensions.—

	24°52′S. 152°48′E.	Low Is.
Length from one oblique internode to next	0.53 – 0.60 mm.	0.44 – 0.53 mm.
Non-hydrothecate internode diameter	0.066 – 0.08 mm.	0.073 – 0.08 mm.
Hydrotheca depth	0.18 – 0.24 mm.	0.17 – 0.20 mm.
Hydrotheca diameter at aperture	0.20 – 0.26 mm.	0.19 – 0.23 mm.

Localities—Lat. 24°52′S., Long. 152°48′E. (14.ix.1938, dredged at 15 fms. on *Halophila spinulosa,* coll. M.B.); Low Is. (25.viii.1954, eastern reef slope, under coral rocks and on weed at L.W.S.).

Antennela secundaria (Gmelin, 1788-1793) (Pl. III, figs. 4, 5).

Antennella secundaria (Linnaeus) Ritchie, 1910c, p. 14 (discuss. dist.).
Antennella secundaria (Gmelin) Billard, 1913, p. 8, fig. 1 (discuss. dimen.); Stechow, 1919, p. 111 (synonymy, dimen.); Leloup, 1938, p. 18, fig. 13 (fig.).
Antennella natalensis Warren, 1908, p. 318, text.fig. 14 (descr. fig.).

This species occurs in 4 fairly distinct forms along the Queensland coast. Specimens from Port Curtis and some from Heron I. agree in form and size with the typical *A. secundaria* (*cf.* Warren, 1908). Specimens from Dunwich and

North West Reef show the shallow hydrotheca figured by Leloup (1938). Colonies found on floating weed are often characterized by a thickening of the abcauline wall of the hydrotheca and the ventral wall of the hydrocaulus. Some specimens from reef localities are smaller in all parts and appear to lack the median anterior nematotheca. These latter may possibly belong to a distinct variety.

Dimensions.—

	Hydrotheca length	Hydrotheca diameter
Port Curtis	0.19 – 0.20 mm.	0.19 mm.
Dunwich	0.16 mm.	0.15 mm.
Sargassum form	0.19 – 0.22 mm.	0.22 – 0.24 mm.
Reef form	0.15 – 0.17 mm.	0.12 – 0.15 mm.

Localities.—Typical form: Port Curtis (viii.1916); North West Reef (25.viii.1948, dredged at 10 fms.); Heron I. (22.viii.1949, abundant on under surfaces of coral rocks, particularly in the boulder zone). Short Hydrotheca form: Dunwich (12.xii.1949, on floating weed; 2.ii.1950, on *Codium*). *Sargassum* form: Bundaberg (14.ix.1938, 3–4 miles N.E. Bundaberg light, 10 fms., Agassiz trawl, coll. M.B.); Hamilton I. (30.v.1949, on floating weed). Reef form: Heron I. (17.ix.1938, under coral boulders, coll. M.B.); Challenger Bay, Palm I. (21, 27, 28.v.1948); Low Is. (22.viii.1954, under coral rock in *Montipora* pool). *Qld. distribution*—doubtfully, Torres Strait (Weltner, 1900).

Genus *Halopteris*.

Key to species.

1. Colony height over 2 cm.; non-hydrothecate internodes only rarely present on hydrocladia 2
–. Colony height under 2 cm.; non-hydrothecate internodes almost always present on hydrocladia 3
2. Colony often branched; hydrocladia alternate ..... *campanula*
–. Colony rarely branched; hydrocladia opposite ..... *zygocladia*
3. Non-hydrothecate internodes usually with only one nematotheca; hydrotheca with no median superior nematotheca; lateral nematothecae borne on small elevations ..... *diaphana*
–. Non-hydrothecate internodes usually with two nematothecae; hydrotheca with small median superior nematotheca; lateral nematothecae borne on long peduncles ..... *polymorpha*

Halopteris diaphana (Heller, 1868).

Schizotricha diaphana (Heller) Leloup, 1932a, p. 163 (synonymy).

Plumularia diaphana (Heller) Fraser, 1948, p. 277 (synonymy).

Plumularia alternata Nutting 1900, p. 62, pl. IV, figs. 1, 2 (descr.); Billard 1913, p. 32 (dimen. dist.); Jarvis, 1922, p. 345, pl. 25, fig. 16 (descr. gonosome).

Plumularia sp. nr. *alternata* Nutting, Gravely, 1927, p. 16, pl. III, fig. 19 (fig.).

These specimens occasionally show alternate hydrothecate and non-hydrothecate internodes on the hydrocaulus, just below the growing point. The hydrocladia are, very often, divided into hydrothecate and non-hydrothecate internodes. The lengths of these are usually below those given by Billard (1913) but the dimensions of the other parts are almost identical. The lateral nematothecae of the hydrotheca are borne on only small elevations of the internode and do not reach the border of the hydrotheca (contrast, Nutting 1900).

Dimensions.—

Hydrocaulus length ..... 0.5 – 1.5 cms.

	internode length	0.52 – 0.60 mm.
	hydrothecate internode length	0.33 – 0.35 mm.
	non-hydrothecate internode length	0.26 – 0.30 mm.
Hydrocladium	hydrothecate internode length	0.22 – 0.28 mm.
	non-hydrothecate internode length	0.18 – 0.28 mm.
	non-hydrothecate internode diameter	0.09 mm.
Hydrotheca	length	0.20 – 0.23 mm.
	diameter at aperture	0.20 – 0.24 mm.

Localities.—Heron I. (17.ix.1938, under coral boulders, coll. M.B.; 22.viii.1949, under coral fragments both at the reef edge and on the protected area of the reef flat); Henning Reef (23.v.1949); Hardy Reef (16.v.1949); Curtis I. (14.viii.1951); Low Is. (22, 23, 24, 25.viii.1954, under coral rocks at M.T.L. on outer slope).

Halopteris polymorpha (Billard, 1913).

Plumularia polymorpha Billard, 1913, p. 24, text-figs. XIV, XV (descr. fig.).
Antennella polymorpha (Billard) Vervoort, 1941, p. 218.

These specimens agree most closely with Billard's figure XIVA. The main difference between the two forms appears to be in the number of nematothecae on the gonotheca, Billard's specimens carried 3, these specimens carry only 2.

Localities.—Hardy Reef (26.v.1949, from the under surface of a boulder); Lupton Reef (25.v.1949); Low Is. (25.viii.1954; under coral rocks seaward slope, eastern side, L.W.S.).

Genus *Monostaechas.*

Monostaechas quadridens (McCrady, 1859) (Pl. III, fig. 6).

Monostaechas quadridens (McCrady) Nutting, 1900, p. 75, pl. 13, figs. 1–4 (descr. fig.); Stechow, 1925, p. 252 (synonymy); Leloup, 1937a, p. 108, fig. 10 (fig. discuss.).
Monostaechas fischeri Nutting var. *simplex* Billard, 1913, p. 16, fig. vii (fig. dimen.).

Only one small colony was found. It shows the small median nematotheca between the distal hydrothecal border and the internode characteristic of Leloup's f. *fischeri* (Leloup 1937a). In dimensions it agrees most closely with Billard's figures for *M. fischeri* var. *simplex* (Billard, 1913).

Dimensions.—

Stem internode length	0.61 – 0.85 mm.
Stem internode diameter	0.077 – 0.092 mm.
Branch internode length (hydrothecate + non-hydrothecate internode)	0.54 – 0.74 mm.
Non-hydrothecate internode length	0.23 – 0.34 mm.
Non-hydrothecate internode diameter	0.026 – 0.077 mm.
Hydrotheca depth	0.23 – 0.28 mm.
Hydrotheca diameter	0.24 – 0.26 mm.

Locality.—Heron I. (21.viii.1948, under coral rock). *Qld. distribution.*—Torres Straits (Kirkpatrick 1890).

Genus *Nemertesia.*

Nemertesia cylindrica (Kirchenpauer, 1876).

Antennularia cylindrica (Kirchenpauer) Bale, 1884, p. 146, Pl. X, fig. 7 (descr. fig.).
Nemertesia cylindrica (Kirchenpauer) Bale, 1919, p. 350 (discuss. synonymy).

Sciurella indivisa Allman, 1883, p. 26, Pl. V (descr. fig.).
Nemertesia indivisa (Allman) Billard, 1913, p. 60, fig. L (fig. gonosome, dimen.).

Locality.—Port Curtis (viii, 1916). *Qld. distribution.*—Torres Strait (Allman, 1883), Port Curtis (Bale, 1884), Murray I., Warrior I. (Kirkpatrick, 1890).

Genus *Plumularia.*

Key to species.

1. Each hydrotheca with two nematothecae at most, one median inferior and sometimes one median superior ..... *halecioides*
–. Each hydrotheca with three nematothecae 2
2. One hydrotheca only to each hydrocladium 3
–. More than one hydrotheca to each hydrocladium 5
3. Hydrotheca with abcauline intrathecal ridge ..... *spinulosa*
–. Hydrotheca without intrathecal ridge 4
4. Hydrocaulus usually c. 3 mm. in height; hydrotheca depth c. 0.1 mm., diameter at aperture c. 0.08 mm.; two nematophores in axil ..... *pulchella*
–. Hydrocaulus usually c. 1 cm. in height; hydrotheca depth 0.13–0.17 mm., diameter at aperture 0.13–0.16 mm.; single nematophore in axil ..... *obliqua*
5. Abcauline wall of hydrotheca free from internode ..... *Plumularia* sp.
–. Abcauline wall of hydrotheca fused with internode 6
6. Hydrocladia without non-hydrothecate internodes alternating with hydrothecate internodes 7
–. Hydrocladia with alternate hydrothecate and non-hydrothecate internodes 8
7. Hydrothecal aperture strongly everted, particularly on the abcauline side ..... *scabra*
–. Hydrothecal aperture not everted ..... *badia*
8. Hydrothecal mouth diameter about equal to hydrothecal depth; gonothecae slender with tubular neck ..... *setacea*
–. Hydrothecal mouth diameter greater than hydrothecal depth; mature female gonothecae with external marsupia 9
9. Gonothecae springing from hydrocaulus at an angle of c. 45°; female gonothecae wrinkled, male gonothecae compressed ..... *warreni* (?)
–. Gonothecae springing from hydrocaulus at an angle of between 70° and 90°; female gonothecae not wrinkled ..... *warreni* var. *pambanensis*

Plumularia badia Kirchenpauer, 1876

Plumularia badia Kirchenpauer, Bale, 1884, p. 128, Pl. XVIII, figs. 1, 2 (descr. fig.); Bale, 1913, p. 135 (synonymy); Vervoort, 1941, p. 221 (synonymy, dimensions, dist.).
Plumularia Ramsayi Bale, 1884, p. 131, Pl. XI, figs. 3, 4 (descr. fig.).

Localities.—Polka Point, Dunwich (12.xii.1949, fragments in plankton); Calliope River, Port Curtis (13.viii.1951, one small specimen on wood, dredged 3 fms.). *Qld. distribution.*—Brisbane, Pt. Denison, Pt. Molle, Albany Passage (Bale, 1884); Torres Straits (von Lendenfeld, 1885); Murray I. (Kirkpatrick, 1890).

Plumularia halecioides Alder, 1859.

Plumularia inermis Nutting, 1900, p. 62, Pl. V, figs. 1, 2, 2a (descr. figs.); Fraser, 1938, p. 64, Pl. 15, fig. 74 (descr.).

Plumularia halecioides Alder, Leloup, 1932a, p. 164 (dist.); Vannucci, 1949, p. 255 (discuss.).

These specimens agree closely in structure with those described by Nutting (1900). The chief difference appears to be in the number of non-hydrothecate hydrocladial internodes. These occur quite commonly in the Henning reef specimens, but do not appear to be present in those from Palm or Curtis Is. The hydrothecate internodes are much longer than those figured by Fraser (1938). Gonangia are absent. It would be interesting to know whether these are

corrugated as in Hincks' figure of the European species (Hincks 1868, pl. LXVII, fig. 2c.) or smooth as in the form from the Galapagos Islands described and figured by Fraser (Fraser 1938, pl. 15, fig. 74b). With Vannucci (1949) I feel that forms with such totally different gonangia should not be regarded merely as variations of one species; however, it would be fruitless to discuss the position until the gonosome of the Australian species is known.

Localities.—Challenger Bay, Palm I. (7.vi.1948, occasionally attached to the lower surface of rocks); Henning Reef (23.v.1949); Curtis I. (14.viii.1951).

Plumularia obliqua (Johnston, 1847).

Plumularia obliqua (Saunders) Hincks, 1868, p. 304, Pl. LXVII, fig. 1, 1a, 1b (descr. figs.); Bale, 1884, p. 138, Pl. XII, figs. 1–3 (descr. figs.).

Plumularia obliqua (Johnston) Blackburn, 1942, p. 108 (distr.).

The hydrothecae are closer in shape to those figured by Hincks than those of Bale. They differ from the latter in the less rounded hydrothecal base and the absence of a rudimentary adcauline intrathecal ridge.

Dimensions.—

Colony height	up to 10.0 mm.
Stem internode length	0.24 – 0.32 mm.
„ „ diameter	0.046 – 0.066 mm.
Hydrotheca depth	0.13 – 0.17 mm.
„ diameter at aperture	0.13 – 0.16 mm.

Localities.—East of North West Reef (25.viii.1948, numerous colonies on seaweed dredged at 10 fms.); Low Is. (25.viii.1954, growing on weed under coral rocks, seaward slope, eastern side, L.W.S.).

Plumularia pulchella Bale, 1882.

Plumularia pulchella Bale, Bale, 1884, p. 140, Pl. XII, fig. 6; Pl. XIX, fig. 37 (descr. figs.); Totton, 1931, p. 221, text-fig. 58, a–d (descr. fig.); Blackburn, 1942, p. 108 (dist.).

Plumularia flexuosa Bale, 1894, p. 115, Pl. V, figs. 6–10 (descr. fig.).

In size and slenderness of form these specimens resemble those described as *P. flexuosa* (Bale, 1894).

Locality.—Low Is. (23.viii.1954, few colonies growing on fragment of dead coral in moat pool).

Plumularia setacea (Linnaeus, 1758).

Plumularia setacea (Ellis 1755) Hincks 1868, p. 296, Pl. LXVI, figs. 1, 1a (descr.); Bale 1888, p. 778, Pl. XX, figs. 14–18 (descr. fig.).

Plumularia setacea (Linnaeus 1758) Ritchie, 1911, p. 851 (dimensions); Vervoort 1946, p. 323, fig. 6 (fig.).

Localities.—Port Curtis (viii.1916, coll. Univ. party); Bribie Is. (26.iv.1948); Point Lookout (12.vi.1948); Myora (23.x.1949, several colonies dredged from 7 fathoms in the channel); Calliope River, Port Curtis (13.viii.1951).

Plumularia spinulosa Bale, 1882.

Plumularia spinulosa Bale, Bale 1884, p. 139, pl. XII, figs, 11, 12 (descr. figs.); Bale, 1888, p. 783, pl. XIX, figs. 11–13 (descr. gonosome); Briggs, 1918, p. 43 (dimensions, dist.).

Locality.—North West Reef (25.viii.1948, common on seaweed dredged at 10 fms.).

Plumularia warreni (?) Stechow, 1919. (Pl. IV, figs. 1–10).

Plumularia warreni Stechow, 1919, p. 119 (new name).
Plumularia tenuis Warren, 1908, p. 316, text-fig. 13 (descr. fig.).

Identification of this species is only tentative; for this reason, a description of the material found is given below.

Trophosome.—Colony pinnate, 4–15 mm. in height; stem divided by transverse, or, occasionally, oblique nodes into internodes, sometimes crossed by well-developed septal ridges. Each internode with an apophysis at its upper end, one nematotheca in the axil and a second nematotheca on the proximal end on the side opposite the apophysis. Branches alternate, divided into hydrothecate and non-hydrothecate internodes by transverse and oblique nodes. Each non-hydrothecate internode with 2 septal ridges, one at each end of the internode, and one nematotheca towards its proximal end; the basal internode lacks this nematotheca. The hydrothecate internodes with up to 4 septal ridges, one next to the oblique node, a second, often poorly developed, above the median nematotheca, a third as a downward prolongation of the base of the hydrotheca, and a fourth just below the distal transverse node; the second and third of these often absent. Each hydrothecate internode with a hydrotheca, 1 median nematotheca below the hydrotheca, and 2 lateral above. Hydrotheca cup-shaped, shallow, inner wall fused to the internode for its entire length.

Gonosome.—All gonophores arising at an angle of c. 45° to the hydrocaulus from the angle between apophysis and hydrocaulus. Mature male gonangia, in dorsal view roughly oval in shape, in lateral view flattened and often slightly wrinkled; aperture small, oblique, facing the hydrocaulus. Immature male gonangia in dorsal view widening abruptly from the pedicle, then more gradually to a flattened or slightly convex operculum at its widest point; in lateral view slightly flattened. Female gonangia, approaching maturity, cylindrical to oval in shape, irregularly wrinkled transversely, aperture only very slightly oblique. Immature female gonangia similar to male gonangia but wrinkled. External marsupia were not observed.

Dimensions.—

Stem internode length	0.2 – 0.38 mm.
Branch, basal internode length	0.046 – 0.061 mm.
hydrothecate internode length	0.20 – 0.30 mm.
non-hydrothecate internode length	0.061 – 0.12 mm.
non-hydrothecate internode diameter	0.046 – 0.06 mm.
Hydrotheca depth	0.046 – 0.061 mm.
diameter at mouth	0.10 – 0.12 mm.
Male gonangium length	up to 0.72 mm.
diameter (dorsal view)	up to 0.28 mm.
diameter (lateral view)	up to 0.15 mm.
Female gonangium length	up to 0.70 mm.
diameter	up to 0.27 mm.

This identification is doubtful for the following reasons: (i) Warren makes no mention that the male gonangia of his specimens were compressed dorso-ventrally; the specimen he figures only resembles those before me when these are seen in lateral view; (ii) his figured female gonangium reaches 0.45 mm. in length, and specimens from South Africa, kindly supplied by Dr. Millard, reach no more than 0.5 mm.; Queensland specimens are often 0.70 mm. in length; (iii) external marsupia were absent from all Queensland material.

These variations could, conceivably, be due to differences in age and conditions of growth. In the closely related variety, *P. warreni* var. *pambanensis*, there is often great variability in the shape of the gonangia; when these are long they are seldom broad in dorsal view, when short they are almost invariably wide; this might also be the case with the male gonangia in *P. warreni*. Absence of external marsupia could be due to differences in age.

Another species considered during attempts to identify these specimens was *P. caliculata* Bale 1888. The two are indistinguishable in trophosomal characters and very alike in the form of the male gonophores (for *P. caliculata* see Bale 1888, p. 780, Bale 1919, p. 348). Bale's description of the female gonophores is very brief but does not fit those of the Queensland specimens. His material was limited and it is possible that examination of additional specimens may prove *P. caliculata* and *P. warreni* to be identical.

Localities.—Point Lookout (2.v.1948, colonies up to 15 mm. in height, with male gonangia); Currumbin (1.vii.1951; 23.ix.1951, with male and female gonangia; 12.xi.1951).

Plumularia warreni Stechow, 1919, var. *pambanensis* Gravely, 1927

(Pl. V, figs. 1–13).

Plumularia tenuis Warren, 1908 var. *pambanensis* Gravely 1927, p. 16, pl. II, fig. 11 (descr. fig.).

Gravely observed only female gonophores in this variety. Gonophores of several Queensland specimens are sufficiently like those he figures to make identification fairly certain.

This hydroid is abundant along the Queensland coast and both trophosome and gonosome have been found to be very variable. It is therefore possible to enlarge on Gravely's brief, original description.

Trophosome.—Colony pinnate, 4–20 mm. in height; hydrocaulus divided by transverse, or occasionally oblique nodes into internodes often crossed by well-developed septal ridges. Each hydrocaulus internode with an apophysis at its upper end, one nematotheca in the axil and a second nematotheca at the proximal end on the side opposite the apophysis. Branches alternate, divided into hydrothecate and non-hydrothecate internodes by alternate transverse and oblique nodes. Each non-hydrothecate internode with 2 septal ridges, one at each end of the internode, and 1 nematotheca towards its proximal end; the basal internode lacks this nematotheca. Each hydrothecate internode with up to 4 septal ridges, one next to the oblique node, a second above the median nematotheca, a third as a downward prolongation of the base of the hydrotheca, and a fourth just below the distal transverse node; in many of the more slender colonies having stem septal ridges and possessing long branch internodes, the first of these is the only one present. Each hydrothecate internode with 1 hydrotheca, 1 median nematotheca below the hydrotheca, and 2 lateral nematothecae above. Hydrotheca cup-shaped, shallow, inner wall fused to the internode for its entire length. Perisarc of very variable thickness, well developed septal ridges often associated with greatly thickened perisarc.

Gonosome.—All gonangia springing at an angle of between 70° and 90° to the hydrocaulus, from the angle between apophysis and hydrocaulus internode. Immature gonangia narrow at base, expanding fairly gradually to a broad, flattened summit, slightly oblique in the case of male gonangia, more noticeably oblique in the female. Mature female gonangia in lateral view long and slender, often straight but sometimes banana-shaped; in dorsal view oval (particularly in the case of those found on a few badly preserved specimens from Caloundra). Gonangium aperture large and oblique with external marsupium attached at an angle of from 45° to 90° to the axis of the gonangium. Marsupium containing 1–5 ova, in a cluster or in a single row. Male gonangia, about the same length as female gonangia, long and slender with a round terminal aperture closed by a convex operculum; with spermatic tissue along the entire length of the blastostyle.

Dimensions.—

Stem internode length	0.18 – 0.52 mm.
diameter	0.054 – 0.10 mm.
Basal internode length	0.054 – 0.12 mm.
Hydrothecate internode length	0.26 – 0.38 mm.
Non-hydrothecate internode length	0.092 – 0.18 mm.

Non-hydrothecate internode diameter	0.046 – 0.51 mm.
Hydrotheca depth	0.061 – 0.077 mm.
diameter at mouth	0.092 – 0.12 mm.
Female gonotheca length	0.54 – 0.92 mm.
diameter	0.12 – 0.23 mm.
Female gonotheca length (Caloundra specimen)	0.46 – 0.49 mm.
diameter	0.08 – 0.17 mm.

In the Plumulariidae, external marsupia occur only in *P. alleni* Nutting 1898, *P. warreni* Stechow, 1919 and *P. warreni* Stechow, 1919 var. *pambanensis* Gravely, 1927. The trophosome in all three is very similar to that of *P. setacea;* there is no doubt that they are all very closely related.

Localities.—Heron I. (viii.1948, viii.1949, widely distributed across the reef flat in both protected and exposed situations); Wistari Reef (13.viii.1948, 17, 18.viii.1949); North West Reef (25.viii.1948, on seaweed dredged from 10 fms.); Hamilton I. (30.v.1949, on floating seaweed); Caloundra (vii.1951, on weed in pool above L.W.S.); Curtis I. (14.viii.1951, on under surfaces of rocks); Low Is. (21, 22, 23, 25.viii.1954, in pools and at M.T.L. windward and southern reef slope).

Plumularia sp. (Pl. III, fig. 7).

This hydroid bears a superficial resemblance to several species of *Plumularia; viz., P. setaceoides* Bale 1884, *P. floridina* Nutting 1900, *P. angusta* Stechow, 1923 (= *P. setaceoides* var. a, b, c, Mulder and Trebilcock, 1911) and *P. sinuosa* Fraser 1938. It differs from all four in the presence of two nematothecae in each axil, and in the noticeable concavity on the adcauline hydrothecal wall.

Trophosome.—Colony pinnate, up to 1.5 cm. in height, hydrocaulus divided into internodes by transverse nodes; each internode bearing an apophysis at its upper end, two nematothecae in the axil and a third nematotheca about the centre of the side opposite to the apophysis; the proximal internode greatly elongated and marked off from the hydrorhizal process from which it springs by a transverse node. Branches alternate, divided into hydrothecate and non-hydrothecate internodes by alternately transverse and oblique nodes; each non-hydrothecate internode, except the basal, bearing one nematotheca; each hydrothecate internode bearing a hydrotheca placed in the middle of the internode, one nematotheca below the hydrotheca and two lateral nematothecae above the hydrotheca. Hydrotheca campanulate, deeper than broad, abcauline wall straight, adcauline concave. Nematothecae bithalamic, lateral nematothecae reaching only half the way up the hydrotheca, borne on small processes of the internode.

Gonosome.—Unknown.

Dimensions.—

Hydrocaulus internode length	0.15 – 0.38 mm.
internode diameter	0.077 – 0.12 mm.
basal internode length	0.81 – 1.4 mm.
Hydrocladium basal internode length	0.09 – 0.12 mm.
hydrothecate internode length	0.20 – 0.27 mm.
non-hydrothecate internode length	0.12 – 0.17 mm.
non-hydrothecate internode diameter	0.046 mm.
Hydrotheca greatest depth	0.14 – 0.20 mm.
diameter at mouth	0.12 – 0.15 mm.

Localities.—Lupton Reef (25.v.1949); Curtis I. (14.viii.1951); Low Is. (23, 24.viii.1954, under coral rocks in pools near M.T.L. southern reef slope).

Genus *Pycnotheca.*

Pycnotheca mirabilis (Allman, 1883) var. *warreni* Totton, 1931.

Kirchenpaueria mirabilis (Allman) Warren 1908, p. 321, text-fig. 15 (descr. fig.).

Pycnotheca mirabilis (Allman) var. *warreni* Totton, 1931, p. 216, text-fig. 55a (fig.).

Several colonies, apparently mature, were found; varying in height from 8 to 16 mm. The hydrothecae correspond very closely in shape to fig. 55a of Totton, and in size to the dimensions given by Warren. The intrathecal ridge is completely filled with solid perisarc.

Localities.—Port Curtis (viii.1916, coll. Univ. party); Lat. 24°52'S., Long. 152°48'E. (14.ix.38, on *Halophila spinulosa,* coll. M.B.); 3–4 miles N.E. Bundaberg Light (14.ix.38, on sponge at 10 fms., coll. M.B.); dredged off Barney Point, Port Curtis (18.viii.1955).

Aglaopheniidae

Key to genera.

1.	Gonangia unprotected	2
–.	Gonangia protected	3
2.	All hydrocladia unmodified	*Halicornaria*
–.	In certain parts of colony, primary hydrocladia bearing secondary hydrocladia unrelated to gonangia	**Nematocarpus*
3.	Gonangia protected by primary hydrocladia	4
–.	Gonangia protected by secondary hydrocladia	5
4.	Hydrocladia in one plane	*Lytocarpus*
–.	Hydrocladia in two planes	**Aglaria*
5.	Modified secondary hydrocladia arranged in one row on one side of primary hydrocladium	**Monoserius*
–.	Secondary hydrocladia not arranged in one row	6
6.	Secondary hydrocladia usually attached to basal internode only, of primary hydrocladium, occasionally to several distal internodes; not grouped into corbule	7
–.	Secondary hydrocladia grouped into corbule	10
7.	Primary and secondary hydrocladia with normal hydrothecae	**Aglaophenopsis*
–.	Hydrothecae of primary and secondary hydrocladia often reduced or absent	8
8.	Primary hydrocladia with hydrothecae, secondary hydrocladia without hydrothecae; secondary hydrocladia I, II and III often present	9
–.	Primary hydrocladia with reduced hydrothecae; secondary hydrocladia without hydrothecae; normal hydrothecae U-shaped	**Dinotheca*
9.	Hydrocladia in one plane	*Cladocarpus*
–.	Hydrocladia in spiral	**Streptocaulus*
10.	Secondary hydrocladium I with one hydrotheca	*Thecocarpus*
–.	Secondary hydrocladium I without hydrotheca	11
11.	One pair of lateral nematothecae to each hydrotheca	*Aglaophenia*
–.	Two pairs of lateral nematothecae to each hydrotheca	*Pentandra*

Key to species.

1.	Hydrotheca with two pairs of lateral nematothecae	*Pentandra balei*
–.	Hydrotheca with one pair of lateral nematothecae	2
2.	Hydrotheca with abcauline prenematophoric flexure	*Thecocarpus brevirostris*
–.	Hydrotheca with intrathecal structures other than prenematophoric flexure	3
3.	Hydrotheca with abcauline prenematophoric fold	4
–.	Hydrotheca with intrathecal structure other than prenematophoric fold	7
4.	Median nematotheca greatly elongated, free part usually more than half its total length; hydrothecal aperture parallel with internode	*Halicornaria longicornis*
–.	Free part of median nematotheca usually less than half its total length	5

5. Portion of hydrothecal wall between fold and aperture about half the length of hydrothecal diameter at aperture; not produced into pronounced tooth ..... *Aglaophenia (?) squarrosa*
–. Portion of hydrothecal wall between fold and aperture about one-third of length of hydrothecal diameter at aperture; produced into pronounced tooth 6
6. Stem and branches black, pinnules grey ..... *Lytocarpus philippinus*
–. Stem and branches dark brown, pinnules reddish ..... *Aglaophenia (?) rubens*
7. Hydrotheca with abcauline prenematophoric ridge 8
–. Hydrotheca without prenematophoric ridge or with prenematophoric ridge only in very young parts of colony 10
8. Hydrotheca with adcauline ridge in addition to prenematophoric ridge ..... *Aglaophenia sinuosa*
–. Hydrotheca without adcauline ridge 9
9. Lateral nematophores contracted at aperture, median nematophore without opening into hydrotheca ..... *Lytocarpus phoeniceus*
–. Lateral nematophores narrow at base, widest at aperture, median nematophore with opening into hydrotheca ..... *Thecocarpus angulosus*
10. Hydrotheca with abcauline postnematophoric ridge, in older parts of colony at least ..... *Halicornaria hians*
–. Hydrotheca without abcauline postnematophoric ridge 11
11. Hydrotheca with adcauline fold as only intrathecal structure 12
–. Hydrotheca with adcauline fold or annular ridge depending on its age ..... *Thecocarpus phyteuma*
–. Hydrotheca with adcauline ridge as only intrathecal structure ..... *Thecocarpus armatus*
12. Hydrotheca equal to, or more than twice as long as, aperture diameter; median nematotheca in contact for less than half the hydrothecal length 13
–. Hydrotheca less than twice as long as aperture diameter, median nematotheca fused to almost the entire abcauline wall of hydrotheca 14
13. Hydrothecal aperture with 11 distinct teeth; hydrothecate internode with 3 septal ridges ..... *Aglaophenia phyllocarpa*
–. Hydrothecal aperture with sharp median tooth and minor crenations; hydrothecate internode with numerous septal ridges ..... *Cladocarpus sibogae*
14. Hydrotheca with fine curved line starting from top of lateral nematotheca and running to the base of the hydrotheca; median nematotheca with well marked oblique abcauline ridge ..... *Aglaophenia cupressina*
–. Hydrotheca without faint lateral line, median nematotheca without abcauline ridge ..... *Aglaophenia delicatula*

Genus *Aglaophenia*.

Aglaophenia cupressina Lamouroux, 1816.

Aglaophenia cupressina Lamouroux, Billard 1913, p. 107, text-fig. XCVI (fig. gonosome); Bale, 1915, p. 319, pl. XLVII, figs. 6–8 (descr. fig.); Vervoort, 1941, p. 233 (dist.).
Aglaophenia macgillivrayi (Busk) Allman, 1883, p. 34, pls. X, XX, figs. 4–6 (descr. figs.).

Localities.—Wistari Reef (17.viii.1948); Heron I. (21, 23.viii.1948; 22.viii.1949); Hardy Reef (26.v.1949, numerous colonies on the rocky edges of deep, protected pools, well in from the reef edge). *Qld. distribution.*—Murray I. (Kirkpatrick 1890); Thursday I. (Weltner 1900); North West I. (Bale, 1915); Lizard I., Ribbon Reef, Outer Barrier, June Reef, Outer Barrier (Briggs & Gardiner, 1931).

Aglaophenia delicatula (Busk, 1852).

Aglaophenia delicatula (Busk) Bale, 1884, p. 167, pl. XIV, fig. 4, pl. XVII, fig. 11 (descr. fig.); Billard 1913, p. 106, text-fig. XCV.

Locality.—3–4 miles N.E. Bundaberg Light (14.ix.1938, dredged at 10 fms. coll. M.B.). *Qld. distribution.*—Torres Strait (Busk 1852, as *Plumularia delicatula;* Port Curtis (Bale, 1884).

Genus *Halicornaria*.

Halicornaria hians (Busk, 1852).

Halicornaria hians (Busk) Bale, 1884, p. 179, pl. xiii, fig. 6, pl. xvi, fig. 7 (descr. figs.); Billard, 1913, p. 68 (discuss. dimen.); Briggs, 1918, p. 47 (synonymy); Vervoort 1941, p. 222, figs. 7, 8 (descr. gonosome, dimensions, dist.).

Halicornaria hians (Busk) var. *profunda* Ritchie, 1910c, p. 24, pl. iv, figs. 13, 14 (descr. gonosome).

Halicornaria haswelli Bale, 1884, p. 180, pl. xiii, fig. 5, pl. XVI, fig. 8 (descr. figs.); Billard, 1913, p. 70 (discuss.).

Bale (1884) distinguished *Halicornaria haswelli* from *H. hians* on three points: (i) the closeness of the hydrothecae; (ii) the smallness and sharpness of the teeth; (iii) the presence of two distinct apertures in the median nematothecae. Billard (1913) maintained the separation only on this latter character; in the specimens in the present collection this also was found to be variable, for in proximal parts of the colony the median nematothecae have both apertures confluent as in *H. hians* and, in distal regions, the apertures are separate as in *H. haswelli*. *H. haswelli* therefore becomes a synonym of *H. hians*.

Locality.—Wistari Reef (18.viii.1949). *Qld. distribution*.—Torres Strait (Busk, 1852); Port Curtis (Bale, 1884 as *H. haswelli*); Murray I. (Kirkpatrick, 1890).

Halicornaria longicornis (Busk, 1852).

Aglaophenia longicornis (Busk) Bale, 1884, p. 157, pl. xiv, figs. 7–8; pl. xvii, fig. 5 (descr. figs.).

Halicornaria longicornis (Busk) Briggs & Gardiner, 1931, p. 195, text-fig. 6 (fig., descr. gonosome, synonymy).

Locality.—Port Curtis (viii.1916). *Qld. distribution*.—Torres Strait (Busk, 1852); Fitzroy I., Albany Passage (Bale 1884); Murray I. (Kirkpatrick, 1890); Penguin Channel (Briggs & Gardiner, 1931).

Genus *Lytocarpus*.

Lytocarpus philippinus (Kirchenpauer, 1872).

Lytocarpus phillipinus (Kirchenpauer) Bale, 1888, p. 786, pl. xxi, figs. 5, 6 (descr. figs.); Bale 1919, p. 351 (synonymy, discuss. gonosome).

Lytocarpus philippinus (Kirchenpauer) Vervoort 1946, p. 329 (dist.).

Aglaophenia urens (Kirchenpauer) Bale, 1884, p. 155, pl. xiv, fig. 6, pl. xvii, fig. 9 (descr. figs.).

Localities.—Port Curtis (viii.1916); Wilson I. (16.viii.1948, small colonies under coral boulders at reef edge); Wistari Reef (17.viii.1948); Heron I. (22.viii.1949); Polka Point, Dunwich (12.xii.1949, several fragments in plankton collected in channel); Dunwich (2.ii.1950, young colonies on *Codium*, 5.ii.1950, large colony among *Zostera;* 19.viii.1954, on crab, among weed and mussel clumps); Myora coral patch (15.vii.1950, large colony in sandy mud below L.W.S.); Double Heads (15.viii.1950); Low Is. (23, 24.viii.1954, on weed in moat pool near gap B.). *Qld. distribution*.—Brisbane (Kirchenpauer—*fide* Bale, 1884); Pt. Denison (Bale, 1884, von Lendenfeld, 1885); Moreton Bay (Bale, 1888); Murray I. (Kirkpatrick, 1890); Low Is. (Briggs & Gardiner, 1931).

Lytocarpus phoeniceus (Busk, 1852).

Aglaophenia phoenicia (Busk) Bale, 1884, p. 159, pl. xv, figs. 1–5 (descr.).
Lytocarpus phoeniceus (Busk) Billard, 1913, p. 74, text-figs. LX, LXI (synonymy); Briggs & Gardiner, 1931, p. 194, text-fig. 5 (fig.); Vervoort, 1946, p. 328 (dist.).
Lytocarpus auritus (Busk) Bale, 1913, p. 138, pl. XIII, fig. 10 (descr.).

Localities.—Wistari Reef (17.viii.1948, under coral rocks in boulder zone); Heron I. (21, 22.viii.1948; 18, 22.viii.1949); Lupton Reef (25.v.1949); Polka Point, Dunwich (12.xii.1949, fragments of colony among plankton); Curtis I. (14.viii.1951). *Qld. distribution.*—Torres Strait, Cumberland I. (Busk, 1852); Torres Strait (Allman, 1883); Holborn I., Port Denison, Port Molle, Gloucester Passage (Bale, 1884); Murray I. (Kirkpatrick, 1890); Thursday I. (Weltner, 1900); Low Is. (Briggs & Gardiner, 1931).

Genus *Thecocarpus*.

Thecocarpus brevirostris (Busk, 1852).

Aglaophenia brevirostris (Busk) Bale 1913, p. 135, pl. XIII, figs. 7, 8 (descr. fig.).
Thecocarpus brevirostris (Busk) Billard 1913, p. 89, fig. LXXV (fig. gonosome); Briggs, 1918, p. 45 (synonymy, dimen.); Jarvis 1922, p. 350, pl. 26, fig. 24 (fig.).

Localities.—Heron I. (15, 21.viii.1948, 22.viii.1949, numerous colonies under coral rocks in boulder zone); North West Reef (25.viii.1948, dredged at 10 fms.). *Qld. distribution.*—Cumberland Is. (Busk, 1852); Murray I. (Kirkpatrick, 1890).

Thecocarpus phyteuma (Kirchenpauer, 1876).

Thecocarpus phyteuma (Kirchenpauer) Stechow, 1919, p. 139, text-fig. (descr. discuss.).
Aglaophenia clavicula Whitelegge 1899, p. 373, pl. XXIII, figs. 4, 5, 6 (descr. fig.).
Theocarpus leopoldi Leloup 1930a, p. 1, text-fig. (fig.); Leloup 1930b, p. 11, text-figs. 8, 9 (fig. gonosome).

Leloup (1930) maintained that *T. leopoldi* could be distinguished from *T. phyteuma* (including *Aglaophenia clavicula* Whitelegge, which Stechow, 1919, considered a synonym of *T. phyteuma*) on the following grounds: (i) the absence of radical tubes in *T. leopoldi;* (ii) the presence of 2, instead of 3, nematophores to each hydrocaulus internode; (iii) minute differences in corbule structure. These specimens show trophosomal features intermediate between the two. They lack radical tubes but have three cauline nematophores to each internode. In addition, the annular fold is sometimes straight, as in Whitelegge's figure, sometimes curved as figured by Leloup. Also the septal ridges across the hydrothecate internodes are weakly developed in the younger parts of the colony (cf. *T. claviculus*) and strongly developed in the older regions (cf. *T. leopoldi*). The gonosome is absent.

Localities.—Hardy Reef (26.v.1949, under coral boulders at reef edge); Heron I. (22.viii.1949, in fissures of honeycomb rock behind the reef crest).

Lafoeidae.

Key to genera.

1. Hydrothecae springing directly from creeping hydrorhiza; gonangia not grouped into coppina mass ..... *Hebella*
–. Hydrothecae springing from branched hydrocaulus; gonangia grouped into coppina mass, gonothecae with hooded apertures ..... *Lictorella*

Genus *Hebella*.

Key to species.

1. Hydranth not completely retractile into hydrotheca; hydrotheca shallow, cup-shaped ..... *crateroides*
–. Hydranth completely retractile into hydrotheca; hydrotheca campanulate or tubular 2
2. Hydrotheca annulated ..... *costata*
–. Hydrotheca smooth 3
3. Hydrotheca tubular, radially symmetrical 4
–. Hydrotheca bilaterally symmetrical, margin everted ..... *dyssymmetra* var. *trigona*
4. Hydrotheca straight ..... *calcarata*
–. Hydrotheca twisted ..... *calcarata* var. *contorta*

Hebella calcarata (L. Agassiz, 1862).

Hebella calcarata (Agassiz) Bale 1915, p. 251 (synonymy, discuss.); Vervoort 1946, p. 304 (discuss. dimen.).

Lafoea scandens Bale, 1888, p. 758, pl. XXI, figs. 16–19 (descr. fig.); Warren 1908, p. 341, text-fig. 21 (descr. fig. dimen.).

Hebellopsis scandens (Bale) Vervoort, 1941, p. 197 (dist.).

Localities.—Port Curtis (viii.1916, coll. Univ. party); Myora (16.xii.1949, abundant on *Dynamena crisioides* from stones at L.W.S.); Caloundra Heads (1.iv.1950, abundant on *D. crisioides* on stones at L.W.S.); Low Is. (23.viii.1954, on *D. crisioides* on rock in moat).

Hebella calcarata (L. Agassiz, 1862) var. *contorta* Marktanner-Turneretscher, 1890.

Hebella calcarata (Agassiz) var. *contorta* Marktanner-Turneretscher, Bale, 1915, p. 253 (synonymy); Leloup, 1937b, p. 26, text-fig. 17 (dimen. fig.); Vervoort 1946, p. 305 (dist.); Hodgson, 1950, p. 14 (descr. fig.).

Localities.—Point Lookout (14.vi.1948, on *Dynamena quadridentata*); Wistari Reef (17.viii.1950).

Hebella costata (Bale, 1884).

Campanularia costata Bale, 1884, p. 56, pl. I, fig. 3 (descr. fig.).

Hebella costata (Bale) Billard, 1941, p. 13, text-figs. (descr. synonymy, figs.).

Lafoea venusta (Ritchie, *non* Allman) Ritchie 1910a, p. 815, pl. LXXVI (descr. dimen.).

Localities.—Bribie I. (26.iv.1948, overrunning *Sertularella diaphana*, coll. Univ. Party); Curtis I. (14.viii.1951, on *Idiellana pristis* dredged from 4 fms.); Moreton Bay between St. Helena and Mud Is. (18.iv.1954, on *I. pristis* dredged 4 fms.); Low Is. (24.viii.1954, on *Dynamena crisioides* on rock on outer reef slope, southern face). *Qld. distribution*.—Moreton Bay (Bale 1888); Murray I. (Kirkpatrick, 1890).

Hebella dyssymmetra Billard, 1933 var. *trigona* Billard, 1942.

Hebella dyssymmetra Billard var. *trigona* Billard 1942, p. 68, fig. 1, 2, 3 (descr. fig.).

In spite of their slightly smaller hydrothecal lengths, these specimens are almost certainly *H. dyssymmetra* var. *trigona*. There is no thickening of the hydrothecal base, a characteristic of this variety in contrast with *H. dyssymmetra* and *H. brevitheca* Leloup 1938.

Dimensions.—

Hydrotheca	length	0.5 – 0.53 mm.
	diameter at aperture	0.42 – 0.53 mm.

Locality.—Low Is. (22, 23, 25.viii.1954, parasitic on *Plumularia sp.* and *Halopteris alternata* from beneath coral boulders, eastern reef shelf).

Genus *Lictorella.*

Key to species.

1. Colony under 2.5 cm. in height; hydrotheca slightly narrowed distally with everted margin ..... *rufa*
–. Colony well over 2.5 cm. in height; hydrotheca not noticeably narrowed distally, margin not everted ..... *antipathes*

SYNTHECIIDAE.

Key to genera.

1. Hydrothecae alternate ..... *Hincksella*
–. Hydrothecae opposite or sub-opposite ..... *Synthecium*

Genus *Hincksella.*

Key to species.

1. Colony large, branched; hydrotheca widest at aperture, tapering gradually towards base, adcauline wall adnate for greater part of its length ..... *sibogae*
–. Colony unbranched; hydrotheca tubular, adcauline wall adnate for less than half its length ..... *cylindrica*

Hincksella cylindrica (Bale, 1888).

Sertularella cylindrica Bale, 1888, p. 765, pl. XVI, fig. 7 (descr. fig.).

Hincksella cylindrica (Bale) Blackburn, 1937b, p. 173, fig. 2 (synonymy, descr. gonosome).

Locality.—Myora coral patch, Moreton Bay (6.vii.1939, single specimen, coll?).

Genus *Synthecium.*

Key to species.

1. Hydrothecal length free 0.150–0.395 mm.; gonotheca transversely wrinkled ..... *patulum*
–. Hydrothecal length free 0.25–0.79 mm.; gonotheca smooth or slightly undulated *megathecum*

Synthecium megathecum Billard 1924 (Pl. VI, fig. 1).

Synthecium megathecum Billard, Billard, 1925, p. 130, pl. VII, fig. 2, text-fig. VI (descr. fig. synonymy dist.).

This species has been identified provisionally as *S. megathecum* because many hydrothecae show reduplications of the abcauline wall as figured by Billard and because the known distribution of this species makes it very possible that its range extends into Queensland. The most noticeable difference between the two forms is that the length of the free part of the hydrotheca is greater in the Queensland specimens. This is partly because of the greater number of reduplications, partly because the distance between reduplications is greater.

No absolute certainty is felt about the identification because of the uniformity of shape of the hydrotheca in all species of the genus, and the variability in their size in any one species, and because of our ignorance of the form of the gonosome in several of the species described. Other possibilities are: *S. tubithecum* Allman, 1877, *S. patulum* Busk, 1852 var. *elongatum* Billard, 1925, and *S. longithecum* Totton, 1931. (The "very similar species from Murray Island, Torres Straits" mentioned by this latter author could well be identical with the species under discussion).

Trophosome.—Colonies 1 to 3 cms. in height with opposite branches; stem internodes long, each bearing a pair of branches at the summit and 1 or 2 pairs of hydrothecae below, except the proximal internodes which commonly bear branches only. Branches divided into internodes, each bearing 1 pair of hydrothecae. Hydrothecae opposite, not in contact, tubular adnate for about half their height, free part curved outwards at an angle of almost 90°, aperture circular, everted, usually reduplicated several times.

Gonosome.—Absent.

Dimensions.—

Hydrotheca length adnate	0.55 – 0.68 mm.
length free	0.46 – 0.74 mm.
diameter at mouth	0.23 – 0.26 mm.
Interval between hydrotheca pairs	0.35 – 0.61 mm.

Localities.—Wilson I. (16.viii.1948, under coral rocks near reef edge); Heron I. (22.viii.1949).

Synthecium patulum (Busk, 1852).

Synthecium patulum (Busk) Billard, 1925, p. 125, text-figs. II, III (descr. figs. synonymy, dimen.); Vervoort 1941, p. 199, fig. 2 (dist.).

Localities.—Heron I. (22.viii.1949, one small specimen from under coral rock near reef edge); Myora (23.x.1949, cluster of colonies dredged at 7 fms., in channel); Dunwich (12.xii.1949, small fragment of colony among plankton). *Qld. distribution.*—Torres Strait (Busk, 1852); Murray I. (Kirkpatrick, 1890); Thursday I. (Weltner 1890).

Sertulariidae.

Key to genera.

1.	Hydrothecae free from stems and branches	2
–.	Hydrothecae almost always sessile and more or less adnate to stem and branches	4
2.	Hydranth with distinct ring-fold	3
–.	Hydranth with abcauline caecum	**Parascyphus*
3.	Nematocysts mainly in muscle cells of gastral cavity endoderm	*Thyroscyphus*
–.	Nematocysts in ectodermal layer lining hydrotheca or in the ectodermal roofing plate	*Cnidoscyphus*
4.	Operculum with 3 or 4 flaps	5
–.	Operculum of 2 flaps	6
–.	Operculum of 1 flap	7
5.	Abcauline caecum present	*Sertularella*
–.	Abcauline caecum absent	**Stereomma*
6.	Abcauline caecum present	*Sertularia*
–.	Abcauline caecum absent	*Dynamena*
7.	Operculum abcauline	8
–.	Operculum adcauline	9
8.	Abcauline caecum present	**Thuiaria*

–.	Abcauline caecum absent	*Salacia*
9.	Hydrothecae without lateral teeth	10
–.	Hydrothecae with 2 weak lateral teeth	11
10.	Abcauline caecum present	**Abientinaria*
–.	Abcauline caecum absent	*Diphasia*
11.	Abcauline caecum present, median adcauline tooth absent	**Hydrallmania*
–.	Abcauline caecum absent, median adcauline tooth present	*Idiellana*

Genus *Diphasia.*

Key to species.

1.	Hydrothecae of pair in contact on anterior surface of hydrocaulus	2
–.	Hydrothecae of pair not in contact	3
2.	Hydrotheca without horizontal fold on abcauline wall; aperture facing upwards	*digitalis*
–.	Hydrotheca with intrathecal ridge; aperture facing upwards and inwards	*scalariformis*
3.	Hydrotheca without abcauline intrathecal ridge; aperture bordered by 3 teeth	*sub-carinata*
–.	Hydrotheca with abcauline intrathecal ridge; aperture bordered on adcauline side by straight margin, on abcauline side by gentle curve	*mutulata*

Diphasia digitalis (Busk, 1852).

Diphasia digitalis (Busk) Nutting 1904, p. 110, pl. xxx, figs. 2–7 (descr. fig.); Vervoort, 1946, p. 307 (dist.).

Localities.—Port Curtis (viii.1916); Hamilton I. (30.v.1949, numerous colonies on floating seaweed); Myora (23.x.1949, fragments of colony dredged at 7 fms. in channel); Polka Point, Dunwich (12.xii.1949, short sections with long, twisted radical tubes, in plankton from channel); Moreton Bay (18.iv.1954, dredged at 4 fms. between Mud and St. Helena Is.). *Qld. distribution.*—Prince of Wales Channel, Torres Strait (Busk, 1852), twenty miles N.N.W. of Warrior I. (Kirkpatrick, 1890).

Genus *Dynamena.*

Key to species.

1.	Colonies usually branched, hydrothecae alternate or subopposite on the hydrocaulus and proximal parts of branches	*crisioides*
–.	Colonies usually unbranched, hydrothecae opposite	2
2.	Never more than one pair of hydrothecae to each internode	*cornicina*
–.	Hydrothecae in groups of 2 or 3 apposed pairs, particularly on distal internodes	3
3.	Hydrotheca markedly swollen basally on abcauline side; internal teeth present; interval between hydrothecal groups about as long as groups	*gibbosa*
–.	Hydrotheca sometimes slightly swollen basally on abcauline side, sometimes tubular, sometimes swollen at the point of inflection; internal teeth only rarely present	4
4.	Hydrotheca with reduplicated margin, and often with internal teeth	*heterodonta*
–.	Hydrotheca without reduplicated margin or internal teeth	5
5.	Hydrothecal pairs mostly arranged singly, grouped only in distal parts of the colony; hydrothecae swollen at the point of inflection; teeth blunt; mouth of ungrouped hydrothecae directed laterally to latero-basally	*obliqua*
–.	Hydrothecal pairs frequently grouped; hydrothecae tubular, sometimes swollen basally on abcauline side; teeth pointed; mouth directed latero-distally	6
6.	Length of basal part of internode below hydrothecal groups 0.165–0.265 mm.	*quadridentata*
–.	Length of basal part of internode below hydrothecal groups 0.615–3.790 mm.	*quadridentata* var. *elongata*

Dynamena cornicina McCrady, 1858.

Dynamena cornicina McCrady, Billard 1925, p. 188, pl. VII, fig. 23, text-fig. XL (descr. fig. dimen.); Vervoort 1941, p. 206, fig. 3 (dist.).

Sertularia complexa Clarke, Bale, 1888, p. 769, pl. XVIII, figs. 1–4 (descr.).

Localities.—Heron I. (17.ix.1938, under coral boulders, coll. M.B.; 23.viii.1948, viii.1949); Myora (7.iii.1946, on *Zostera* on outer banks; 13.xii.1949, on *Zostera* in sand pool above L.W.S.; 14.xii.1949, abundant on floating *Zostera;* 15.vii.1950, on under surface of coral rock below L.W.S.); Wilson I. (16.viii.1948, occasional specimens on under surfaces of coral rocks); Lupton Reef (25.v.1949); Camp Bay, South Molle I. (29.v.1949); Wistari Reef (18.viii.1949); Dunwich (2.ii.1950, abundant on *Codium* growing at L.W.S.); Curtis I. (14.viii.1951, on under surfaces of rocks); Low Is. (23, 24, 25.viii.1954).

Dynamena crisioides Lamouroux, 1824.

Dynamena crisioides Lamouroux, Billard 1925, p, 181, pl. VII, fig. 21, text-figs. XXXVI, XXXVII (descr.); Blackburn, 1937b, p. 172, fig. 3 (fig. synonymy); Vervoort 1941, p. 209 (dist.).

Thuiaria tubuliformis Marktanner-Turneretscher, Nutting 1904, p. 70, pl. XI, figs. 1–8 (descr.).

Localities.—Heron I. (17.ix.1938, under coral boulders, coll. M.B.; 23.viii.1948; 22.viii.1949); Challenger Bay, Palm I. (27.v.1948); Butler Bay, Palm I. (i.vi.1948); Brisk I. (3.vi.1948); Point Lookout (14.vi.1948); Wilson I. (16.viii.1948); Wistari Reef (17.viii.1948); North West Reef (25.viii.1948); Cleveland (10.iv.1949); Henning Reef (23.v.1949); Lupton Reef (25.v.1949); Hamilton I. (30.v.1949); Myora (15, 16.xi.1949); Caloundra (i.iv.1950; v.1951); Pt. Cartwright (v. 1951); Currumbin (vii.1951); Nerang River (viii.1951); Redcliffe (1951); Curtis I. (14.viii.1951); Low Is. (21, 23.viii.1954). *Qld. distribution.*—Caloundra (Harvey Johnston, 1917); Great Barrier Reef about the latitude of Cooktown (Briggs 1918); Low Is. (Briggs & Gardiner, 1931).

Dynamena gibbosa Billard, 1924.

Dynamena gibbosa Billard, Billard 1925, p. 199, text-fig. XLV (descr. fig. dimen.).

Localities.—Lat. 24°52′S., Long. 152°48 E. (14.ix.1938, on *Halophila spinulosa,* coll. M.B.); Dunwich (12.xii.1949, fragment of colony among plankton from channel near Polka Point); Picnic I., Port Curtis (16.viii.1951, abundant on weed).

Dynamena heterodonta (Jarvis, 1922).

Pasythea heterodonta Jarvis, 1922, p. 344, pl. 24, figs. 11, 12 (descr., fig.).

Dynamena heterodonta (Jarvis) Billard 1925, p. 198, fig. XLIV (additional descr., fig.).

Locality.—Low Is. (24.viii.1954, two colonies under coral rock, southern reef shelf).

Dynamena obliqua (Lamouroux, 1816).

Dynamena obliqua (Lamouroux), Billard 1924, p. 57.

Pasythea quadridentata Ellis & Solander, Bale 1888, p. 770, pl. XIV, figs. 6, 7 (figs.).

Pasythea quadridentata Ellis & Solander var. *obliqua* Lamouroux, Briggs, 1918, p. 39 (synonymy, descr., dimen.).

Localities.—Amity Point, Stradbroke I. (20.v.1940, on beach, coll. M.B.; 1.ix.1951); Point Lookout (14.vi.1948); Wistari Reef (17, 18.viii.1948, few colonies on stranded seaweed); east of North West Reef (25.viii.1948, numerous colonies on weed dredged at 15 fms.); Currumbin (1.vii.1951, abundant on weed in rock pool).

Dynamena quadridentata (Ellis & Solander, 1786).

Pasythea quadridentata (Ellis & Solander) Warren 1908, p. 312, text-fig. 11 (descr. fig. dimen.).

Dynamena quadridentata (Ellis & Solander) Billard 1925, p. 194, text-fig. XLII (descr. fig. dimen.).

Locality.—Low Is. (25.viii.1954, on weed round coral rock, eastern reef slope). *Qld. distribution.*—Fitzroy I. (Bale 1884).

Dynamena quadridentata (Ellis & Solander, 1786) var. *elongata* (Stechow & Müller, 1923).

Dynamena quadridentata (Ellis & Solander) var. *elongata* (Stechow & Müller) Billard, 1925, p. 195, text-fig. XLIII, A–D. (descr., figs. dimen.).

Locality.—Lat. 24°52′S., Long. 152°48′E. (14.ix.1938, on *Halophila spinulosa* Benth., coll. M.B.).

Genus *Idiellana.*

Idiellana pristis (Lamouroux, 1816).

Idia pristis Lamouroux, Bale 1884, p. 113, pl. vii, fig. 1, 2 (descr. fig. trophosome); Bale, 1894, p. 104, pl. iv, figs. 4, 5 (descr. fig. gonosome).

Idiella pristis (Lamouroux) Vervoort 1941, p. 105 (dist.).

Localities.—Port Curtis (viii.1916); Myora (23.x.1949, dredged from 7 fms. in channel); Calliope River, Port Curtis (13.viii.1951, dredged from 3 fms.); Curtis I. (14.viii.1951, dredged from 4 fms.); Picnic I., Port Curtis (16.viii.1951, on sides and under surfaces of rocks); Channel between St. Helena and Mud Is., Moreton Bay (18.iv.1954, dredged from 4 fms., muddy bottom). *Qld. distribution.*—Prince of Wales Channel, Torres Strait, Cumberland Is. (Busk, 1852); Fitzroy I., Albany Passage, Port Molle, Port Curtis, Griffiths Point (Bale, 1884); twenty miles N.N.W. Warrior I., Murray I. (Kirkpatrick, 1890); Thursday I. (Weltner, 1900); Linden Bank, Penguin Channel, Two Is. (Briggs & Gardiner, 1931); Green I., N.E. King I. (Monro in ms., 1940).

Genus *Salacia.*

Key to species.

1.	Hydrothecae arranged in groups of 6–10 at the distal end of each internode	*hexodon*
–.	Hydrothecae distributed evenly along the length of each internode	2
2.	Hydrothecae curved outwards, then upwards, then outwards again; adnate to internode and distal hydrothecae throughout length	*sinuosa*
–.	Hydrothecae straight, curved outwards only near aperture; adnate to internode for the greater part of their length	3
3.	Hydrothecae 0.42–0.50 mm. in length	*tetracythara*
–.	Hydrothecae 0.35–0.38 mm. in length	*tetracythara* var.

Salacia hexodon (Busk, 1852).

Pasythea hexodon Busk, Bale 1888, p. 771, pl. XIV, figs. 8, 9 (descr. fig.).
Salacia hexodon (Busk) Billard, 1925, p. 207 (descr. dist.).

Locality.—Port Curtis (viii.1916). *Qld. distribution.*—Cumberland I. (Busk, 1852); near Peel I., Moreton Bay (Bale, 1888); Murray I. (Kirkpatrick, 1890).

Salacia tetracythara Lamouroux, 1816.

Salacia tetracythara Lamouroux, Billard, 1925, p. 202, pl. VIII, figs. 27, 28, text-fig. XLVII (descr. figs. dimen. dist.).

The fenestrations below the hydrothecae are apparent in these specimens only on the hydrocaulus and the lower parts of the branches.

Localities.—Amity Point, Stradbroke I. (20.v.1940, on beach, coll. M.B.); Moreton Bay (31.iv.1946, clump of colonies found floating); Wilson I. (16.viii.1948, few colonies found under boulders at reef edge); Wistari Reef (17.viii.1948). *Qld. distribution.*—Off Cumberland Is. (Busk, 1852); Albany Passage, Pt. Curtis (Bale, 1884); Moreton Bay (Bale, 1888); Murray I. (Kirkpatrick, 1890).

Salacia tetracythara Lamouroux, 1816 var.

Specimens collected from Port Curtis in 1916, although agreeing with the typical form of *Salacia tetracythara* in colony form and hydrotheca shape, and the presence of the typical fenestrations, differ from it in hydrotheca length. This is well below, not only the figures quoted by, or calculated from, drawings of previous authors, but also from those of other specimens in this collection.

Hydrotheca lengths:

Salacia tetracythara	
Lamouroux's specimen (calculated from Billard, 1925, fig. 0, text.fig. XLVII)	0.424
Bale's 1884 specimen (calculated from fig. 7, pl. VII)	0.48
Bartlett's 1907 specimen (calculated from fig. opp. p. 64)	0.46
Siboga specimens (quoted from Billard 1925, p. 204)	0.455 – 0.500
Moreton Bay specimens	0.44 – 0.49
Wilson I., Wistari Reef specimens	0.47 – 0.50
Salacia tetracythara var.	
Port Curtis specimens	0.35 – 0.38

At a later date forms may be found whose dimensions bridge this gap, thus making this form a typical *Salacia tetracythara,* or gonangia may be found which will place it in another species.

Locality.—Port Curtis (viii.1916, coll. Univ. Party).

Genus *Sertularella.*

Key to species.

1. Colonies usually small and unbranched; hydrotheca contracted at aperture, usually annulated 2
–. Colonies often large and branched; hydrotheca tubular, not contracted at aperture, not annulated 3

2. Hydrotheca with 3 marginal teeth ..... *Sertularella* sp.
–. Hydrotheca with 4 marginal teeth ..... *robusta*
3. Hydrotheca with 3 marginal teeth 4
–. Hydrotheca with 4 marginal teeth 5
4. Hydrothecae free for less than half their length ..... **divaricata*
–. Hydrothecae free for more than half their length ..... *longitheca*
5. Colony small and rarely branched; only 1 hydrotheca to each internode ..... *minuscula*
–. Colony large, branched with 3 or more hydrothecae on 1 internode 6
6. Branches with 3 hydrothecae to an internode; lower part of adcauline wall of hydrotheca produced into a spur ..... *quadridens*
–. Branches with usually more than 3 hydrothecae to an internode; no hydrothecal spur 7
*7. Gonothecae roughly radially symmetrical with longitudinal furrows, 1.7–2.4 mm. in height ..... *diaphana*
–. Gonothecae bilaterally symmetrical, aperture oblique, sloping downwards towards hydrocaulus, wall slightly transversely undulated, up to 3.5 mm. in height ..... *lata*

* For slight trophosomal differences between *S. diaphana* and *S. lata* see Bale, 1919, p. 338.

Sertularella diaphana (Allman, 1885).

Thuiaria diaphana Allman, 1886, p. 145, pl. xviii, figs. 1–3 (descr. fig.).

Sertularella diaphana (Allman) Bale, 1919, p. 337, pl. XVI, fig. 5 (fig. synonymy, discuss.); Billard, 1925, p. 157, pl. VII, figs. 12, 13, text-fig. XXII (descr. fig. dimen., discuss.).

Locality.—Bribie I. (26.iv.1948). *Qld. distribution.*—Moreton Bay (Allman, 1886, Bale, 1919).

Sertularella minuscula Billard, 1924 (Pl. VI, fig. 2).

Sertularella minuscula Billard, Billard, 1925, p. 139, text-fig. IX (descr. fig.); Leloup 1932a, p. 161, figs. 26, 27 (descr. fig.).

Considerable reduplication of the margin of the hydrotheca had occurred in a certain number of these specimens, particularly among those from Lupton Reef. This greatly increases the length of the free part of the hydrotheca, in extreme cases to as much as 0.5 mm. The dimensions of the specimens in which reduplication had not occurred agree with those given by Billard (1925, p. 140).

Localities.—Lupton Reef (25.v.1949, under coral rocks at reef edge); Heron I. (viii.1949, under coral boulders at reef edge and in crevices in honeycomb rock in deep pools behind the reef edge); Low Is. (23.viii.1954, from under rocks, boulder zone; 24.viii.1954, from under rocks, southern reef face; 25.viii.1954, eastern reef slope).

Sertularella quadridens (Bale, 1884).

Thuiaria quadridens Bale, 1884, p. 119, pl. vii, fig. 5, 6 (descr. fig.).

Sertularella quadridens (Bale) Billard, 1925, p. 150, text-fig. xix (fig. gonosome, synonymy).

Locality.—Moreton Bay (18.iv.1955, dredged at 4 fms. between Mud and St. Helena Is. *Qld. distribution.*—Port Curtis, Holborn I. (Bale, 1884); Peel I., Moreton Bay (Bale, 1888); Flinders Passage (Allman, 1888—as *Thuiaria vincta*); Thursday I. (Weltner, 1890).

Sertularella robusta Coughtrey, 1875 (Pl. VI, fig. 3).

Sertularella robusta Coughtrey, Trebilcock, 1928, p. 16, pl. VI, fig. 3–3C (descr. fig.); Totton, 1931, p. 195 (discuss.); Blackburn, 1937b, p. 171, fig. 1 (dist., fig.).

Four colonies only were collected. One of these has a branch springing from below the lowest hydrotheca. Their dimensions lie well within the range given by Trebilcock except in the case of internode lengths which are smaller, particularly in the younger parts of the colonies.

Dimensions.—

Colony height	2 – 8 mm.
Hydrotheca length	0.47 – 0.55 mm.
greatest diameter	0.25 – 0.28 mm.
diameter at mouth	0.15 – 0.17 mm.
Internode length	0.38 – 0.77 mm.
diameter	0.15 – 0.17 mm.

Localities.—Myora, Moreton Bay (16.xii.1949, few colonies on under surfaces of stones near L.W.S.).

Sertularella sp. (Pl. VI, fig. 4).

Trophosome.—Unbranched colony, up to 6 mm. tall; hydrocaulus zig-zag, divided by oblique nodes into short internodes, each bearing a hydrotheca on its upper part; hydrothecae alternate, diverging at an angle of about 45° from the hydrocaulus, adnate for one third of their height, barrel-shaped with 3–5 marked annulations in the central region, narrowed to a smooth neck region, and beyond that, expanded slightly towards the aperture; aperture bordered by 3 blunt teeth, closed by a 3 flapped operculum; 4 internal teeth present below the aperture, the second abcauline tooth being smaller than the other 3.

Gonosome.—Absent.

Dimensions.—

Colony height	up to 6 mm.
Internode length	0.46 – 0.54 mm.
diameter	0.14 – 0.18 mm.
Hydrotheca length	0.57 – 0.65 mm.
length adnate	0.28 – 0.35 mm.
length free	0.38 – 0.45 mm.
Hydrotheca greatest diameter	0.26 – 0.32 mm.
diameter at orifice	0.15 – 0.18 mm.

This species resembles *Sertularella keiensis* Billard 1925 (Billard 1925, p. 147, Leloup 1937b, p. 38) in the presence of 4 internal teeth and in the shape of the hydrotheca; it differs in the much shorter internodes, the presence of only 3 teeth bordering the aperture and the small size of the second abcauline internal tooth.

Localities.—Wilson I. (16.viii.1948, under coral rocks); Heron I. (viii.1949); Low Is. (25.viii.1954, under coral rocks at L.W.S., eastern reef slope).

Genus *Sertularia.*

Key to species.

1.	Hydrothecae alternate on stem, sub-opposite on pinnae	*trigonostoma*
–.	Hydrothecae opposite	2
2.	Hydrothecae tubular	3
–.	Hydrothecae flask-shaped	4
3.	Hydrothecal teeth long, pointed, unequal in size the dorsal being larger; aperture looking outwards and upwards	*minima*
–.	Teeth equal in size, aperture facing outwards	*distans* var. *gracilis*

4. Hydrotheca with horizontal fold present on abcauline wall 5
–. Horizontal fold absent from abcauline wall .. .. *borneensis*
5. Hydrothecal aperture bounded by 3 teeth, 2 prominent, pointed laterals, 1 small, pointed dorsal .. .. *turbinata*
–. Aperture bounded laterally by 2 indistinct lobes .. .. *loculosa*

Sertularia borneensis Billard 1924 (Pl. VI, fig. 5).

Sertularia borneensis Billard, Billard 1925, p. 171, text-fig. XXXI.

Specimens from all localities agree well with Billard's description. One detail which he apparently failed to observe is the well developed tooth to which the abcauline caecum of the hydranth is attached.

Localities.—Wilson I. (16.viii.1948); Wistari Reef (17.viii.1948); Heron I. (24.viii.1949, under rocks on reef crest).

Sertularia distans (Lamouroux, 1816) var. *gracilis* (Hassall, 1848).

Sertularia gracilis Hassall, Hincks 1868, p. 262, pl. LII, fig. 2 (descr. fig.).
Sertularia distans (Lamouroux) var. *gracilis* (Hassall). Billard 1925, p. 175, fig. XXXIII (descr. fig. dimensions); Billard 1933, p. 12, text-fig. 4 (dimensions, dist. synonymy); Leloup 1935, p. 47 text-fig. 28, 29 (fig., discuss).

These specimens show a combination of those characters which distinguished the specimens of Billard and Leloup from the typical form of this species as described by Hincks (1868); namely: (i) elongation of the free part of the hydrothecae by reduplication of the margins (Billard 1933); (ii) occasional occurrence of both a transverse and an oblique node between one pair of hydrothecae and the next (Billard 1925); (iii) the presence, in many cases, of 2 downward projections from the base of a hydrothecal pair into the cavity of the internode (Billard 1925); (iv) the presence, in many hydrothecae, of a tooth projecting into the proximal part of the hydrotheca from the abcauline wall (Billard 1925); (v) the occasional occurrence of a tooth projecting from the abcauline wall into the distal part of the hydrotheca (Leloup 1935).

Dimensions :—

Colony height	5 – 7 mm.
Internode length	0.34 – 0.54 mm.
diameter	0.04 – 0.06 mm.
Hydrotheca length in contact	0.10 – 0.18 mm.
length free	0.17 – 0.28 mm.
diameter at orifice	0.04 – 0.07 mm.

Localities.—Lat. 24° 50′ S., Long. 152° 48′ E. (14.ix.1938 on *Halophila spinulosa*, coll. M. B.); Lupton Reef (25.v.1949, under coral rocks); Low Is. (23.viii.1954, from moat, on coral fragments; 24.viii.1954, southern reef slope, under coral rocks).

Sertularia loculosa Busk, 1852.

Sertularia loculosa Busk, Billard, 1926, p. 512 (synonymy).
Sertularia ligulata Thornely, Billard, 1925, p. 178, text-fig. XXXV (descr. fig., dimen. dist.).

Localities.—Outer Myora banks (7.iii.1946, coll. ?); Wistaria Reef (17.viii. 1948); Dunwich (12.xii.1949, several tangled colonies in plankton from channel near Polka Point).

Sertularia minima Thompson, 1879.

Sertularia minima Thompson, 1879, p. 104, pl. XVII, figs. 3, 3a, 3b (descr. fig.); Bale 1915 p. 269 (synonymy); Briggs, 1918, p. 37 (dimen. dist.); Hodgson, 1950, p. 23, figs. 41 42 (descr. dimen. figs.).

Localities.—Port Curtis (1916, coll. Univ. Party); Hamilton I. (30.v.1949, few colonies on drifting seaweed); Caloundra (v.1951), Pt. Cartwright (v.1951), Currumbin (i.vii.1951, on weed in rock pool).

Sertularia trigonostoma Busk, 1852.

Sertularia trigonostoma Busk, Bale, 1884, p. 84, pl. V, fig. 8 (descr. fig.); Billard 1925, p. 174 (synonymy, descr.); Vervoort, 1941, p. 217 (dimen. dist.).

Locality.—Port Curtis (viii.1916). *Qld. distribution.*—Prince of Wales Channel, Torres Straits (Busk, 1852); Albany Passage (Bale 1884); off Somerset, Torres Straits (Allman 1888); Murray I. (Kirkpatrick, 1890).

Sertularia turbinata (Lamouroux, 1816).

Sertularia turbinata (Lamouroux) Billard, 1925, p. 177, text-fig. XXXIV (descr. fig. dimen.) Billard 1926, p. 512 (synonymy).

Localities.—Port Curtis (viii.1916, on weed coll. Univ. Party); Pialba (coll. M. B.); Point Lookout (14.vi.1948); Dunwich (12.xii.1949, fragments among plankton, collected near Polka Point); Low Is. (24.viii.1954, southern reef slope under coral rocks; 25.viii.1954, eastern reef slope under coral rock).

Genus *Thyroscyphus.*

Key to species.

1.	Hydrotheca smooth	*bedoti*
–.	Hydrotheca annulated	2
2.	Hydrothecae borne directly on hydrorhiza; hydrotheca slightly contracted at aperture	*campanulatus*
–.	Hydrothecae borne alternately on hydrocaulus; hydrotheca not contracted at aperture	*sibogae*

Thyroscyphus bedoti Splettstösser, 1929 (Pl. VI, fig. 7).

Thyroscyphus bedoti Splettstösser 1929, p. 122, figs. 36, 37, 38 (descr. fig., synonymy).

These specimens are 1-2 cm. in height instead of 3-4 cms. (Splettstösser's figures) and the greatest diameter of the hydrotheca ranges from 0.55 mm. to 0.62 mm. instead of 0.65 mm. Gonothecae are absent.

Locality.—Brisk I. (3.vi.1948, several colonies under coral rock, just below L.W.S., coll. D.F.S.).

Thyroscyphus campanulatus (Warren, 1908).

Sertularella campanula Warren 1908, p. 300, pl. XLVII, figs. 21, 22 (descr. fig.).
Calamphora campanulata (Warren) Gravely 1927, p. 12, pl. II, fig. 9 (synonymy).
Thyroscyphus campanulatus (Warren) Leloup 1937b, p. 32, text-fig. 22 (dimens. descr. gonosome).

Locality.—North West Reef (25.viii.1948, numerous colonies on sea weed, dredged to east of the reef).

Thyroscyphus sibogae Billard, 1930.

Thyroscyphus sibogae Billard, 1930, p. 230, 1 text-fig. (descr. fig.).

These specimens show some features which, in part, bridge the gap between *T. sibogae* and *T. intermedius* Congdon 1907, viz.:—(i) occasionally hydrothecae spring directly from the hydrorhiza; (ii) irregular branching occurs in some colonies;

(iii) occasional hydrothecae show long peduncles and these are sometimes irregularly wrinkled; (iv) occasional indistinct annulations are also visible on the hydrocaulus.

Dimensions :—

Colony height	up to 6 mm.
Hydrocaulus diameter	0.12 – 0.17 mm.
Hydrotheca length	0.65 – 0.87 mm.
diameter	0.33 – 0.38 mm.
Pedicle length	0.12 – 0.33 mm.
diameter	0.13 – 0.16 mm.

Locality.—Low Is. (23, 24, 25.viii.1954, under coral rocks at the east, south and west of the island).

REFERENCES.

ALLMAN, G. J. (1871-2). "A monograph of the gymnoblastic or tubularian Hydroids." *Ray Soc., Publ.:* 1-450, 23 pl.

——— (1877). "Report on the Hydroida . . . Exploration of the Gulf Stream by L. F. de Pourtalès." *Mem. Mus. comp. Zool. Harv.*, **5**, (2): 1-66, 34 pls.

——— (1883). "Report on the Hydroida dredged by H.M.S. Challenger, during the years 1873-1876, pt. I, Plumularidae." *Rept. sci. Results Challenger Exped. Zool.*, **7**: 1-55, 20 pls.

——— (1886). "Description of Australian, Cape and other Hydroida, mostly new from the collection of Miss H. Gatty." *J. Linn. Soc. (Zool.)*, **19**: 132-160, pl. VII-XXVI.

——— (1888). "Report on the Hydroids dredged by H.M.S. Challenger during the years 1873-1876, pt. II. The Tubularinae, Corymorphinae, Campanularinae, Sertularinae and Thalamorphora." *Rept. sci. Results Challenger Exped. (Zool.)*, **23**: I-LXIX, 1-90, 37 pls.

ANNANDALE, N. (1915). "Fauna of the Chilka Lake, Coelenterates. Hydrozoa." *Mem. Indian Mus.*, **5**: 104-114, pl. IX, text-figs. 9, 10.

BALE, W. M. (1882). "On the Hydroida of South-Eastern Australia, with Descriptions of Supposed New Species, and Notes on the Genus *Aglaophenia*." *J. micr. Soc. Vict.*, **2** (1): 15-47, pls. XII-XV.

——— (1884). "Catalogue of the Australian Hydroid Zoophytes." *Aust. Mus. Sydney:* 1-198, 19 pls.

——— (1888). "On some new and rare hydroids in the Australian Museum collection." *Proc. Linn. Soc. N.S.W.* (2), **3**: 745-799, pls. 12-21.

——— (1894). "Further notes on Australian Hydroids with descriptions of some new species." *Proc. roy. Soc. Vict.* (n.s.), **6**: 93-117, pls. III-VI.

——— (1913). "Further notes on Australian Hydroids II." *Proc. roy. Soc. Vict.* (n.s.), **26**: 114-147, pls. XII, XIII.

——— (1914a). "Report on the Hydroida collected in the Great Australian Bight, and other localities." *Zool. Res. Fish. Exp. 'Endeavour'*, **2** (1): 1-62, pls. I-VII.

——— (1914b). "Report on the Hydroida collected in the Great Australian Bight and other localities. Part 2." *Zool. Res. Fish. Exp. 'Endeavour'*, **2** (4): 166-188, pls. XXXV-XXXVIII.

——— (1914c). "Further notes on Australian Hydroids III." *Proc. roy. Soc. Vict.* (n.s.), **27**: 72-93, pls. XI-XIII.

——— (1915). "Report on the Hydroida collected in the Great Australian Bight and other localities. Part III." *Zool. Res. Fish. Exp. 'Endeavour'*, **3** (5): 241-336, pls. XLVI-XLVII.

——— (1919). "Further notes on Australian Hydroids IV." *Proc. roy. Soc. Vict.* (n.s.), **31**: 327-361, pls. XVI, XVII.

——— (1924). "Reports on some hydroids from the New Zealand Coast with notes on New Zealand Hydroida generally, supplementing Farquhar's list." *Trans. Proc. N.Z. Inst.*, **55**: 225-268, 18 text figs.

BARTLETT, G. C. (1907). "Notes on hydroid zoophytes." *Geelong Nat.*, (2) **3** (4): 60-66.

BEADLE, L. C. (1943). "Osmotic regulation and the faunas of inland waters." *Biol. Rev.*, **18**: 172-183.

BEDOT, M. (1921). "Notes systématiques sur les Plumularides." *Rev. suisse Zool.*, **29** (1): pp. 1-40.

BERRILL, N. J. (1948). "The life cycle of *Aselomaris michaeli*, a new gymnoblastic hydroid." *Biol. Bull., Wood's Hole*, **95** (3): 289-295, text figs.

——— (1952). "Growth and form in gymnoblastic hydroids. II. Sexual and asexual reproduction in *Rathkea*. III. Hydranth and gonophore development in *Pennaria* and *Acaulis*. IV. Relative growth in *Eudendrium*." *J. Morph.*, **90**: 1-32.

BILLARD, A. (1913). "Les Hydroides de l'expedition du Siboga. I. Plumularidae." *Siboga Exped. Livre* **70**, *Monog.*, **7a**: 1-114, pls. I-VI, text-figs. I-XCVI.

——— (1924). "Note critique sur divers genres et espèces d'Hydroides avec la description de trois espèces nouvelles." *Rev. suisse Zool.*, **31**: 53-74, 3 figs.

——— (1925). "Les Hydroides de l'Expedition du Siboga. II. Synthecidae et Sertularidae." *Siboga Exped. Livre* **103** *Monog.*, **7b**: 1-232, pls. VII-IX, text-figs. I-LVIII.

——— (1926). "Question de synonymie (*Sertularia turbinata, S. loculosa, S. ligulata*)." *Bull. Soc. zool. Fr.*, **51**: 512-513.

——— (1930). "Note sur une espèce nouvelle d'Hydroide (*Thyroscyphus sibogae*)." *Bull. Soc. zool. Fr.*, **55**: 230-232, 1 fig.

——— (1933). "Les Hydroides des Golfes de Suez et d'Akaba." *Mem. Inst. égypt (Egypte)*, **21**: 1-30.

———— (1941). "Note sur les Hydroides: *Hebella costata* (Bale) et *H. corrugata* (Thornely)." *Bull. Soc. zool. Fr.*, **66**: 13-15, text-figs.
———— (1942). "Note sur quelque espèces et variétés nouvelles des genres *Hebella* et *Hebellopsis* (Hydroides)." *Bull. Soc. zool. Fr.*, **67**: 67-70, text-fig.
BLACKBURN, M. (1937a). "Reports of the Expedition of the McCoy Society for field investigation and research II Coelenterata." *Proc. roy. Soc. Vict.* (n.s.), **49**: 364-371, 1 text-fig.
———— (1937b). "Notes on Australian Hydrozoa, with Descriptions of Two New Species." *Proc. roy Soc. Vict.* (n.s.), **50**: 170-181, 16 figs.
———— (1938). "Reports of the expedition of the McCoy Society for field investigation and research. Part 3. Hydrozoa." *Proc. roy. Soc. Vict.* (n.s.), **50**: 312-328.
———— (1942). "A systematic list of the Hydroida of South Australia with a summary of their distribution in other seas." *Trans. roy. Soc. S. Aust.*, **66** (1): 104-118.
BRAZIER, J. (1886). "Notes on the distribution of *Ceratella fusca*, Gray." *Proc. Linn. Soc. N.S.W.* (2), **1**: 575-576.
BRIGGS, E. A. (1915). "Notes on Tasmanian Hydrozoa." *J. roy. Soc. N.S.W.*, **48**: 302-318, pls. X, XI.
———— (1918). "Descriptions of two new hydroids, and a revision of the Hydroid-fauna of Lord Howe Island." *Rec. Aust. Mus.*, **12**: 27-47, pls. V, VI.
———— (1931). "Notes on Australian Athecate Hydroids." *Rec. Aust. Mus.*, **18**: 279-282.
BRIGGS, E. A. & GARDINER, V. E. (1931). "Hydroida." *Sci. Rep. Great Barrier Reef Exped.*, **4** (6): 181-196, 1 pl., 6 text-figs.
BUSK, G. (1852). "An account of the Polyzoa and Sertularian Zoophytes." *Macgillivray's Narrative of the Voyage of H.M.S. Rattlesnake, T. & W. Boone, London*, **I**, Appendix IV: 385-402.
COTTON, B. C. & GODFREY, F. K. (1942). "*Idiellana*, a new name for the preoccupied genus *Idiella*, Stechow (Coelenterata—Fam. Sertulariidae). *Rec. S. Aust. Mus.*, **7** (2): 234.
COUGHTREY, M. (1874). "Notes on the New Zealand Hydroideae." *Trans. Proc. N.Z. Inst.*, **8**: 281-293.
———— (1876). "Critical Notes on the New Zealand Hydroida, Suborder Thecaphora." *Ann. Mag. nat. Hist.* (4), **17**: 22-32, pl. III.
ENDEAN, R. (1953). "Queensland Faunistic records. Part III—Echinodermata (excluding Crinoidea)." *Pap. Dep. Zool. Univ. Qd.*, **1** (3): 53-60.
ENDEAN, R., KENNY, R. & STEPHENSON, W. (1956). "The ecology and distribution of intertidal organisms on the rocky shores of the Queensland mainland." *Aust. J. Mar. Freshw. Res.*, **7** (1): 88-146.
FRASER, C. McL. (1912). "Some Hydroids of Beaufort, North Carolina." *Bull. U.S. Bur. Fish.*, **30** (762): 339-387.
———— (1937). "Hydroids of the Pacific Coast of Canada and the United States." *Toronto Univ. Press:* 1-207, 44 pls.
———— (1938). "Hydroids of the 1934 Allan Hancock Pacific Expedition." *Rept. Hancock Pacif. Exped.*, **4** (1): 1-105, pls. 1-15.
———— (1940). "Hydroid distribution in the Pacific." *Proc. Sixth Pacif. Sci. Congr.*, **3**: 495-500.
———— (1948). "Hydroids of the Allan Hancock Pacific Expeditions since March, 1938." *Rept. Hancock Pacif. Exped.*, **4** (5): 179-335, pls. 22-42.
GRAVELY, F. H. (1927). "The Littoral Fauna of Krusadai Island in the gulf of Manaar, Hydrozoa." *Bull. Madras Govt. Mus.* (Nat. Hist.), **1** (1): 7-20, pls. II-III.
GRAY, J. E. (1868). "Notes on the Ceratelladae, a family of Keratose Sponges." *Proc. Zool. Soc. Lond.:* 575-579, figs. 1, 2.
HAND, C. & GWILLIAM, G. F. (1951). "New distributional records of two athecate hydroids, *Cordylophora lacustris* and *Candelabrum sp.*, from the West Coast of North America with revisions of their nomenclature." *J. Wash. Acad. Sci.*, **41** (6): 206-209.
HARGITT, C. W. (1924). "Hydroids of the Philippine Islands." *Philipp. J. Sci.*, **24** (4): 467-507, 6 pls.
———— (1927). "Some Hydroids of South China." *Bull. Mus. comp. Zool. Harv.*, **67**: 491-520, figs. & pls.
HASTINGS, A. B. (1930). "On the Association of a Gymnoblastic Hydroid (*Zanclea protecta*, sp. n.) with various Cheilostomatous Polyzoa from the Tropical E. Pacific." *Ann. Mag. nat. Hist.*, (10), **5**: 552-560, 6 text-figs.
———— (1932). "The Polyzoa, with a note on an associated hydroid." *Sci. Rep. Great Barrier Reef Exped.*, **4** (12): 399-458.
HINCKS, T. (1868). "A history of British Hydroid Zoophytes." *van Voorst, London:* I-LXVIII, 1-338, 67 pls.
HIRO, F. (1939). "Notes on animals found on *Macrocheira kaempferi* de Haan III Hydroids." *Annot. zool. jap.*, **18**: 167-176, text-figs.

HODGSON, M. M. (1950). "A Revision of the Tasmanian Hydroida." *Pap. roy. Soc. Tasm.*, 1949: 1-65, text-figs.

HUMMELINCK, P. W. (1936). "Hydropoliepen." *Flora en Fauna der Zuiderzee Supplement:* 41-64, 11 text-figs.

HYMAN, L. H. (1940). "The Invertebrates: Protozoa through Ctenophora." *McGraw-Hill, New York, London:* 1-726.

IWASA, M. (1934). "Revision of *Stylactis* and its allied genera, with description of *Stylactella* (Stylactis) *yerii* n.sp." *J. Fac. Sci. Hokkaido Univ.* (*Zool.*), **2**: 241-277, 30 fig., 1 map.

JARVIS, F. E. (1922). "The hydroids from the Charcos, Seychelles and other Islands and from the coasts of British East Africa and Zanzibar." *Tran. Linn. Soc. Lond.* (*Zool.*), **18**: 331-360, 6 text-figs., 2 pls.

JOHNSTON, T. HARVEY (1917). "Ecological Notes on the Littoral Fauna and Flora of Caloundra, Queensland." *Qd. Nat.*, **2** (2): 53-63.

*KIRCHENPAUER, G. H. (1864). "Neue Sertulariden aus verscheidenen Hamburgischen Sammlungen, nebst allgemeinen Bemerkungen über Lamouroux's Gattung Dynamena." *Nova Acta Leop. Carol.*, **31**.

*——————— (1872). "Uber die Hydroidenfamilie Plumularidae, einzelne Gruppen derselben und ihre Fruchtehalter. I. Aglaophenia." *Abh. naturw. Ver. Hamburg*, **5**: 1-52, pls. I-VIII.

*——————— (1876). *Idem*, "II. Plumularia und Nemertesia." *Abh. naturw. Ver. Hamburg*, **6**: 3-59, pls. I-VIII.

KIRKPATRICK, R. (1890). "Reports on the Zoological collections made in Torres Straits by Professor A. C. Haddon, 1888-1889. Hydroida and Polyzoa." *Proc. roy. Dublin Soc.* (n.s.), **6** (10): 603-626.

*KRAMP, P. L. (1932). "The Godthaab Expedition 1928, Hydroida." *Medd. Gronland*, **79** (4): 1-86, 34 fig.

——————— (1953). "Hydromedusae." *Sci. Rep. Great Barrier Reef Exped.*, **6** (4): 259-322, 2 pls.

LELOUP, E. (1930a). "Sur un hydropolype nouveau, *Thecocarpus leopoldi*, nov. sp. des Indes oxidentales néerlandaises." *Bull. Mus. Hist. nat Belg.*, **6** (1): 1-3, 1 text-fig.

——————— (1930b). "Résultats Scientifiques du Voyage aux Indes Orientales Néerlandaises . . . Coelentères Hydropolypes." *Mém. Mus. Hist nat. Belge.* (*Hors. Sér.*), **2** (3): 3-18, 2 pls.

——————— (1932a). "Une collection d'hydrophores appartenant à l'Indian Museum de Calcutta." *Rec. Indian Mus.*, **34**: 131-170, 28 figs.

——————— (1932b). "L'homologie des parties constituantes du gonosome chez Thecocarpus et Aglaophenia et la classification des Aglaopheniidae." *Bull. Mus. Hist. nat. Belg.*, **8** (1): 1-26, 2 figs.

——————— (1935). "Hydraires calyptoblastiques des Indes occidentales." *Mém. mus. Hist. nat. Belg.* (2) **2**: 1-73, 32 text-figs.

——————— (1937a). "Résultats Scientifique des croisières du Navire-école Belge 'Mercator' VI. Hydroidea, Siphonophora Ceriantharia." *Mém. Mus. Hist. nat. Belg.* (2) **9**: 91-127, text-figs.

——————— (1937b). "Hydropolypes et scyphopolypes recueillis par C. Dawydoff sur les Côtes de l'Indochine francaise." *Mém. Mus. Hist. nat. Belg.* (2), **12**: 3-73, text-figs.

——————— (1938). "Quelques hydropolypes de la Baie de Sagami, Japon." *Bull. Mus. Hist. nat. Belg.*, **14** (28): 1-22, 1 pl., text-figs.

——————— (1939). "Note sur quelque hydropolypes exotiques." *Bull. Mus. Hist. nat. Belg.*, **15** (51): 1-19, text-figs.

*LENDENFELD, R. VON (1883). "Uber coelenteraten der Südsee. IV. Mittheilung *Eucopella Campanularia* nov. gen." *Z. wiss: Zool.*, **38**: 497-583. Taf. XXVII-XXXII.

——————— (1885). "The Australian Hydromedusae." *Proc. Linn. Soc. N.S.W.* (1) **9**: 206-41; 345-53, pl. VI; 401-20, pls. VII and VIII; 467-92, pls. XII-XVII; 581-634, pls. XX-XXIX; 908-24; 984-5.

LIGHT, S. F. (1913). "The morphology of *Eudendrium griffini* sp. nov." *Philipp. J. Sci.* (D) **8**: 333-356, 2 pls.

LOOMIS, W. F. (1955). "Glutathione control of the specific feeding reactions of hydra." *Ann. N.Y. Acad. Sci.*, **62** (9): 209-228.

MILLARD, N. A. H. (1957). "The Hydrozoa of False Bay, South Africa." *Ann. S. Afr. Mus.*, **43** (4): 173-243, text-figs.

MULDER, J. F. & TREBILCOCK, R. E. (1911). "Notes on Victorian Hydroida, with descriptions of new species." *Geelong Nat.* (2), **4** (4): 115-124.

NUTTING, C. C. (1898). "Three New Species of Hydroid and one new to Britain." *Ann. Mag. nat. Hist.* (7), **1**: 362-66.

*These papers were not available to the author.

——— (1900). "American Hydroids. Pt. I. The Plumularidae." *U.S. nat. Mus. (Smithson. Inst.) Special Bull.:* 1-142, 113 fig., 34 pl.
——— (1904). "American Hydroids. Pt. II. The Sertularidae." *U.S. nat. Mus. (Smithson. Inst.) Special Bull.:* 1-152, 139 fig., 41 pl.
——— (1906). "Hydroids of the Hawaiian Islands, collected by the steamer 'Albatross' in 1902." *Bull. U.S. Fish. Comm.*, **23**: 931-959, pl. I-XIII.
——— (1927). "Report on the Hydroida collected by the United States Fisheries Steamer 'Albatross' in the Philippine Region, 1907-1910." *Bull. U.S. Nat. Mus.*, **6** (3), Bull. 100: 193-242, pls. I-VIII.

PHILBERT, M. (1936). "Etudes sur *Cladocoryne floccosa*, Rotch." *Bull. Inst. oceanogr. Monaco.*, **708**: 1-16, 8 text-figs.

*PICTET, C. (1893). "Etude sur les Hydraires de la Baie d'Amboine." *Rev. suisse Zool.*, **1**: 1-64, pls. 1-3.

RALPH, PATRICIA M. (1957). "New Zealand Thecate Hydroids. Part I. Campanulariidae and Campanulinidae." *Trans. roy Soc. N.Z.*, **84** (4): 811-854, text-figs. 1-8.

REES, W. J. (1936). "On a New Species of Hydroid *Staurocoryne filiformis* with a revision of the genus *Staurocoryne*, Rotch, 1872." *J. Mar. biol. Ass. U.K.*, **21**: 135-142.
——— (1938). "Observations on British and Norwegian Hydroids and their medusae." *J. Mar. biol. Ass. U.K.*, **23**: 1-42.
——— (1939). "A Revision of the Genus *Campanulina* van Beneden." *Ann. Mag. nat. Hist.* (11), **3**: 433-447, text-fig.

RITCHIE, J. (1907). "On Collections of the Cape Verde Islands Marine Fauna, made by Cyril Crossland, M.A. (Cantab.), B.Sc. (Lond.), F.Z.S. of St. Andrew's University, July to September 1904. The Hydroids." *Proc. Zool. Soc. Lond.:* 488-514, pls. XXIII-XXVI.
——— (1910a). "The marine Fauna of the Mergui Archipelago. The Hydroids." *Proc. Zool. Soc. Lond.:* 799-825, pls. LXXI-LXXVII.
——— (1910b). "Hydroids from Christmas Island, Indian Ocean, collected by C. W. Andrews, D.Sc., F.R.S., F.Z.S., in 1908." *Proc. Zool. Soc. Lond.:* 826-836.
——— (1910c). "The Hydroids of the Indian Museum." *Rec. Indian Mus.*, **5**: 1-30.
——— (1911). "Hydrozoa (Hydroid Zoophytes and Stylasterina) of the 'Thetis' Expedition." *Mem. Aust. Mus.*, **4**: 807-869, pls. LXXXIV-LXXXIX.

ROCH, F. (1924). "Experimentelle Untersuchungen an *Cordylophora caspia* (Pallas) (=*lacustris* Allman) über die Abhängigkeit ihrer geographischen Verbreitung und ihrer Wuchsformen von den physikalisch-chemischen Bedingungen des umgebunden Mediums." *Z. Morph. Ökol. Tiere*, **2**: 350-426.

RUSSELL, F. S. (1953). "The Medusae of the British Isles. Anthomedusae, Leptomedusae, Limnomedusae, Trachymedusae and Narcomedusae." *Cambridge Univ. Press.:* 1-530, pls. 1-35.

RUSSELL, F. S. & REES, W. J. (1936). "On Rearing the Hydroid *Zanclea implexa* (Alder) and its Medusa *Zanclea gemmosa* McCrady, with a Review of the Genus *Zanclea*." *J. Mar. biol. Ass. U.K.*, **21**: 107-130.

SPENCER, W. BALDWIN (1892). "Article II—On the structure of *Ceratella fusca* (Gray)." *Trans. roy. Soc. Vict.*, **2** (2): 8-24, pls. 2-3a.

SPLETTSTÖSSER, W. (1929). "Beiträge zur Kenntnis der Sertulariiden. *Thyroscyphus* Allm. *Cnidoscyphus* nov. gen., *Parascyphus* Ritchie." *Zool. Jb. (Syst.)*, **58**: 1-134, 94 figs.

STECHOW, E. (1913). "Hydropolypen der japanischen Ostküste Tl 2, Campanularidae, Halecidae, Lafoeidae, Campanulinidae und Sertularidae nebst Ergänzungen zu den Athecata und Plumularidae (Beiträge zur Naturgeschichte Ostasiens Herg. v. F. Doflein)." *Abh. math.-phys. Klasse K. Bayer. Akad. Wiss*, 1-162. Suppl. Bd. **3**: Abh. 2.
——— (1919). "Zur Kenntnis der Hydroidenfauna des Mittelmeeres, Amerikas und anderer Gebiete." *Zool. Jb. (Syst.)*, **42**: 1-172, 52 text-figs.
——— (1923). "Zur Kenntnis der Hydroidenfauna des Mittlemeeres, Amerikas und ander Gebiete II Teil." *Zool. Jb. (Syst.)*, **47**: 29-270.
——— (1924). "Diagnosen neuer Hydroiden aus Australien." *Zool. Anz.*, **59**: 51-69.
——— (1925). "Hydroiden von West-und Sudwest Australien nach den Sammlungen von Prof. Dr. Michaelsen und Prof. Dr. Hartmeyer." *Zool. Jb. (Syst.)*, **50**: 191-270, 17 text-figs.

STEPHENSON, W. & MCNEILL, F. (1955). "The Australian Stomatopoda (Crustacea) in the collection of the Australian Museum, with a check list and key to the known Australian species." *Rec. Aust. Mus.*, **23** (5): 239-265.

THOMPSON D'ARCY, W. (1879). "New and rare hydroids from Australia and New Zealand." *Ann. Mag. nat. Hist.* (5), **3**: 97-114, pl. XVI-XIX.

TOTTON, A. K. (1931). "Hydroida." *Brit. Mus. nat. Hist. Brit. Antarctic Exped.*, 1910, *Nat. Hist. Rep., Zool.*, **5** (5): 131-252.

TREBILCOCK, R. E. (1928). "Notes on New Zealand Hydroida." *Proc. roy. Soc. Vict.* (n.s.), **41**: 1-31, pls. I-VII.

VANNUCCI, M. (1949). "Hydrozoa do Brasil." *Bol. Fac. Filos., Ciênc. S. Paulo (Zool.)*, **14**: 219-265, 2 pls.

VERVOORT, W. (1941). "Biological results of the Snellius Expedition. XI. The Hydroida of the Snellius Expedition (Milleporidae and Stylasteridae Excluded)." *Temminckia*, **6**: 186-240, text-figs.

———— (1946). "Exotic Hydroids in the Collections of the Rijksmuseum van Natuurlijke Historie and the Zoological Museum at Amsterdam." *Zoöl. Meded.*, **26**: 287-351, text-figs.

WARREN, E. (1906). "On *Halocordyle cooperi* sp. n. from the Natal coast." *Ann. Natal Govt. Mus.*, **1** (1): 73-81, pl. IX.

———— (1908). "On a collection of Hydroids mostly from the Natal coast." *Ann. Natal Govt. Mus.*, **1** (3): 269-355, pl. XLV-XLVIII, 23 text-figs.

WELTNER, W. (1900). "Hydroiden von Amboina und Thursday Island." *Forschungsreisen in Australien und dem Malayischen Archipel.*, **5**: 588-590, Taf. XLVI.

WHITELEGGE, T. (1899). "The Hydrozoa, Scyphozoa, Actinozoa and Vermes." *Aust. Mus. Mem.*, **3**: 371-394.

MANUSCRIPTS.

BIGGS, V. A. (1951). "Identification of four species of the Family Sertulariidae." *Taxonomic Exercise (under-graduate)*.

MUNRO, I. S. R. (1940). "Studies on the Marine Invertebrate Fauna of Moreton Bay, Queensland." *Honours' Thesis.*

REIK, E. F. (1946). "Studies on the Fresh water Fauna of Queensland." *Master's Thesis.*

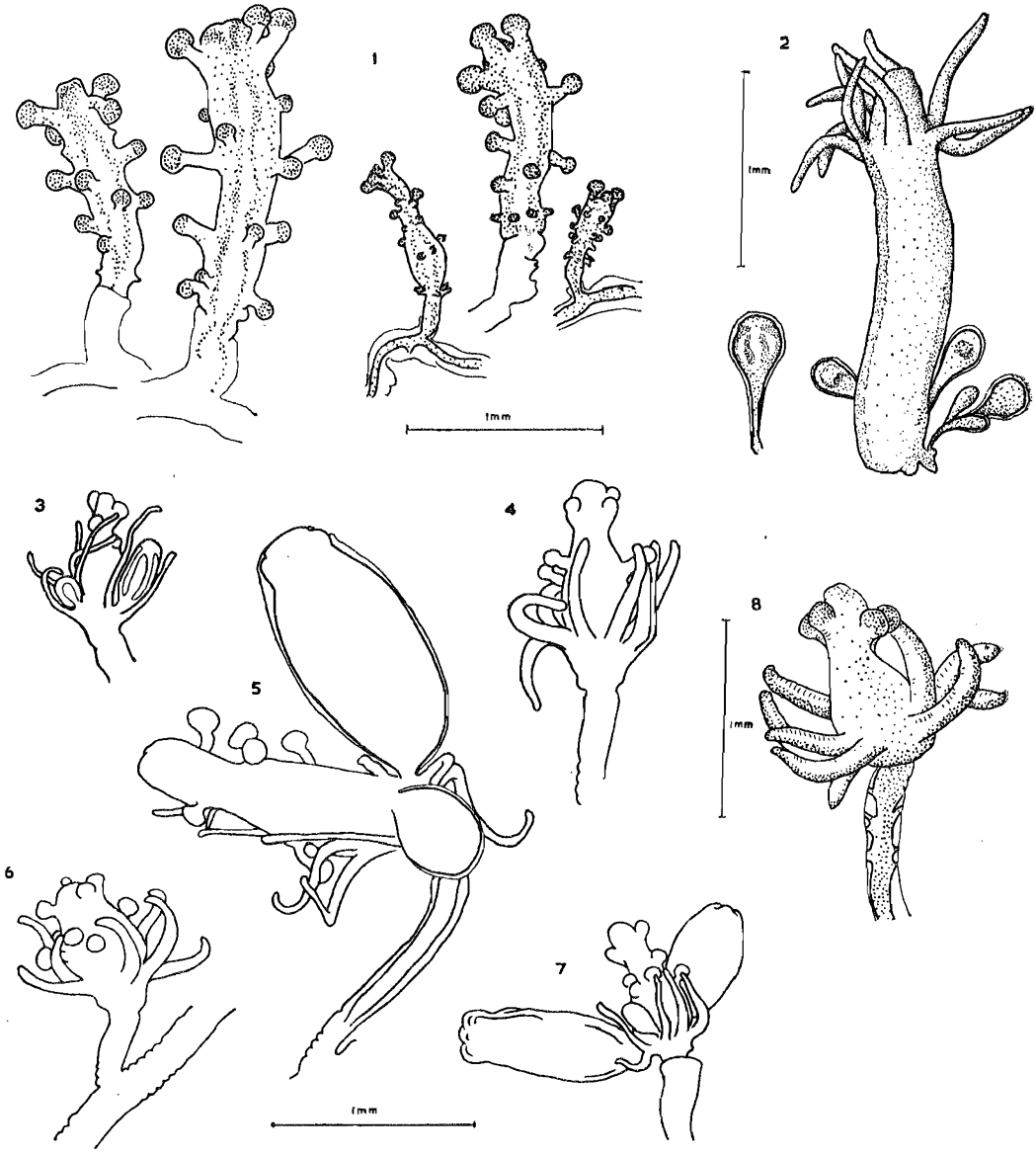


PLATE I

1. *Staurocoryne heroni* sp.n. 2. *Stylactella niotha* sp.n. with gonangia. 3-7. *Halocordyle disticha* (Goldfuss) var. *australis* (Bale) from—3, Clark I., Port Jackson (Bale); 4, Currumbin; 5, Moreton Bay (Dall); 6, Facing I., Port Curtis; 7, Moreton Bay (Tiegs). 8. *Halocordyle wilsoni* (Bale).

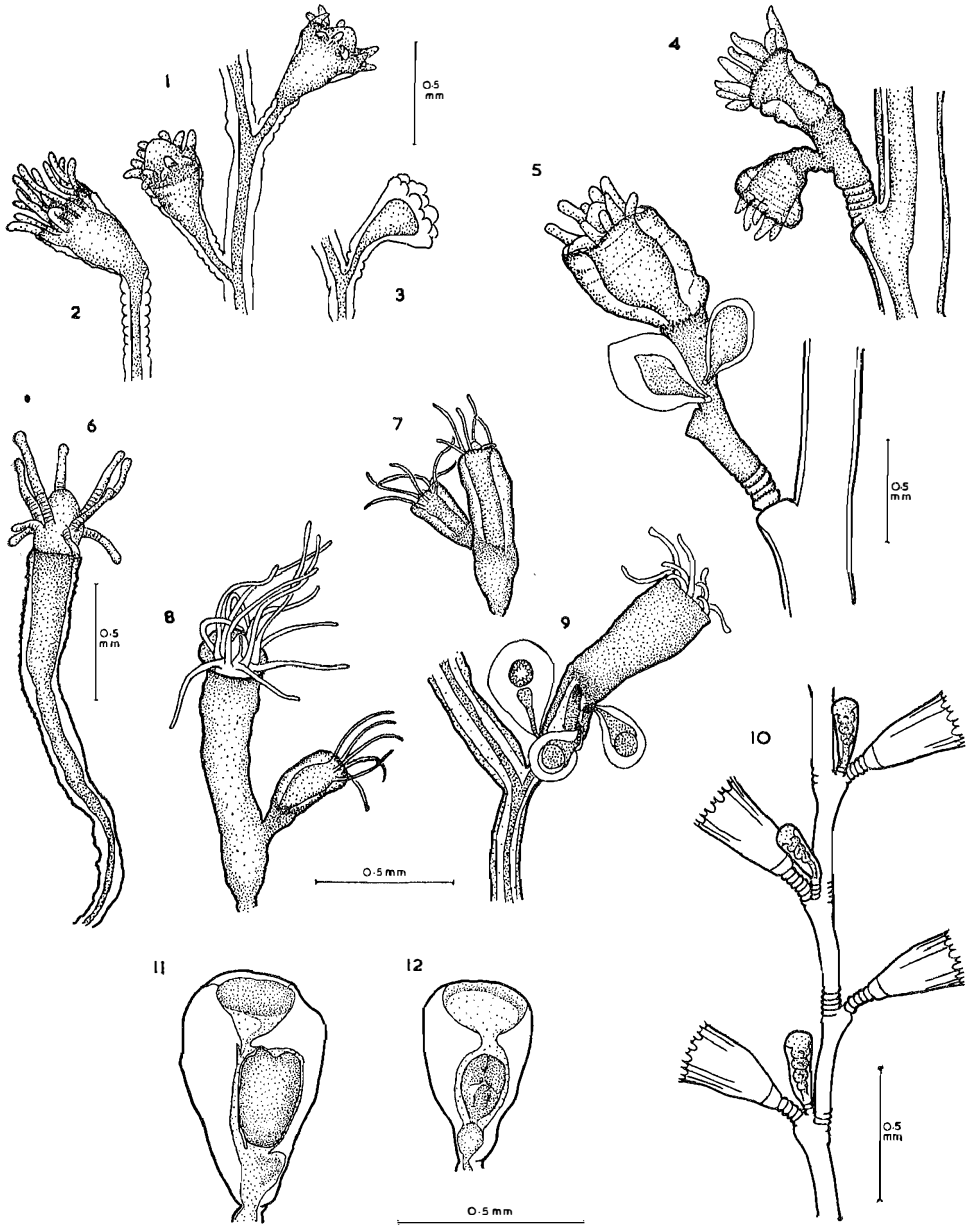


PLATE II

1-3. *Bimeria currumbinensis* sp.n. 4, 5. *Cordylophora lacustris* ? Allman; brackish water form. **6.** *Aselomaris arenosa* ? (Alder). 7-9. *Garveia clevelandensia* sp.n. 7, 8, sterile hydranths; 9, hydranth with gonangia. 10. *Obelia bicuspedata* Clark var. *picteti* Leloup. 11, 12. *Operculariella humilis* Bale—gonangia.

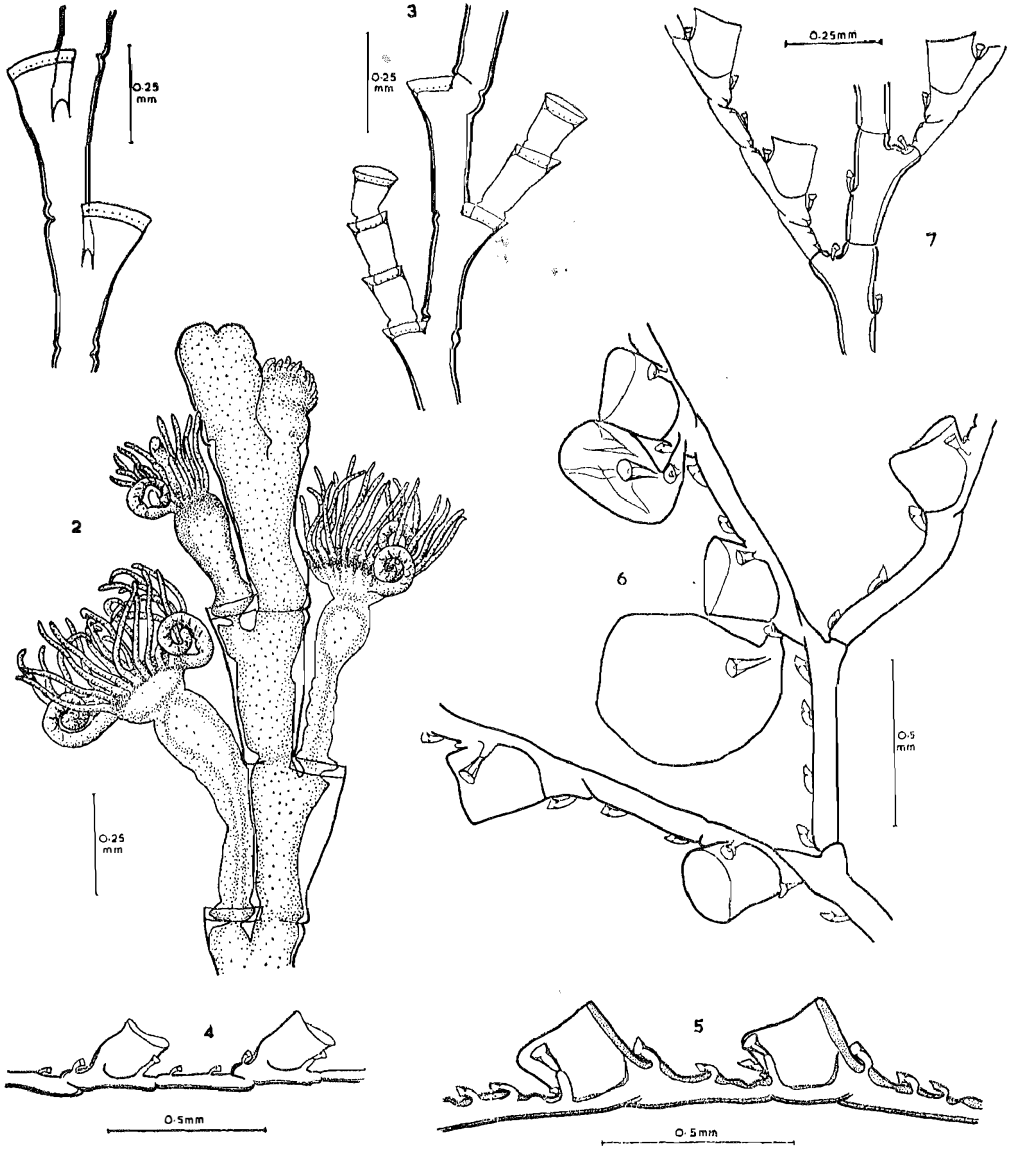


PLATE III

1, 2. *Halecium lighti* Hargitt; 1, perisarc, showing punctae on hydrotheca; 2, hydranths, showing modified tentacles. 3. *Halecium sessile* Norman. 4-5. *Antennella secundaria* (Gmelin); 4, reef form; 5, *Sargassum* form. 6. *Monostaechas quadridens* McCrady. 7. *Plumularia* sp.

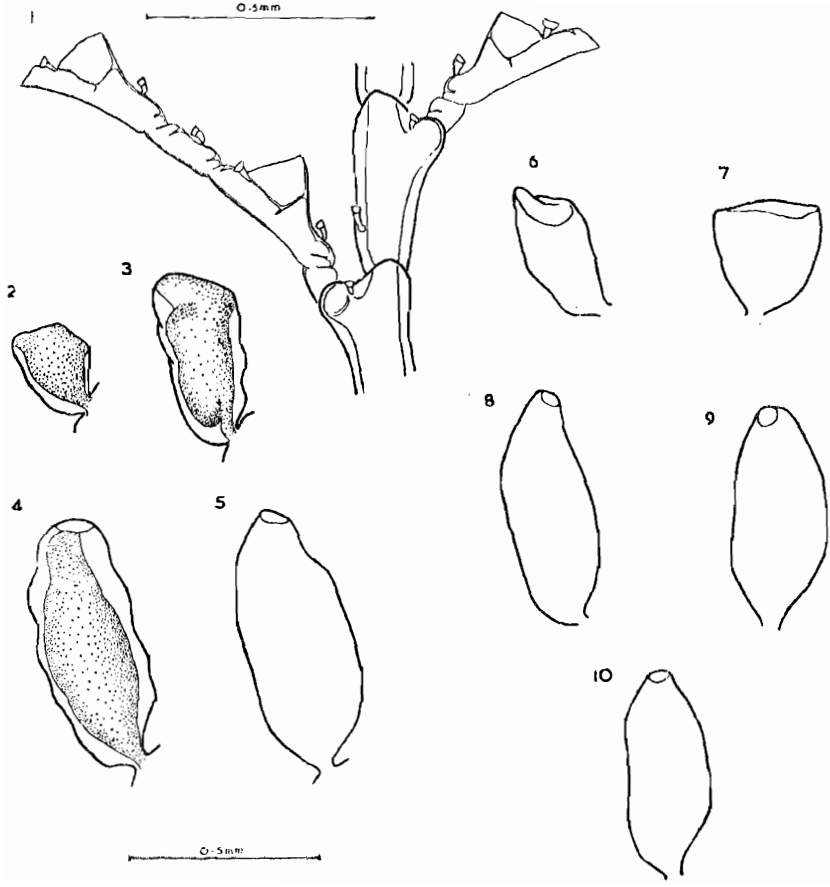


PLATE IV

1-10. *Plumularia warreni* ? Stechow. 1, Trophosome; 2-5, Gonangia at various stages of development from Currumbin; 6-10, Gonangia at various stages of development from Point Lookout.

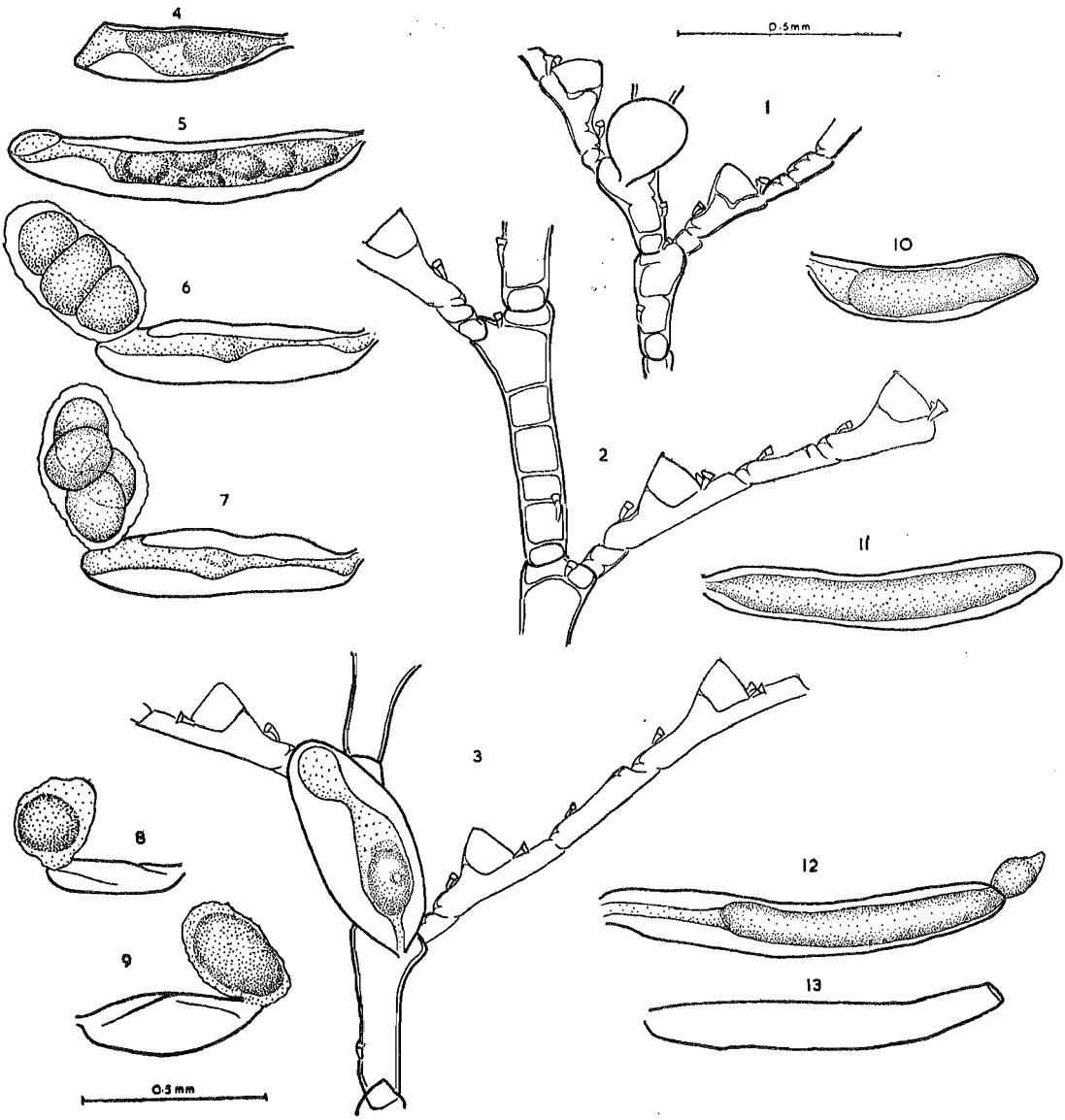


PLATE V

1-13. *Plumularia warreni* Stechow var. *pambanensis* Gravely. 1-3, Trophosome, from—1, Hamilton Island; 2, Wistari Reef; 3, North West Reef; 4-9, Female gonangia; 4, young; 5, mature; 6-7, mature with external marsupia from Heron Island; 8-9, mature with external marsupia from Caloundra; 10-13, Male gonangia at varying stages of development.

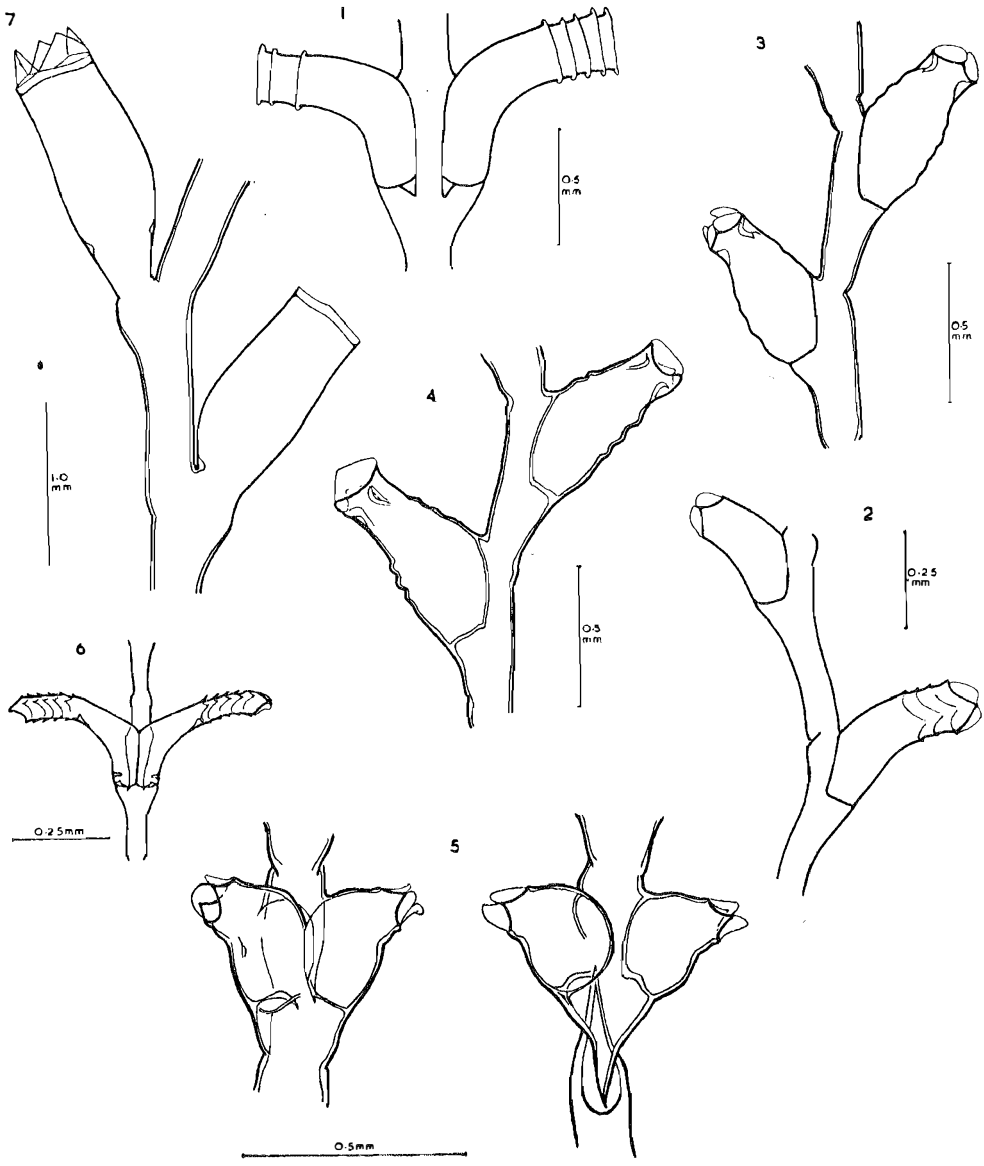


PLATE VI

1. *Synthecium longithecum* ? Totton. 2. *Sertularella minuscula* Billard, showing reduplication of the hydrothecal margin. 3. *Sertularella robusta* Coughtrey. 4. *Sertularella* sp. 5. *Sertularia borneensis* Billard, showing internal teeth. 6. *Sertularia distans* Lamouroux var. *gracilis* Hassall, showing internal teeth and reduplication of the hydrothecal margin. 7. *Thyroscyphus bedoti* Splettstösser.