

An Annotated List of the Brown Seaweeds, Phaeophyceae, of New Zealand.

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SINCE the publication of Laing's (1926, 1929) Reference Lists, which included all the then-known Phaeophyceae from our shores, many alterations in nomenclature have been made, the orders and families have been recast, and new species have been discovered. It is, therefore, considered advisable in the light of our present knowledge, to issue a new and up-to-date list.

The arrangement follows the scheme as outlined by Kylin (1933). The exact limits of the Ectocarpales are at present uncertain; there is still difference of opinion as to what families should be included or excluded, and whether certain of Kylin's orders should not be regarded as families within the Ectocarpales. Fritsch (1945), following Oltmanns (1922), includes, among others, Leathesiaceae, Chordariaceae, Punctariaceae, Asperococcaceae and Dictyosiphonaceae. Smith (1944) accepts Kylin's arrangement. If any division is to be made between the Ectocarpales (*sens. limit.*) and the Chordariales it must be an artificial one, depending on vegetative structure, commencing, perhaps, in the neighbourhood of the Myrionemataceae. Smith places this family in the Chordariales, and the writer has adopted the same arrangement.

The division of the Sphaelariales is in accord with Sauvageau (1900-14). The Cutleriales, Tilopteridales, Dictyotales, Sporocnales and Desmarestiales are represented each by a single family and are universally recognized as distinctive and coherent units.

The Chordariales are classified according to Kylin (1940), the Laminariales follow Setchell and Gardner (1925), while Oltmanns (1922) and Fritsch (1945) are the authorities for the arrangement of the Fucales. It has not seemed advisable to attempt a detailed segregation within the Punctariales for, as Kylin (1933) says: "Eine definitive Familieneinteilung ist gegenwärtig nicht möglich." In this order, following Levring (1941) *Scytothamnus* has been placed in the family Chnoosporaceae, the remaining genera being lumped into the Encoeliaceae.

The annotations include the habitat and the internal distribution of the species as far as previous lists of reference and the author's own observations permit, but the herbaria of the New Zealand museums have not been examined. In respect to the internal distribution, however, there still remain, unfortunately, many stretches of the coastline which are practically unknown. The author's own observations have been made chiefly from Whangarei to the Far North, in Taranaki, Kaikoura, Timaru, and Stewart Island. He has, however, received much material from the Chatham Islands and

various other localities. The external distributions have been taken mainly from the works of Kylin, Skottsberg, Boergesen, Levring, Setchell, Lucas, and Valerie May.

The author wishes to place on record his indebtedness to the late Professor W. A. Setchell and the late Robert M. Laing for invaluable assistance over a period of many years. He also acknowledges with gratitude the help so willingly rendered by Drs. Kylin, Boergesen, Papenfuss, Levring, Feldmann, Chapman, Skuja, Drouet, Yale Dawson, Mr. H. B. S. Womersley, Mrs. Valerie May-Jones, and Miss L. B. Moore, in assisting with difficult identifications. Thanks are also due to Mrs. F. Perrin, of Tasmania, Mrs. E. Willa, of Stewart Island, and Mr. R. Gilpin, of Chatham Islands, for supplying specimens for comparison.

[Genera and species marked with an asterisk (*) are new records for New Zealand since Laing's (1926 and 1929) lists were published, and those bearing a change in synonymy are marked with a dagger (†).]

PHAEOPHYCEAE.

Class ISOGENERATAE.

Order ECTOCARPALES.

Family ECTOCARPACEAE.

Pylaiella Bory.

Pylaiella (Bachelotia) ramellosa (Kuetz.) Kuek. (1891) var. *novae-zelandiae* Grunow (1870), Novara, p. 46; V.W.L. (1940) IV, No. 83, as *Pylaiella (Bachelotia) novae-zelandiae* (Grun.) Setch. MS.

Levring (1945), p. 8, referring to a small plant from Campbell Is., lists it as *Pylaiella littoralis* (L.) Kjellm., and states: "It agrees well with the *f. rigiduscula*, originating from Fuegia and described by Skottsbg. (1921), p. 5. It is probably the same form which Laing (1926), p. 136, called *P. ramellosa*."

Forming low, soft, hairy tufts on rock, often in pools or on *Hormosira banksii*, from half-tide to low water.

Loc. distr.: From the Far North southwards. Endemic.

**Pylaiella littoralis* (L.) Kjellm. (1890), p. 83; Kylin (1933), p. 5; V.W.L. (1947), Fasc. XII, No. 279, in preparation.

Growing on shells, stones, and other algae, or hanging in brown, feathery sheets or rope-like strands 45 cm. or more long from the twigs of dead, partly submerged drift trees, in the littoral belt.

Loc. distr.: Pihama (drift), Kaikoura, Stewart Is. (V.W.L.).

Geogr. distr.: Subcosmopolitan.

Ectocarpus Lyngb.

This large and cosmopolitan genus requires thorough revision so far as New Zealand is concerned. Little attempt has hitherto been made to segregate the various species, and but one endemic species has as yet been described. A tentative list only can be given. May (1939) questioned the specific distinction between *Ectocarpus confervoides* and *E. siliculosus*, but it is to be noted that Fritsch (1945), p. 39, fig. 4, and p. 53, fig. 5; recognizes both species as distinct.

Ectocarpus confervoides (Roth) Le Jolis (1863), p. 75; Harv. (1855), p. 222; May (1939), p. 537; Feldmann (1937), p. 104.

Yellowish-brown filamentous plants on rock, driftwood, or other algae, in pools or sublittoral.

Loc. distr.: Probably on most shores.

Geogr. distr.: N. Atlantic and Pacific Oceans, Circumpolar-subantarctic, Australia, New Zealand.

***Ectocarpus duchassaingianus** Grunow? (1867), p. 45.

On *Carpophyllum maschalocarpum*, covering old fronds with low, continuous, hairy mats.

Loc. distr.: Bay of Islands (V.W.L.).

Geogr. distr.: West and East Indian seas, S. Pacific, N.Z.

***Ectocarpus elegans** Thur. in Le Jol. (1863), p. 277; V. W. L. (1940), IV, No. 84 (= *E. sanderianus* Zan.).

On *Carpophyllum plumosum* in profuse, feathery, rather long tufts.

Loc. distr.: Bay of Islands (V.W.L.).

Geogr. distr.: Mediterranean, Scotland, N.Z.

Type loc.: Méditerranéan.

***Ectocarpus granulatus** (Smith) C. Ag. (1828), p. 45; Setch. et Gard. (1925), p. 426; V. W. L. (1947), XI, No. 254, in preparation.

Soft, brown, not lubricous tufts, 7 cm. high, on stones in shallow water or on *Cladostephus verticillatus*.

Loc. distr.: Pihama (V.W.L.).

Geogr. distr.: British and European seas, eastern and western North America, Cape of Good Hope, Juan Fernández, N.Z.

Type loc.: Brighton, England.

***Ectocarpus indicus** Sonder in Zoll. Verg. der Ind. Arch. gesam. Pft.; V. W. L. (1939), II, No. 28.

The author is inclined to retain the name of Sonder rather than earlier names applied to Atlantic and European species closely related to, if not identical with, it, namely, *E. mitchellae* Harv. and *E. virescens* Thur.

On low rock washed by sand on shelving beaches in the lowest littoral.

Loc. distr.: Bay of Islands, Ahipara (V.W.L.).

Geogr. distr.: In most warm seas.

Ectocarpus siliculosus (Dillw.) Lyngb. (1819), p. 131; Kylin (1933), p. 16.

Differs from *E. confervoides* in the possession of a terminal hair produced from its plurilocular structures which are much longer than those of the former.

Loc. distr.: Probably common throughout New Zealand.

Geogr. distr.: North Atlantic, Pacific Ocean, Circumpolar-subantarctic, N.Z.

***Ectocarpus warnocki** Kuehne (1946), p. 43.

Minute plants, 6-10 mm. high, on flat rock.

Loc. distr. and type loc.: Long Beach, Russell, Bay of Islands. Endemic.

Herponema J. Ag.

Herponema maculaeformis (J. Ag.) Laing (1929), p. 579; J. Ag. (1877), p. 4, and (1882), p. 56; V. W. L. (1946), IX, No. 203 [= *H. maculans* J. Ag.].

Small, lubricous, hairy balls on tips of *Xiphophora* fronds, very similar to, but smaller than, *Elachista australis*. Common from October on.

Loc. distr.: South Otago (Miss Finlayson); Stewart Island (Mrs. Willa, V. W. L.). Southern. Endemic.

Herponema pulvinata (Harv.) J. Ag. (1882), p. 56.

“In the receptacles of *Carpophyllum*,” Laing (1932). The author has seen no specimens.

Loc. distr.: St. Clair, Dunedin (J. C. S.). Southern. Endemic.

***Herponema** sp.; V. W. L. (1946), X, No. 230.

Large yellowish, velvety, circular patches on mature fronds of *Durvillea antarctica*, rendering them useless as mutton-bird bags.

Loc. distr.: Stewart Is. (Mrs. Willa, L. B. Moore). Endemic.

***Mikrosyphar** Kuck.

***Mikrosyphar** sp.

Forming brown, circular stains, somewhat resembling *Myrionema*, on *Pachymenia himantophora* and *Nemastoma* sp. Further investigation is desirable.

Loc. distr.: Bay of Islands, Wellington (V. W. L.).

Order SPHACELARIALES.

Family SPHACELARIACEAE.

Sphacelaria (Lyngb.) J. Ag.

***Sphacelaria furcigera** Kuetz. (1855), p. 27; V. W. L. (1946), VIII, No. 179.

Small, bristly tufts on *Cladostephus verticillatus*, *C. australis*, *Halopteris hordacea*, *Pterocladia capillacea* (rare). Fairly common locally from March to July.

Loc. Distr.: Pihama (V. W. L.); Stewart Is. (Mrs. Willa).

Geogr. distr.: Pacific and Indian Oceans, Atlantic, Britain and European Seas, Tierra del Fuego, Falklands, Australia, N.Z.

Sphacelaria implicata Sauv. (1900–14), p. 121; V. W. L. (1946), IX, No. 205.

Forming small, bristly tufts on *Blossevillea scalaris*, *B. torulosa*, and *B. retroflexa*. From December to May.

Loc. distr.: Pihama, Kaikoura (V. W. L.); Stewart Is. (Mrs. Willa); Banks Pen. (Raoul, 1843). Moderately common locally.

Geogr. distr.: Australia, N.Z.

Type loc.: Banks Pen.

Sphacelaria pulvinata H. et H. (1855), p. 221; V. W. L. (1942), VI, No. 131.

Forming dense, low, putty-like cushions on *Carpophyllum machalocarpum*, rich-brown when fresh, fawn when dry.

Loc. distr.: East Coast? (Colenso); Mangonui, Doubtless Bay, Pihama, Waitara (V. W. L.). Spasmodically throughout the year. Endemic.

Type loc.: East Coast

***Sphacelaria tribuloides** Menegh.; Sauv. (1900–14), p. 123; V. W. L. (1946), VII, No. 156.

On rock at low-water or on drifting wood in dense, bristly mats. More or less all the year round in a few situations.

Loc. distr.: Ahipara, Houhora (V. W. L.); Stewart Is. (Mrs. Willa).

Geogr. distr.: Mediterranean, Adriatic, West Indies, Red Sea, Indian Ocean, Australia, N.Z.

Type loc.: Mediterranean.

Family CLADOSTEPHACEAE.

Cladostephus C. Ag.

Cladostephus australis Kuetz.; Sauv. (1900-14), p. 603; Laing (1929), p. 576; V. W. L. (1946), VII, No. 157, as *C. antarcticus* Kuetz.

Possesses the ramified verticils as described for *C. australis*, but resembles *C. antarcticus* in the terminal verticils forming a distinct tuft.

Smaller, narrower, softer, and more delicate than the following. More or less throughout the year. Common locally.

Loc. distr.: Stewart Island (Mrs. Willa, V. W. L.).

Geogr. distr.: Australia, N.Z.

Cladostephus verticillatus (Lightf.) Lyngb. (1819), p. 102; Sauv. (1900-14), p. 601; V. W. L. (1946), VIII, No. 180.

Larger, more bristly than the above, verticillate to the tips, but not terminating in a tuft, and grows somewhat lower in the littoral fringe. More or less common locally throughout the year.

Loc. distr.: Taranaki (V. W. L.) and southwards, here and there, to Stewart Is.

Geogr. distr.: North Atlantic, Mediterranean, Black Sea, Australian Seas, N.Z.

Type loc.: Scotland.

Family STYPOCAULACEAE.

Halopteris Kuetz.

Halopteris congesta (Rke.) Sauv. (1900-14), p. 411 (= *Anisocladus congestus* Rke.); V. W. L. (1947), XI, No. 255, in preparation.

Closely resembles *H. funicularis*, but often more compact and less straggly. Fruiting bodies axillary, without paraphyses, on very short and close-set ramuli on the rachides. On rocks and stones in shallows to deep water. Common locally.

Loc. distr.: From Taranaki southwards to Stewart Is.

Geogr. distr.: S. Africa, N.Z.

Type loc.: N.Z.

Halopteris funicularis (Mont.) Sauv. (1900-14), p. 393; V. W. L. (1947), XII, No. 280, in preparation.

Often more straggly than the above. Fruiting bodies accompanied by paraphyses in the axils of the normal branchlets. On stones and rock in shallows to deep water, often associated with *H. congesta*, *H. hordacea*, and *Ptilopogon*. Common locally.

Loc. distr.: From Taranaki southwards, Stewart Is., Chathams, Auckland Is., Campbell Is.

Geogr. distr.: Circumpolar-subantarctic (in a belt from S. America to Falklands, S. Georgia, Staten Is., Aucklands); Tristan da Cunha, S. Africa, Australia, N.Z.

Halopteris hordacea (Harv.) Sauv. (1900-14), p. 426; V. W. L. (1940), III, No. 56 (= *Stypocaulon paniculatum* Kuetz.).

The commonest species of the genus in N.Z. Very shaggy; main rachides often taper to a point upwards, the individual tufts clothing them, distinct and step-like; fruiting bodies crowded in the axils, without paraphyses, in spikes, subterminal on the branches.

Loc. distr.: From the Far North to Stewart Is., Chathams and the Subantarctic Islands.

Geogr. distr.: Cape of Good Hope?, Australia, N.Z.

Halopteris novae-zelandiae Sauv. (1900-14), p. 336; V. W. L. (1946), X, No. 231.

Much finer and more delicate than any of the preceding species; pinnate but not noticeably distichous; fruiting bodies solitary, secund, on very fine terminal branchlets. Sublittoral, frequently brought up on fishing lines in Stewart Is. from 10-20 fathoms. From January to June.

Loc. distr.: Pihama in April, in drift (V. W. L.); Wellington (Laing); Stewart Is. (Mrs. Willa). Endemic.

Type loc.: Lyall Bay, Wellington (Laing).

***Halopteris** sp. closely resembling *H. brachycarpa* Sauv. (1900-14), p. 404; V. W. L. (1946), VII, No. 158, as *H. brachycarpa*.

Plant somewhat fine, pinnate; fruiting bodies clustered, borne on long, branched pedicels, in the axils of the uppermost branchlets. Sublittoral. Found only in the drift.

Loc. distr.: Taranaki (V. W. L.); Wellington (Miss L. B. Moore); Kaikoura (Dr. Allan); Stewart Is. (Mrs. Willa); Kena Beach, Nelson.

***Halopteris** sp. closely resembling *H. platycena* Sauv. (1900-14), p. 343; V. W. L. (1946), VIII, No. 181, as *H. platycena*.

Fronds stiff, distichous, feather-like; fruiting bodies solitary in axils of specialized, incurved, fertile branchlets in the axils of the normal branches. In pools and in shallows extending to deep water, either on stones on the bottom or fringing vertical faces of submerged rocks; fertile during the winter months; often disappearing from the beach for considerable periods.

Loc. distr.: Pihama, and here and there along the Taranaki coast (V. W. L.).

Ptilopogon Rke.

Ptilopogon botryocladus (H. f. et H.) Rke. (1890), p. 214; V. W. L. (1946), VII, No. 159.

Plants brittle and delicate, axis black, thread-like, terminating in a tuft; fruiting bodies solitary, in the axils of dichotomous, incurved, specialized fertile branchlets forming dense, spherical tufts on the rachides after the vegetative branchlets have fallen. From October to June. Common locally.

Loc. distr.: Pihama, Waitara (V. W. L.); Wellington (Laing); Kaka Point, S. Otago (Miss Finlayson); Stewart Is. (Mrs. Willa). Endemic.

Order TILOPTERIDALES. Family TILOPTERIDACEAE.

†**Acinetospora** Born.

†**Acinetospora pusilla** (Griff.) Born.; Fritsch (1945), p. 155
[=*Ectocarpus pusillus* Griff.]; Boergesen (1926), p. 30.

Small, *Ectocarpus*-like plants on *Polysiphonia*, *Corallina*, etc. Dr. Chapman has found specimens in salt marshes which he tentatively places in this genus. Rare.

Loc. distr.: Hawke's Bay (Colenso); Ahipara (V. W. L.).

Geogr. distr.: England, France, Adriatic Sea, Canary Is., Juan Fernandez, N.Z.

Type loc.: England.

Order CUTLERIALES.

Family CUTLERIACEAE.

**Cutleria* Grev.

**Cutleria* sp. close to *C. multifida* (Smith) Grev., but the few specimens found exhibit a good deal of polymorphism. Stewart Is. plants fertile in December.

Loc. distr.: Taiaroa Head; Lyttelton (Laing); Waikawa, near Picton (Miss Moore, Jan., 1943); Stewart Is. (Mrs. Willa, Dec., 1945).

**Aglaozonia* Zanard.

**Aglaozonia* sp.; V. W. L. (1946), VII, No. 161, as *A. reptans* Crouan.

Forming creeping incrustations of a reddish-brown colour among the prostrate juvenile fronds of *Glossophora kunthii* (from which they can be distinguished with difficulty), fringing cavities or the exposed side of vertical rocks, at low-water level, generally among sand-tube worms. This is the sporophytic generation of *Cutleria*.

Loc. distr.: Pihama, Taranaki (Miss L. B. Moore, V. W. L.), Manly, Auckland (Dr. V. J. Chapman).

Order DICTYOTALES.

Family DICTYOTACEAE.

Dictyota Lamour.

The genus in N.Z. requires re-investigation together with the introduction of unidentified and undescribed species.

Dictyota dichotoma (Huds.) Lmx. (1813), p. 58; V. W. L. (1946), VII, No. 160.

On *Carpophyllum maschalocarpum*, but may also be saxicolous.

Loc. distr.: Bay of Islands, and here and there along the coasts in more or less sheltered situations. Mostly summer.

Geogr. distr.: Almost cosmopolitan.

†var. *intricata* (Ag.) Grev. (1830), p. 58 [=var. *implexa* (Desf.) S. F. Gray]; Papenf. (1944), p. 338.

Very narrow and twisted, tangled and much branched; on rock or Corallines at low-water or in pools in sheltered positions, often in somewhat muddy localities. Spring and autumn.

Loc. distr.: North Auckland to Stewart Is.; very local.

Geogr. distr.: Probably widespread; England, Mediterranean, New Zealand.

Dictyota ocellata J. Ag. (1894), p. 68; V. W. L. (1941), V, No. 111.

A much larger and coarser plant than the preceding, but small specimens are almost identical with *D. dichotoma*. In channels and pools on semi-exposed beaches. Winter, spring, summer.

Loc. distr.: From the Far North southwards, locally common.

Geogr. distr.: Tasmania, Australia, N.Z.

Dictyota prolificans A. et E. S. Gepp (1906), p. 250.

Surface of frond covered with small, dense, and crowded hairs; the stipe is not stupose, and the holdfast consists of long, simple, thread-like fibres.

Loc. distr.: Kermadecs. Not recorded so far from the mainland.

Geogr. distr.: Australia, Kermadecs.

Type loc.: N.S.W.

***Dictyota radicans** Harv. (1859), Pl. 119; V. W. L. (1946), X, No. 233.

Plant somewhat papery, axils of branches narrow, tips often pointed and crossed. This is the only species on the New Zealand mainland in which the holdfast consists of thread-like fibres which may be very conspicuous and long.

Loc. distr.: Pihama, Taranaki (V. W. L.), in drift. Feb. and March.

Geogr. distr.: Tropical Australia, W. and S. Australia, Tongatabu, N.Z.

Type loc.: Australia.

***Dictyota** sp.; V. W. L. (1946), VIII, No. 187, as *D. papenfussii* Lindr. sp. ined.

Distinct from all other New Zealand species in having alternate branches narrower than the rachides, which are spirally twisted, and in the lower branches being basally stupose. Jan. to May.

Loc. distr.: Pihama, Taranaki (V. W. L.).

Geogr. distr.: N.S.W. (Valerie May); N.Z.

Glossophora J. Ag.

†**Glossophora kunthii** (C. Ag.) J. Ag. (1887), p. 110; Levring (1941), p. 621; V. W. L. (1939), I, No. 13 [= *G. harveyi* J. Ag. (1880), p. 111].

Easily recognized by the tongue-like processes covering the surface of large *Dictyota*-like fronds.

In pools and sublittoral at all seasons.

Loc. distr.: Abundant almost everywhere along the coasts; Stewart Is., Chathams.

Geogr. distr.: Peru, N. Chile, Juan Fernandez, N.Z.

Type loc.: Peru.

Taonia J. Ag.

Taonia australasica (Sond.) J. Ag. (1894), p. 30.

Plant fragile, wedge-shaped, concentrically striate, tips truncate and unevenly cleft downwards.

Loc. distr.: Kermadecs (Dr. Oliver) not recorded so far from the mainland.

Geogr. distr.: Australia, Kermadecs.

Type loc.: E. Australia.

***Spatoglossum** Kuetz.

***Spatoglossum** sp. nov.?; V. W. L. (1946), IX, No. 209.

The New Zealand plant does not quite agree in structure with the Australian species. This is the largest of all New Zealand *Dictyo-*

tales, measuring sometimes 60 cm. in height. It varies a great deal in form and texture according to the latitude, the season, the age of specimen, and the depth at which it grows. Juvenile plants sometimes closely resemble *Taonia*, but may readily be distinguished by their lack of transverse, concentric striae.

Loc. distr.: Motiti Is. (Miss L. M. Cranwell); Coromandel ?; Wellington (W. A. Scarfe, Miss L. B. Moore); Argyll Beach, Bluff (Mrs. O. Sanson); Stewart Is. (Mrs. Willa). Spring and summer months.

***Distromium** Levring.

***Distromium skottsbergii** Levr. (1940), p. 4.

Small, somewhat fragile *Zonaria*-like plants with rounded, fan-shaped tips distinctly concentrically striate. The only specimens the author has collected were growing among corals on a stone brought up on a fishing line from several fathoms at Brampton Reef, Sept., 1937.

Loc. distr.: Brampton Reef, Russell (V. W. L.).

Geogr. distr.: Juan Fernandez, N.Z.

Type loc.: Juan Fernandez.

†**Pocockiella** Papenf.

†**Pocockiella nigrescens** (Sond.) Papenf. (1943), p. 467 [= *Gymnosorus nigrescens* (Sond.) J. Ag].

Fan-shaped, *Zonaria*-like plant, very thick and coarse, black when dry.

Loc. distr.: Kermadec Is. (Dr. Oliver); not found on the mainland of N.Z.

Geogr. distr.: Australia, Lord Howe Is., Kermadec Is.

Type loc.: Western Australia.

†**Microzonia** J. Ag.

†**Microzonia velutina** (H. et H.) J. Ag. (1894), p. 18 [= *Zonaria velutina* H. et H. (1855), p. 218; *Spathoglossum velutinum* Kuetz. (1859), t. 51]; V. W. L. (1941), V, No. 112, and (1946), X, No. 232.

The generic name of Agardh is here reinstated as the structure differs somewhat from that of *Zonaria*, and the sporangia are borne laterally on the (sometimes branched) paraphyses.

Fronds small, velvety on the under surface. There appear to be two forms: the littoral coarser, and the sublittoral much more delicate and velvety with an extremely wide-spreading, somewhat conical, web-like holdfast. Common locally.

Loc. distr.: Ahipara (V. W. L.), otherwise missing in North Auckland; Taranaki (V. W. L.), Cook Str., and here and there along the coast of the South Island, Stewart Is., Chathams. Endemic.

Zonaria J. Ag.

†**Zonaria subarticulata** (Lmx.) Papenf. (1944), p. 339 [= *Z. turneriana* J. Ag. (1870), p. 438; *Z. interrupta* (Lmx.) Ag. (1824), p. 268]; V. W. L. (1939), I, No. 12.

This plant assumes several forms according to its habitat, some very narrow throughout with acute tips, others more foliose with flabellate tips.

Loc. distr.: Throughout N.Z. in pools or shallows, or sub-littoral; Stewart Is., Chathams. Common.

Geogr. distr.: S. Africa, Australia, Tasmania, N.Z.

Type loc.: Australia.

Zonaria sinclairii H. et H. (1845), p. 530 [= *Homoeostrichus sinclairii* (H. et H.) J. Ag.].

Although this plant has always been attributed to New Zealand, the author has seen no specimens, and doubts its presence here. The distinguishing features are the obviously filiform rachides and the conspicuously flabellate tips.

Geogr. distr.: New South Wales !, N.Z. ?

†**Neurocarpus** Webb. et Mohr.

†**Neurocarpus kermadecensis** (Cotton) Webb. et Mohr. [= *Hali-seris kermadecensis* Cotton (1912), p. 263].

Fronds flat, narrow, dichotomous, membranous, with a very distinct midrib running through all the segments, which persists below when the delicate marginal portions disappear.

Loc. distr. and type loc.: Kermadec Is. (E. M. Smith). Endemic.

Class HETEROGENERATAE.

Sub-class HAPLOSTICHINEAE.

Order CHORDARIALES.

Family MYRIONEMATACEAE.

Myrionema Grev.

Myrionema strangulans Grev. (1823), p. 40; Setch. et Gard. (1925), p. 471; V. W. L. (1946), VIII, No. 184.

Minute algae appearing as dark specks or freckles, somewhat like stains, on *Ulva*, *Gigartina apoda*, and *Enteromorpha*. Very common where *Ulva* flourishes and has become mature. Summer.

Loc. distr.: Wellington, Kaikoura (V. W. L.); Diamond Harbour (Miss R. Mason); Stewart Is. (Mrs. Willa, V. W. L.). Southern only.

Geogr. distr.: West coast of N. America, Atlantic Ocean, Mediterranean, W. Indies, Falkland Is., N.Z.

Type loc.: Appin, Scotland.

***Compsonema** Kuck.

***Compsonema** sp. nov.; V. W. L. (1946), X, No. 229, as *Hecatonema*?

Small, low, circular, or confluent mats on *Xiphophora chondrophylla*, black when submerged, brown when dry; common locally in April and May, otherwise sporadically throughout the year.

Loc. distr.: Island Bay, Wellington (V. W. L.), Bluff. (O. Sanson), Stewart Island (Mrs. Willa, V. W. L.). Endemic.

Family RALFSIACEAE.

***Ralfsia** Berk.

Numerous species, belonging to the subgenera *Strangularia* and *Euralfsia* are abundant along the coasts, but have, so far, not been systematically investigated. They appear as yellowish to dark-brown and almost black, circular or irregular, smooth, soft and lubricous, or hard, corrugated crusts on stones in the intertidal belt and beyond.

Family ELACHISTACEAE.

***Elachista** Duby.

***Elachista australis** J. Ag. (1872-90), p. 13; V. W. L. (1939), 11, No. 29.

Small, lubricous, hairy, yellowish-brown balls resembling *Herponema maculaeformis* and *Corynophlaea cystophorae*; present only on *Xiphophora chondrophylla* var. *minus*.

Loc. distr.: Bay of Islands and wherever the host plant is found. Northern only.

Geogr. distr.: Tasmania, N.Z.

Family CORYNOPHLACEAE.

Corynophlaea Kuetz.

Corynophlaea cystophorae J. Ag. (1880), p. 2; V. W. L. (1946), VIII, No. 185.

Small lubricous balls at tips of *Blossevillea retroflexa*, *B. scalaris*, and *B. torulosa* in the sublittoral fringe.

Loc. distr.: Pihama, Wellington, Kaikoura, and elsewhere in the South Island, Stewart Is. (V. W. L.); Chatham's (R. Gilpin)..

Geogr. distr.: Australia, N.Z.

Corynophlaea umbellata J. Ag. (1880), p. 21.

The author has seen no specimens, but the species may exist.

Geogr. distr.: Mediterranean, Adriatic, Australia on *Blossevillea dumosa* (Preiss).

Leathesia Gray.

Leathesia difformis (L.) Aresch. (1846), p. 376; V. W. L. (1942), VI, No. 132.

Hollow, globular, convoluted, smooth balls resembling *Colpomenia*, but honey-yellow in colour, thicker, more fleshy and brittle.

Loc. distr.: Almost everywhere along the coasts at low water.

Geogr. distr.: Alaska to California, S. Patagonia, N. Atlantic, Britain, Japan, Cape of Good Hope, Australia, Tasmania, N.Z.

Type loc.: Sweden.

***Leathesia** sp.; V. W. L. (1947), Fasc. XI, No. 256, in preparation, as *L. novae-zelandiae* Lindr. sp. ined.

Resembling olive-brown peas, epiphytic on *Gigartina atropurpurea*, etc., sublittoral, common locally during summer months.

Loc. distr.: Stewart Is. (Mrs. Willa, V. W. L.). Endemic.

Petrospongium Naegeli.

Petrospongium berkeleyi (Grev.) Naeg.; Kuetz. (1858), Vol. 8, t. 3; V. W. L. (1941), V, No. 109 [= *Leathesia berkeleyi* Grev.].

Dark brown, smooth, wrinkled, circular, carnosose crusts on rocks in the lower littoral, measuring a few to several centimetres across. New Zealand plants do not quite match the boreal.

Loc. distr.: Throughout the North Island, common on many beaches.

Geogr. distr.: Britain, Europe, N.Z.

Type loc.: Britain.

Family CHORDARIAĀEAE.

†**Myriogloia** Kuek.

†**Myriogloia chorda** (J. Ag.) Kuek.; J. Ag. (1877), p. 4; Levr. (1939), p. 44 [= *Myriocladia chorda* J. Ag.].

Shorter than the following species and inhabits rocks higher up in the littoral.

Loc. distr.: Northern N.Z. Endemic.

Type loc.: Auckland.

***Myriogloia lindauerii** Kylin (1940), p. 12; V. W. L. (1939), I, No. 6, as *M. sciurus* (Harv.) Kuek.

Plants long, lubricous, mostly simple, rat-tail-like or worm-like, clothed with very fine macroscopic radiating filaments. The Australian species, *M. sciurus*, differs very little from the N.Z. plant.

Loc. distr.: Almost anywhere along the coasts at about neap-tide level. Missing in winter. Endemic.

Type loc.: Bay of Islands.

***Papenfussiella** Kylin.

***Papenfussiella lutea** Kylin (1940), p. 19; V. W. L. (1940), IV, No. 86, as *Myriogloia lutea* Lindr. sp. ined.

Plant lubricous, much-branched, yellowish or greenish, axis terete, clothed with conspicuous filaments.

In shallows and in the sublittoral fringe. Summer. A coarser plant, which may be a new species, is found from Taranaki to Stewart Island.

Loc. distr.: Bay of Islands, North Auckland, and southwards|

Type loc.: Motu Maire, Paihia.

***Tinocladia** Kylin.

***Tinocladia novae-zelandiae** Kylin (1940), p. 34; V. W. L. (1946), IX, No. 204.

Plants brownish, very slimy and flaccid, more or less branched; radiating filaments not macroscopically visible; in shallows and in the sublittoral fringe, always submerged. Common locally. Larger and much more straggly plants from the south may represent a new species.

Loc. distr.: Auckland (L. M. Cranwell); Rangiputa, Far North, Bay of Islands, Taranaki, Wellington, Kaikoura, Stewart Island (V. W. L.). Endemic. Summer only.

Type loc.: Narrow Neck Reef, Auckland.

Chordaria C. Ag.

***Chordaria dictyosiphon** (Harv.) Kuetz.; Kylin (1940), p. 40; V. W. L. (1946), VIII, No. 183.

Blackish, very slimy, and flaccid much-branched plants growing in the lower littoral, regularly emerging at each low tide, often associated with *Hormosira*. Prefers muddy shores. Summer only.

Loc. distr.: Kaikoura (V. W. L.); Banks Pen. (Laing); Stewart Is. (Mrs. Willa, V. W. L.); Chathams (R. Gilpin).

Geogr. distr.: Australia, Tasmania, N.Z.

Type loc.: Port Fairy, Victoria, Australia.

***Caepidium** J. Ag.

***Caepidium antarcticum** J. Ag. (1880-81), p. 58; Skottsbg. (1907), p. 40, and (1921), p. 27; Kylin (1940), p. 42.

Erect fronds small, *Chordaria*-like, arising from a branched prostrate frond which also develops *Colpomenia*-like bladders.

Loc. distr.: Campbell Is., v. Levring (1945), p. 9.

Geogr. distr.: Fuegia, Falkland Is., S. Georgia, Kerguelen, Campbell Is.

Type loc.: Falkland Is.

Family SPERMATOCHNACEAE.

***Nemacystus** Derb. et Sol.

***Nemacystus novae-zelandiae** Kylin (1940), p. 48.

Plants small, lubricous, thread-like, sparsely branched, always epiphytic.

Loc. distr.: Waiheke Is., Auckland, on *Sargassum sinclairii* (L. M. Cranwell); Russell, on *Sargassum spinuligerum* (V. W. L.). Endemic.

Type loc.: Waiheke Is., Auckland.

Family SPLACHNIDIACEAE.

Splachnidium Grev.

Splachnidium rugosum (L.) Grev. (1830), p. 36; V. W. L. (1939), II, No. 30.

Greenish to brownish, lubricous, cylindrical, tubular, tapering downwards, with similar branches, all filled with gelose; from half-tide to low water. Common.

Loc. distr.: Almost everywhere along the coasts, Stewart Is., Chathams.

Geogr. distr.: S. Africa, St. Paul's Is., E. Indies, New Amsterdam, Juan Fernandez, San Felix, Australia, Tasmania, N.Z.

Type loc.: Cape of Good Hope.

Order SPOROCHNALES.

Family SPOROCHNACEAE.

Sporochnus C. Ag.

***Sporochnus moorei** Harv. (1858), Pl. 19; V. W. L. (1946), X, No. 234.

Receptacles very long-stalked, lower branches somewhat decompound.

Loc. distr.: Pihama, Taranaki (V. W. L.), in drift. Summer.

Geogr. distr.: Australia, N.Z.

Type loc.: Australia.

***Sporochnus pedunculatus** (Huds.) C. Ag. (1820), p. 149; V. W. L. (1946), VII, No. 162.

Receptacles small, shortly pedicelled, close set; branches simple, somewhat close set.

Loc. distr.: Pihama, Taranaki (V. W. L.), in drift. Summer.

Geogr. distr.: Mediterranean, Northern Atlantic, Britain, Australia, N.Z.

Type loc.: Britain.

Sporochnus stylosus H. et H. (1855), p. 216; V. W. L. (1946), IX, No. 206.

Receptacles sessile, branches simple.

Loc. distr.: Wellington, Kaikoura (V. W. L.); Stewart Is. (Mrs. Willa); Chathams (R. Gilpin). Southern. Midsummer only. Endemic.

Perithalia J. Ag.

Perithalia capillaris J. Ag. (1890), p. 5; V. W. L. (1939), II, No. 31.

Bristly, horse-hair-like plants 40 cm. high, receptacles resembling the spike of a bulrush.

Loc. distr.: Houhora, Far North, Cape Brett (V. W. L.); Thames (Colenso), and probably in most rugged bays in the warmer waters of the north. From Jan. to June. Endemic.

Type loc.: "Barriere Is." (sic), Thames (Colenso).

Carpomitra Kuetz.

†**Carpomitra costata** (Stackh.) Batt. [= *C. cabrerac* Kuetz. (1843), p. 343]; V. W. L. (1946), IX, No. 207.

This includes also *C. halseris* H. et H. (1845), p. 528; V. W. L. (1940), IV, No. 85, which cannot be regarded as a distinct species and differs only in being darker coloured, wider-fronded, coarser, with a more pronounced midrib, and in being restricted to the Far North.

Loc. distr.: Common along the shores (especially in Taranaki), Stewart Is., Chathams; throughout the year; sublittoral.

Geogr. distr.: Western Mediterranean, Adriatic, N. Atlantic, Australia, N.Z.

Order DESMARESTIALES.

Family DESMARESTIACEAE.

Desmarestia Lmx.

†**Desmarestia firma** (Ag.) Skottsbg. (1907), p. 21 [= *D. ligulata* (Turn.) Lmx. of Laing's List]; V. W. L. (1947), XI, No. 257, in preparation.

Very questionably distinct from *D. ligulata* and close to *D. herbacea* (L.) Lmx.

Fronds flat, membranous, costate, with oblong or linear-lanceolate pinnae. Decomposes quickly and turns green when taken from the water. It also discolours other specimens placed with it.

Loc. distr.: From Cook Str. southward, Stewart Is., Chathams, Auckland Is. Purely southern and sublittoral.

Geogr. distr.: Chile, Fuegia, Falklands, S. Georgia, Kerguelen, Staten Is., Victoria Land, Franklin Is., S. Africa, N.Z.

Type loc.: S. Africa.

Desmarestia willii Reinsch. (1890), p. 409; Skottsbg. (1907), p. 16.

Fronds very narrow, main rachis only slightly compressed. ecostate, ultimate branches capillary. Very close to the northern *D. viridis* Lmx.

Loc. distr.: Auckland Is.

Geogr. distr.: Subantarctic-circumpolar, Antarctic.

Type loc.: South Georgia.

Sub-class POLYSTICHINEAE.

Order PUNCTARIALES.

Family ENCOELIACEAE.

Ilea Fries.

Ilea fascia (Muell.) Fries (1835), p. 321; Setch. et Gard. (1925), p. 535 [= *Phyllitis fascia* (Muell.) Kuetz. (1843), p. 342; *Petalonia fascia* (Muell.) O. Kuntze]; V. W. L. (1941), V, No. 110.

Small, leaf-like plants growing in pools at high water or on rock at low water. Common locally.

Loc. distr.: Ahipara, Rangiputa, Scott's Point, Far North (V. W. L.); Akaroa (Laing); Chatham (R. Gilpin); and probably elsewhere here and there along the coasts. Mostly winter.

Geogr. distr.: Almost cosmopolitan—Arctic, Britain, European coasts, E. and W. coast of N. America, Japan, Subantarctic S. America, Falklands, S. Georgia, Australia, Tasmania, N.Z.

Type loc.: Denmark.

Scytosiphon (C. Ag.) Thur.

Scytosiphon lomentaria (Lyngb.) J. Ag. (1848), p. 126; Setch. et Gard. (1925), p. 531; V. W. L. (1939), I, No. 4.

Plants more or less narrow, long-cylindrical, hollow and constricted here and there. Common locally within the intertidal belt. More or less all the year round, most abundant in winter.

Loc. distr.: Scott's Point, Rangiputa, Ahipara, New Plymouth, Pihama (V. W. L.); Wellington (Laing); Bluff (Mrs. O. Sansom); Stewart Is. (Mrs. Willa); Chatham (R. Gilpin).

Geogr. distr.: Arctic, Atlantic, Britain, Mediterranean, N. Pacific, Australia, Tasmania, circumpolar-subantarctic, N.Z.

Type loc.: Denmark.

***Punctaria** Grev.

***Punctaria latifolia** Grev. (1830), p. 52. [= *Homoeostroma latifolium* (Born.) J. Ag. (1848), p. 73]; V. W. L. (1946), IX, No. 208.

Wider-leaved and larger than *Ilea fascia*, but somewhat resembling it. Golden-brown when immersed, soon becoming greenish on exposure to the air. Epiphytic on *Carpophyllum*, *Gigartina apoda*, *Marginariella urvilleana*, floating wood, etc. Summer.

Loc. distr.: Stewart Is. (Mrs. Willa, V. W. L.); Island Bay, Wellington, on *Ulva* and drift *Macrocystis* (V. W. L.).

Geogr. distr.: Atlantic, Britain, Mediterranean, Adriatic, N.E. Pacific, Australia, N.Z.

Type loc.: England.

Colpomenia Derb. et Sol.

Colpomenia sinuosa (Roth.) Derb. et Sol. (1856), p. 11; V. W. L. (1939), I, No. 5.

Pale brown or yellowish, subglobular bladders, epiphytic or saxicolous, in the less exposed situations, often in turbid water. Common.

Loc. distr.: All around the coasts at all seasons.

Geogr. distr.: In all seas except the N. Atlantic and N. polar.

Type loc.: Cadiz, Spain.

Adenocystis H. et H.

Adenocystis utricularis (Bory), Skottsbg. (1907), p. 39; V. W. L. (1946), VIII, No. 188 [= *A. lessonii* H. et H.].

Yellow-brown to dark-brown, club-shaped, hollow, water-filled sacs up to 10 cm. high and 3 cm. wide, tapering downwards to a short, narrow stipe. Common locally, gregarious on stones and on floating wood at low water neap tides. Mostly summer.

Loc. distr.: From Wellington southwards; very common at Kaikoura, Stewart Is., and the Chatham Islands; Campbell Is., Auckland Is.

Geogr. distr.: Subant. S. America, Falkland Is., Graham Land, S. Georgia, Crozet, Kerguelen, S. Orkney, S. Australia, Tasmania, New Zealand.

***Utriculidium** Skottsbg.

***Utriculidium durvillei** (H. et H.) Skottsbg. (1907), p. 36, and (1921), p. 42.

Very similar in size and habit to a long-stiped *Adenocystis utricularis* and may be a form of it bearing plurilocular sporangia.

Loc. distr.: Campbell Is., v. Levring (1944), p. 9.

Geogr. distr.: Subant. S. America, Falkland Is., S. Georgia, Crozet Is., Campbell Is.

Family CHNOOSPORACEAE.

Scytothamnus H. et H.

Scytothamnus australis H. et H. (1845), p. 531; Levring (1941), p. 627; V. W. L. (1940), IV, No. 87.

On tidal rocks on exposed coasts and in tidal harbours even where water is very turbid. Common. Stewart Is. plants are often infested during the summer months by a fungus of the genus *Macrophoma*: Feldmann (1941), p. 167.

Loc. distr.: N.Z., on practically all coasts, Stewart Is., Chatham Islands.

Geogr. distr.: Chile, Juan Fernandez, Australia, Tasmania, N.Z.

Type loc.: New Zealand.

Scytothamnus fasciculatus (H. et H.) Cotton (1915), p. 170; Skottsbg. (1907), p. 48, and (1921), p. 34; V. W. L. (1946), VIII, No. 186 [= *Dictyosiphon* (?) *fasciculatus* H. et H. (1844), p. 178].

The generic position of this plant is still uncertain. The author has made sections which match those of *Dictyosiphon*; other sections somewhat approach those of *Scytothamnus*. Rare specimens from Stewart Is. may be infested by *Macrophoma* sp.

The plant is smaller and finer than *S. australis* and of a lighter colour, but old plants are often gingery. Common in the intertidal belt at the same level as *S. australis* and below it. Very small specimens often grow on the steps and piles of wharves.

Loc. distr.: Wellington (Miss L. B. Moore); Kaikoura, Diamond Harbour, on piles (V. W. L.); Lyttelton, on wharf steps (Laing); Stewart Is. (Mrs. Willa, V. W. L.); Auckland Is., Campbell Is.

Geogr. distr.: S. Chile to Fuegia, Falklands, S. Georgia, Kerguelen, Possession Is., N.Z.

Order LAMINARIALES.
Family LESSONIAEAE.
Tribe LESSONIEAE.

Lessonia Bory.

Lessonia brevifolia J. Ag. (1894), p. 88.

Collected by Captain Fairchild. The author has seen no specimen.

Loc. distr.: Auckland Is. Endemic.

Lessonia variegata J. Ag. (1877), p. 6; Laing (1894), p. 304; V. W. L. (1947), XI, No. 260, in preparation.

Plant when young has a short, flexible stipe which soon divides; mature specimens possess an erect, rigid stipe buttressed below; leaves long, strap-like, splitting at the base.

On rocks in a fathom or two of water close inshore. Gregarious. Common locally on exposed coasts, but is missing on many stretches of coastline.

Loc. distr.: From the Farthest North southwards, Stewart Is., Chathams, Snares, Aucklands, Campbell Is.

Geogr. distr.: ? S. America, N.Z.

Tribe MACROCYSTEAE.

Macrocystis C. Ag.

Macrocystis pyrifer (L.) C. Ag. (1821), p. 47; Skottsbg. (1907), p. 80; Setch. et Gard. (1925), p. 626; Moore (1942), p. 333; V. W. L. (1946), IX, No. 210.

This includes the spherical-bladdered, small-leaved form, *M. humboldtii* (Bonpl.) C. Ag., and a *bladderless*, loose-lying form from sheltered corners in Pegasus Harbour, Stewart Island, which has not previously been recorded from New Zealand; v. Skottsbg. (1907), pp. 92-93.

Forming large submerged beds stretching off-shore along the coasts, very spotwise; missing north of Kapiti Is. on the west, and C. Kidnappers on the east.

Loc. distr.: Mostly southern, Stewart Is., Chathams, Snares, Auckland Is., Campbell Is.

Geogr. distr.: N. Pacific Ocean down to California, Galapagos Is. to Cape Horn, S. Africa, S. and E. Coast of Australia, Tasmania, circumpolar-subantarctic, N.Z.

Type loc.: "Mare Aethiopicum" (Linn.) [S. Atlantic Ocean].

Family ALARIAEAE.

Tribe ECKLONIEAE.

Ecklonia Hornemann.

†**Ecklonia biruncinata** (Bory) Papenf. (1944), p. 341 [= *E. exasperata* (Turn.) J. Ag. (1848), p. 146]; V. W. L. (1939), II, No. 32.

Surface covered with spines. Sublittoral in exposed situations or at lowest tide level, as at Takou Bay, North Auckland, where it forms a dense assemblage.

Loc. distr.: Houhora Heads, Takou Bay, North Auckland (V. W. L.).

Geogr. distr.: Chile, Cape of Good Hope, Canaries, Australia, N.Z.

Type loc.: ? Canaries (Despreaux); ? Chile (Bory), but not since rediscovered in either place.

Ecklonia brevipes J. Ag. (1877), p. 5; Delf (1937), p. 112; Lindr. (1945), p. 394; V. W. L. (1939), I, No. 7.

Very short-stiped, producing marginal adventitious hapteres. In comparatively sheltered situations in somewhat shallow water, gregarious on a sandy substratum.

Loc. distr.: Bay of Islands (V. W. L.); Stewart Is., Pegasus (Mrs. Willa). Endemic.

Type loc.: Bay of Islands.

Ecklonia radiata (C. Ag.) J. Ag. (1848), p. 146; Papenf. (1944), p. 341.

The author finds it difficult to separate the common species found in lagoons in North Auckland from the type form from Australia, and therefore retains the species.

Loc. distr.: North Auckland, along some stretches of the eastern coast and in shallows and lagoons; Chathams.

Geogr. distr.: Southern Australia, Tasmania, N.Z.

Type loc.: Sydney, N.S.W.

var. **richardiana** J. Ag. (1848), p. 147; V. W. L. (1947), XII, No. 281, in preparation.

This plant has a moderately long, solid stipe, narrow blade, and strap-like segments regularly pinnately placed, but varies a great deal from harbour to open coast and according to the amount of current.

Loc. distr.: Common, rather patchwise, along the shores at neap-tide level and below; most characteristic specimens in swift-flowing channels. Endemic.

Ecklonia flabelliformis (A. Rich.) J. Ag. (1848), p. 147, as *E. flagelliformis*.

Very large plants, deep water, with a fistulose stipe up to 120 cm. long.

Loc. distr.: Bay of Islands, Houhora Heads, Reef Point, Hokianga Heads (V. W. L.). Northern. Endemic.

Class CYCLOSPOREAE.

Order FUCALES.

Family FUCACEAE.

Xiphophora Mont.

Xiphophora chondrophylla (R. Br.) Mont. (1845), p. 200; Heine (1932), p. 557 *et seq.*; Mitchell (1941), p. 49.

var. **maxima** J. Ag. (1877), p. 7; V. W. L. (1947), XI, No. 259, in preparation

Thick, flat, leathery, dichotomous plants, from 30 cm. to 1 m. high, in pools or forming a horizontal fringe above the *Durvillea* or *Carpophyllum* associations. Conceptacles in several series.

Loc. distr.: From Hawke Bay southwards, often missing over large stretches, e.g. Taranaki, Kaikoura, and cropping up again un-

expectedly; Stewart Is., Chathams, Aucklands, Campbell Is.

Geogr. distr.: Tasmania, N.Z.

Type loc.: Port Dalrymple, Tasmania.

var. **minus** J. Ag. (1877), p. 7; V. W. L. (1940), III, No. 58.

Smaller and narrower than the above with conceptacles in a single row in centre of receptacles.

Loc. distr.: From Bay of Plenty northwards. Endemic.

†**Marginariella** Tandy.

†**Marginariella boryana** (A. Rich.) Tandy (1936), p. 210 [= *Margi-
naria boryana* (A. Rich.) Mont.]; V. W. L. (1947), XII, No. 282, in
preparation.

Plant narrow-leaved with cylindro-elliptical vesicles and recep-
tacles uniseriate on the stems; in deeper water and in more exposed
situations than the following.

Loc. distr.: From Cook Str. southwards, Stewart Is., Chathams,
Snares, Endemic.

†**Marginariella urvilleana** (A. Rich.) Tandy (1936), p. 210
[= *Margi-
naria urvilleana* A. Rich.]; V. W. L. (1947), XI, No. 258.
in preparation.

Plant very wide-leaved with spherical vesicles; sublittoral; in
some situations found growing with the preceding species, but usually
in shallower water and in sheltered corners.

Loc. distr.: Cook Str. southwards, Stewart Is., Chathams, Auck-
lands. Endemic.

Family CYSTOSEIRACEAE.

Landsburgia Harv.

Landsburgia myricaefolia J. Ag. (1870), p. 448.

Bladderless plants with terete rachides and small, narrow,
scarcely-toothed leaves which are pointed at the apex and very attenu-
ated below; fertile leaflets smaller, somewhat swollen, acuminate,
attenuated below; conceptacles distinct, scattered.

Loc. distr. and *type loc.*: Chathams (Travers). Endemic.

Landsburgia quercifolia H. et H. (1855), p. 213; V. W. L. (1942),
VI, No. 133.

A large oak-leaved plant without vesicles. Sublittoral.

Loc. distr.: Common on most open shores in both islands; Stewart
Is., Chathams, Aucklands. Endemic.

†**Blossevillea** Dec'ne.

Gardner (1913), *New Fucaceae*, p. 325, discussed the reasons for
using the term *Blossevillea* of Decaisne instead of the more generally
used *Cystophora* of J. G. Agardh.

Certain species, enumerated by Laing, have been omitted as there
is no real evidence that they have ever been found in N.Z. waters.

†**Blossevillea distenta** (J. Ag.) comb. nov. [= *Cystophora dis-
tenta* J. Ag. (1870), p. 443].

Receptacles broad, swollen, flattened, distantly and laxly arranged
in alternate series; axils rounded.

Loc. distr.: Chathams (Travers, R. Gilpin); Stewart Is. (Mrs.
Willa), but the habit of the plant is less typical.

Geogr. distr.: W. Australia, N.Z.

†**Blossevillea dumosa** (Grev.) comb. nov. [= *Cystophora dumosa* (Grev.) J. Ag. (1848), p. 241].

Ramuli narrow, short, acuminate, the plant being softer than *B. scalaris*.

Loc. distr.: From Wellington southwards.

Geogr. distr.: Australia, N.Z.

†**Blossevillea monilifera** (J. Ag.) Val. May (1939), p. 205
[= *Cystophora monilifera* J. Ag. (1848), p. 241].

The author has seen no New Zealand specimens and questions its existence here, although Laing claimed to have found it. It is a very fragile plant with minute bead-like swellings on a thread-like rachis. Occasionally, however, *B. retroflexa* assumes this appearance, but on a massive scale.

Loc. distr.: Pelorus Sound (Laing).

Geogr. distr.: Australia, Tasmania, N.Z.?

†**Blossevillea platylobium** (Mert.) Val. May (1939), p. 204
[= *Cystophora platylobium* (Mert.) J. Ag. (1848), p. 245]; V. W. L. (1947), XII, No. 283, in preparation.

The only N.Z. species of the genus with flat, leaf-like pinnules.

Loc. distr.: From Cook Strait southwards, Stewart Is.; occasionally in the drift in Taranaki, probably from Cook Strait.

Geogr. distr.: Australia, Tasmania, N.Z.

†**Blossevillea retroflexa** (Labill.) Val. May (1939), p. 204
[= *Cystophora retroflexa* (Labill.) J. Ag. (1848), p. 242]; V. W. L. (1946), VII, No. 163.

Plant large, lax, well-branched, with long, attenuate pinnules, flattened when fertile. Common; sublittoral, just below *B. torulosa*.

Loc. distr.: Throughout N.Z., Stewart Is., Chathams, Aucklands.

Geogr. distr.: Australia, Tasmania, N.Z.

†**Blossevillea scalaris** (J. Ag.) comb. nov. [= *Cystophora scalaris* J. Ag. (1870), p. 442]; V. W. L. (1946), X, No. 236.

Plants rugged, with woody, zigzagged stems and short, close-set pinnules on the tortuous branchlets; sublittoral.

Loc. distr.: From Wellington southwards, Stewart Is., Chathams.

Geogr. distr.: Australia, Tasmania, N.Z.

†**Blossevillea torulosa** (R. Br.) Dec'ne. [= *Cystophora torulosa* (R. Br.) J. Ag. (1848), p. 243]; V. W. L. (1939), I, No. 9.

Plants of moderate size, pinnules short, stout, club-shaped, often swollen into a vesicle at the apex; sometimes invading the lower littoral; present also in pools; very common.

Loc. distr.: Throughout N.Z., Stewart Is.

Geogr. distr.: Australia, Tasmania, N.Z.

Family SARGASSACEAE.

Sargassum C. Ag.

The author has removed from the list several of Laing's species which seem to be either superfluous or their presence in N.Z. waters too questionable.

Sargassum lacerifolium (Turn.) C. Ag. (1821), p. 15.

This is one of Capra's records, but is being retained to represent

the wide-leaved plants that are occasionally thrown up after storms at Bluff and Stewart Is.

Loc. distr.: Bluff, Stewart Is. (Mrs. Willa).

Geogr. distr.: Australia, Tasmania, N.Z.

Sargassum sinclairii H. et H. (1845), p. 522; V. W. L. (1939), II, No. 34.

This seems to be the common species of our coasts, inhabiting deepish water in the Far North, but in shallows, farther south; common in Taranaki in a foot of water at low tide.

Loc. distr.: All along the coasts; Stewart Is., Chathams. Endemic.

Sargassum spinuligerum Sond. (1845), p. 51; V. W. L. (1939), I, No. 11.

Plant with narrow rachis covered more or less abundantly with spines.

Loc. distr.: Bay of Islands and the Far North (V. W. L.).

Geogr. distr.: Malay Archipelago, Polynesia, Australia, N.Z.

***Sargassum undulatum** J. Ag. (1872-90), p. 67.

A coarser, wider-leaved plant than *S. sinclairii*, occupying the littoral fringe and lagoons.

Loc. distr.: Bay of Islands and North Auckland (V. W. L.).

Geogr. distr.: Australia, Tasmania, N.Z.

Sargassum verruculosum (Mert.) J. Ag. (1870), p. 12; V. W. L. (1946), X, No. 237.

Plants with almost filiform leaves arranged in fascicles alternately, but wide-spaced along the stem.

Loc. distr.: Southern: Stewart Is. (Mrs. Willa); Dusky Sound, Otago Harbour, Kaikoura (Laing).

Geogr. distr.: Australia, Tasmania, N.Z.

Carpophyllum Grev.

Carpophyllum elongatum (Dickie) A. et E. S. Gepp (1911), p. 20; V. W. L. (1939), I, No. 10.

Unlike other members of the genus this species has a narrow, oval stem. It grows on the exposed coasts over deep, rough water in very strong surge, never in sheltered situations. Northern only.

Loc. distr.: North Auckland, Kermadecs. Endemic.

†**Carpophyllum flexuosum** (Esper) Grev. (1830) [= *C. phyllanthus* (Turn.) H. et H. (1855), p. 212]; Dawson (1940), p. 283; V. W. L. (1939), II, No. 33.

Plant has wide, lobed leaves; in harbours and bays, growing on boulders in a fathom or two of water, but not on all coasts, e.g. Taranaki. In Stewart Is. it is the only species represented.

Loc. distr.: Along some coasts, Stewart Is., Chathams, Kermadecs.

Geogr. distr.: Australia, N.Z.

Carpophyllum maschalocarpum (Turn.) Grev. (1830), p. 32; V. W. L. (1942), VI, No. 134.

This is the common species growing along the coastline and is frequently found in pools in the lower littoral. It also forms one of the permanent horizontal associations of the rocky shores.

Loc. distr.: On most coasts (except Stewart Is.), Chathams, Auckland, Kermadecs. Endemic.

Carpophyllum plumosum (A. Rich.) J. Ag. (1877), p. 11; V. W. L. (1940), III, No. 59.

Stem often very wide, pinnae narrow, deeply incised.

Loc. distr.: From C. Turnagain northwards, on the East Coast; in shallow water in somewhat sheltered situations. Kermadecs. Endemic.

var. **capillifolium** A. Rich. [= *Sargassum capillifolium* A. Rich., *Fl. Nov. Zeel.*, p. 16].

This variety of A. Richard was discarded by J. Agardh, the latter stating that he had seen the various forms of Richard's growing on one plant. This the writer has also seen, the lower leaves being typical of the species, whereas the upper are characteristic of the variety. It would be advantageous to retain Richard's varietal name to embrace the filiform-leaved plants.

The lacinae are dichotomous, cut up into hair-like segments.

Loc. distr.: Gisborne, Rangitoto Channel, Auckland (Laing); Tauranga, Oakura Bay, Bay of Islands (V. W. L.). Endemic.

Family HORMOSIRACEAE.

Hormosira Endlicher.

Hormosira banksii (Turn.) Dec'ne (1842), p. 330; V. W. L. (1940), IV, No. 88.

The plant varies a great deal in form and texture according to environment. In sheltered harbours, on a level substratum in muddy situations with an admixture of fresh water, the plant develops large, soft, olive-green internodes, whereas on exposed open coasts they become smaller, hard and woody, and almost black, especially when growing at or above half-tide mark.

Loc. distr.: Almost everywhere on low-lying coasts; Stewart Is., Chathams, Kermadecs.

Geogr. distr.: Australia, Tasmania, N.Z.

Type loc.: Australia.

var. **sieberi** Harv. (1847), p. 4; V. W. L. (1939), I, No. 8, as var. *gracilis*.

Very slender compared with the above, with small, obconic internodes and somewhat long nodes. In pools up to high water mark.

Loc. distr.: The Far North (V. W. L.).

Geogr. distr.: Australia, Norfolk Is., N.Z.

Notheia Bail. et Harv.

Notheia anomala Bail. et Harv. (1862), *Bot. of U.S. Exploring Exp.*, p. 167; V. W. L. (1940), III, No. 57.

A small, laxly-branched fucoid on *Hormosira*.

Loc. distr.: Wherever *Hormosira* is present.

Geogr. distr.: Australia, ? Tasmania, N.Z.

Family DURVILLEACEAE.

Durvillea Bory.

Durvillea antarctica (Cham.) Hariot (1892) in *Notarisia* 7, p. 1432; V. W. L. (1941), V, No. 113 [= *Durvillaea utilis* Bory].

Skottsberg (1907), p. 140, having modified the previous spelling of the generic name (*D'Urvillea*) introduced the new combination,

Durvillea antarctica (Cham.) Skottsbg., but he later (1921), p. 54, reverts to the sponsorship of Hariot.

Massive plants inhabiting the surge, commonly called "Bull Kelp."

Loc. distr.: From the "East Coast" northwards, but only spot-wise: Little Barrier, Poor Knights (Miss Moore); on the west coast of the North Island from Piha to Hokianga Heads, The Bluff, Ninety Mile Beach, Far North, Scott's Point (V. W. L.); common from Cook Str. southwards, Stewart Is., Chathams, Aucklands, Campbell Is.

Geogr. distr.: Central Chile to C. Horn, Falklands, Kerguelen Land, Crozet Is., N.Z.

**Sarcophycus* Kuetz.

The writer, following Lucas (1936), p. 82, retains *Sarcophycus* as a separate genus.

**Sarcophycus* sp.; V. W. L. (1946), VIII, No. 189, as *S. potatorum* (Labill.) Kuetz.; J. Ag. (1848), p. 190.

Durvillea-like plants without the internal tissue of large, empty cells, the stipe long and proliferated with many (often 20-30) stiped branches of the same form as the main frond. This excessive branching from the stipe seems to separate it from the Australian and Tasmanian species.

Fringing rocks in exposed situations over a sandy bottom in comparatively shallow water.

Loc. distr.: Stewart Is. (Mrs. Willa, V. W. L.), Taylor's Mistake, Christchurch (Miss L. B. Moore), Kaikoura (V. W. L.). Endemic?

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