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A CATALOGUE OF THE ASCIDIAN TYPE — SPECIMENS IN THE AUSTRALIAN MUSEUM, SYDNEY

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SUMMARY

Nearly 400 type-specimens representing 137 currently-recognised species of ascidians are listed. The majority of these species have been described by Patricia Kott and W. A. Herdman, and are from Australian waters.

INTRODUCTION

The ascidian type-collection in the Australian Museum presently comprises about 384 specimens, representing 155 nominal species, of which about 137 are currently recognised. Of the 155 nominal species, 82 have been described by Kott since 1952; 57 were described by Herdman (1899), 6 by Michaelsen (1898, 1900) 3 by Herdman and Riddell (1913), 3 by Kesteven (1909) and 2 each by Hastings (1931) and Brewin (1953, 1956).

Of the currently-recognised species, 123 were collected from around the coasts of Australia, 10 are from the Antarctic and 4 from the South Atlantic. Collections from the Australian coasts appear to include types of at least 60% of the known Australian fauna as recognised by Kott (1974). However, Kott only lists distributions for 71 of the species represented in the Australian Museum collections. Of these, 55 are considered by Kott (1974) to be endemic, mostly with a temperate distribution.

Fifty-two species not discussed by Kott (1974) also appear to be endemic, occurring almost entirely in temperate waters. Kott (1974) considered the Australian fauna to comprise about 200 species of which she dealt with 180 in her paper. Considering the number of species housed in the Australian Museum not considered by Kott, and allowing for new species described since 1974, it can be projected that, at the time of writing, about 250 species of ascidian are known to occur around the coasts of Australia, of which 60% are likely to be endemic.

Without doubt Kott is the most prolific Australian ascidian taxonomist and, therefore, is responsible for most of the descriptions and synonymies. Often, however, particularly prior to 1962, Kott did not designate type-specimens in her descriptions of new species. The type specimens are known to be housed in the Australian Museum (Kott, pers. comm.). Consequently, where only one specimen is recorded and is in this collection, this specimen is considered to be the holotype (Article 73(a) I.C.Z.N.). If several specimens are recorded in the literature, but there is no clear indication that the description has been based on a single specimen, then specimens held in the museum are considered to form a syntype-series. In recent reports, specimens other than that listed by Kott as the holotype are recorded here as paratypes.

With regard to "colonial" and "compound" species, each type specimen is considered as a single entity, regardless of the number of "heads" or "lobes" it may possess, unless originally broken up and separately labelled by the author of the species.

Entries in this catalogue are arranged alphabetically by original species or subspecies name. Where the genus — or the species — name has subsequently changed, the new name is also given, together with a reference to the source of the change.

Australian Museum catalogue numbers are prefaced by the letters "U", "G", "Y" or "Z", "Y" being the current registration letter.

LIST OF SPECIES

- aclara*, *Ascidia* Kott (1952, p. 309, figs 170-171).
Y1648, HOLOTYPE, 5-6 mls E. of Lakes Entrance, Victoria, 38 m, scallop dredge, 13.8.1938, C.S.I.R.O. Fisheries.
- amorphatum*, *Aplidium* Kott (1963, p. 101).
U3918, HOLOTYPE, 38°51'S, 146°55'E, 36 m, scallop dredge, 12.8.1938, C.S.I.R.O. Fisheries.
- anomalum*, *Amaroucium* Herdman (1899, p. 76, pl. Pl III figs 11-16).
U353 (G2107), HOLOTYPE, Port Jackson, New South Wales.
= *Clavelina claviformis* (Herdman) — see Kott, 1957, p. 88.
- antarcticum*, *Sidnyum* Kott (1954, p. 176).
Y1081, HOLOTYPE, near Murray Monolith, MacRobertson Land, 13.2.1931, B.A.N.Z.A.R.E., in 163 m.
= *Aplidium circumvolutum* (Sluiter) — see Kott, 1969, p. 57.
- arenosum*, *Eudistoma* Kott (1957, p. 73, figs 3-4).
Y1284, HOLOTYPE, Mary Cove, Rottneest Island, Western Australia.
- areolata*, *Placentela* Kott (1963, p. 74, fig. 3).
U3925, HOLOTYPE, off Mackay, Queensland, 10 m, Agassiz trawl, 12.7.1939.
Y1316, PARATYPE, locality same as U3925.
- atopogaster*, *Synoicum* Kott (1963, p. 89, fig. 9).
U3927, HOLOTYPE, 28°33.5'S, 113°E, 36 m, (station 122W/48), drift-net, C.S.I.R.O. Fisheries.
- attollens*, *Polycarpa* Herdman (1899, p. 53, pl. Cyn XX, figs 6-8).
U149 (G2086), HOLOTYPE, Port Jackson, New South Wales.
Note: A label, in Herdman's handwriting, lists this specimen as originating from Moreton Bay, Queensland, but the report records Port Jackson.
- australiensis*, *Aplidium* Kott (1963, p. 111, fig. 25).
Y1398, HOLOTYPE, Shoreham, Victoria, A. Tubb 17.9.1936.
U3914, PARATYPE, Western Port, Victoria, May, 1915.
- australiensis*, *Distaplia* Brewin (1953, p. 61, fig. 3).
U3842, HOLOTYPE, south of Tasmania, 43 m.
- australiensis*, *Polyandrocarpa* Kott (1952, p. 249, figs 63-64).
Y796, SYNTYPE, Thompson's Bay, Rottneest Island, Western Australia, reef, just south of the jetty, 16.12.1948.
Y797, SYNTYPE, ? Fremantle, Western Australia, between South Mole and Fish Market jetty, on piles in the cove, 9.1.1949.
Y1570, SYNTYPE, locality same as Y796.
Y1572, SYNTYPE, Hamelin Bay, Western Australia, on jetty piles, 14.1.1949.
Y1573, SYNTYPE, Trigg's Island, Western Australia, undercut of reef on the south side, 27.12.48.
- australis*, *Euherdmania* Kott (1957, p. 103).
Y1165, SYNTYPE, Port Phillip Heads, Victoria, J. F. Wilson.
Y1317, SYNTYPE, locality same as Y1165.

- australis*, *Microcosmus* Herdman (1899, p. 23, pl. Cyn V).
G2060 (3) SYNTYPES, Port Jackson, New South Wales.
- australis*, *Pseudodistoma* Kott (1957, p. 101, fig. 32).
Y919, HOLOTYPE, Parrakeet Bay, Rottneest Island, Western Australia, 14.12.1948.
- australis*, *Stereoclavella* Herdman (1899, p. 6, pl. Clav I figs 1-11).
U132 (G2092), HOLOTYPE, Vacluse Point, Port Jackson, New South Wales.
= *Podoclavella australis* (Herdman) — see Kott, 1957, p. 93.
- barbaris*, *Styela* Kott (1952, p. 224, figs 25-26).
Y1689, HOLOTYPE, Peel Island, Moreton Bay, Queensland, south side, 3 m.,
3.11.1948.
= *S. orbicularis* Sluiter — see Kott, 1964 p. 139.
- batemani*, *Molgula* Kott (1952, p. 296).
Y789, SYNTYPE, on hull of the 'Warren & Bonthorp' or the piles of Fremantle
Harbour, Western Australia, 31.1.1949, C.S.I.R.O. Fisheries.
Y1884, SYNTYPE, locality same as Y789.
Note: The type locality of this species must be considered to be somewhat doubtful.
- baudinensis*, *Clavelina* Kott (1957, p. 87, figs. 19-21).
Y801, (3), SYNTYPES, Cape Vlamingh, Rottneest Island, Western Australia, 19.11.1951.
Y1118, (3), SYNTYPES, locality same as Y801.
- brevilaryacium*, *Aplidium* Kott (1963, p. 113, fig. 27).
U3926, HOLOTYPE, Sugarloaf Rock, Cape Naturaliste, South-western Australia,
13.1.1949.
Note: Kott's label with the specimens refers to 'paratypes', the text of her report
refers to the colonies as the 'holotype'; there are 7 colonies.
- bridgesi*, *Alloeocarpa* Michaelsen (1900, p. 41, Table 11, fig 19, Table 111, fig. 10),
U154 (G4163), SYNTYPE, Picton Island, South Falkland, Michaelsen, 26.12.92, 3 fms.
- capricornia*, *Polycarpa* Kott (1952, p. 239, fig. 50).
Y1747, HOLOTYPE, Thursday Island, Queensland, 6-9 m, 19.11.48, C.S.I.R.O.
Fisheries.
= *P. longiformis* Tokioka — see Kott 1966, p. 298.
- cataphracta*, *Cynthia* Herdman (1899, p. 31, pl Cyn XI figs 1-7).
U250 (G2066), (3), SYNTYPES, Port Jackson, New South Wales.
= *Pyura cataphracta* (Herdman) — see Kott, 1976, p. 77.
- circulum*, *Polysyncraton* Kott (1962, p. 298, figs 31-32).
Y1489, HOLOTYPE, South of Peel Island, Moreton Bay, Queensland, dredged in
5-10 m, 17.7.1961, W. Stephenson.
U3947, PARATYPE, east of Snipe Island, Moreton Bay, Queensland, 3 m, 12.6.1961.
U3948, PARATYPE, Mackay, Queensland, 10 m, 12.7.1939.
- circumvolutum*, *Synoicum* Kott, (1954, p. 169, fig. 63).
Y1363, SYNTYPE, Atlas Cove, Heard Island, Antarctic, B.A.N.Z.A.R.E.
= *Aplidium irregulare* (Herdman) — see Kott, 1969, p. 50.
- clava*, *Polyclinum* Herdman (1899, p. 77, pl. Pcl I figs. 5-8).
U154, HOLOTYPE, Port Jackson, New South Wales.

- claviforme*, *Protopolyclinum* Kott (1963, p. 72, fig. 2).
 U3920, HOLOTYPE (part) Haystack Beach, near Eden, New South Wales, 50 m,
 10.10.1948.
 U3919, HOLOTYPE (part), locality same as U3920.
- claviformis*, *Colella* Herdman (1899, p. 67, pl. Dist III figs 1-15).
 U151, (2) SYNTYPES, Port Jackson, New South Wales
 U241, SYNTYPE, locality same as U151.
 G12248, (3), SYNTYPES locality same as U151.
 = *Clavelina claviformis* (Herdman) — see Kott, 1957, p. 88.
- coelenteratus*, *Askonides* Kott (1962, p. 292, figs 25-28).
 Y1343, HOLOTYPE, West Point, Western Australia, outer reef edge, 6.12.48., P. Kott.
 Y1344, PARATYPE, Cape Vlamingh, Rottnest Island, Western Australia, 19.11.51.
 Y1345, PARATYPE, Salmon Bay Rottnest Island, Western Australia, 18.11.51.
 Y1346, PARATYPE, Green Pools, Albany, Western Australia, 16.1.1949.
 Y1347, PARATYPE, Salmon Point, Rottnest Island, Western Australia, 18.11.1951.
- columna*, *Polycitor* Kott (1954, p. 152, fig. 34).
 Y1297, SYNTYPE, Stn 113 Maria Island, Tasmania, 23.3.1931, B.A.N.Z.A.R.E.
- complicata*, *Agnesia* Kott (1954, p. 151).
 U3910, (3), SYNTYPES, Stn 42, off Enderby Land, Antarctic, 22 m, B.A.N.Z.A.R.E.
 = *Caenagnesia bocki* Arnback — see Kott, 1969, p. 96.
- coniferum*, *Aplidium* Kott (1963, p. 102).
 U3921, HOLOTYPE, near Twofold Bay, New South Wales, 57-65 m, 6.8.1947,
 C.S.I.R.O. Fisheries.
- crintistellata*, *Cynthia* Herdman (1899, p. 34, pl. Cyn IX figs 6-7; X fig. 13; XI figs 8-10).
 U273 (G2068), SYNTYPE, Port Jackson, New South Wales.
 G12230, SYNTYPE, locality same as U273.
 = *Halocynthia hispida* (Herdman) — see Kott, 1968, p. 77.
- cunninghami*, *Polyzoa* Michaelsen (1898 p. 369)
 G4158 SYNTYPE, Dungeness Point, Straits of Magellan
 = *Polyzoa opuntia* (Lesson) — see Van Name 1945 p. 236.
- cyanea*, *Colella* Herdman (1899, p. 69, pl. Plc IV figs 1-6).
 U153, SYNTYPE, Port Jackson, New South Wales.
 U346, SYNTYPE, locality same as U153.
 = *Eudistoma cyanea* (Herdman) — see Kott, 1957, p. 72.
- dagysa*, *Podoclavella* Kott (1957, p. 93, figs 26-27).
 Y1188, (10), SYNTYPES, Rottnest Island, Western Australia, shallow reef undercut,
 16.11.1951, P. Kott.
- digitatum*, *Aplidium* Kott (1975, p. 7, fig. 8).
 Y1982, PARATYPE, northern Great Australian Bight, 32°24'S, 130°30'E, 88 m, P.
 Symonds (C.S.I.R.O. prawn survey).
 Note: Holotype is in South Australian Museum, E1030.
- diminuta*, *Clavelina* Kott (1957, p. 89)
 Y1160, (3), SYNTYPES, Rottnest Island, Western Australia, reef undercut, 9.11.1951,
 P. Kott
 = *Pycnoclavella diminuta* (Kott) — see Millar, 1963, p. 715.

- directum*, *Aplidium* Kott (1973, p. 246, fig. 5)
Y1110, HOLOTYPE, off Cronulla, New South Wales, 140 m, 16.1.1965, J. MacIntyre.
Y1111, PARATYPE, locality same as Y1110.
- discooides*, *Polysyncraton* Kott (1962, p. 303).
Y1482, HOLOTYPE, Fish Hook Bay, Rottneest Island, Western Australia, November, 1951, P. Kott.
- dispar*, *Ritterella* Kott (1957, p. 102, figs 33-34).
U3897, HOLOTYPE, Caloundra, Queensland, 17.1.1911, G. Buchanan.
= *R. proliferus* (Oka) — see Kott 1973, p. 245.
- distomoides*, *Amaroucium* Herdman (1899, p. 75, pl. Pl IV figs. 7-13).
G2106, HOLOTYPE, Port Jackson, New South Wales.
= *Distaplia distomoides* (Herdman) — see Kott, 1972b, p. 170.
- draschii*, *Microcosmus* Herdman (1899, p. 20, pl Cyn III; IV).
U138 (G2079), HOLOTYPE, Port Stephens, New South Wales.
= *Herdmania momus* (Savigny) — see Kott, 1972a, p. 41.
- elongata*, *Amphicarpa* Kott (1952, p. 255, fig. 72)
Y1597, SYNTYPE, Trigg's Island, Western Australia, north end of outer reef, 29.12.1948.
Y1599, (2) SYNTYPES, locality same as Y1597.
- emilionis*, *Alloeocarpa* Michaelsen (1900, p. 35, Table II, fig. 21)
G4154, SYNTYPE, Port Stanley, Falkland Island, South Atlantic, Pene.
= *A. incrustans* (Herdman) — see Van Name 1945, p. 239.
- etheridgii*, *Styela* Herdman (1899, p. 38, pl. Cyn XIII figs 1-8).
U143 (G2071), SYNTYPE, Port Stephens, New South Wales
G12232, SYNTYPE, locality same as U143.
= *Cnemidocarpa etheridgii* (Herdman) — see Michaelsen and Hartmeyer 1927, p. 170.
- fantasiana*, *Eudistoma* Kott (1957, p. 76, figs 7-8).
Y1276, HOLOTYPE, Reevesby Island, South Australia, North end of the peninsula, December, 1926, McCoy Soc. Expedition.
= *Atapozoa fantasiana* (Kott) — see Kott 1972a, p. 7.
- flora*, *Ecteinascidia* Kott (1952, p. 316, figs 179-180).
U3903, SYNTYPE, 28°3'S, 113°E, 35 m, (station 122W/48), drift-net, C.S.I.R.O. Fisheries.
U3970, SYNTYPE, locality same as U3903.
- fragile*, *Psammaplidium* Herdman (1899, p. 86, pl. Pl VI figs 10-14).
U166 (G2110), HOLOTYPE, Port Jackson, New South Wales.
= *Aplidium arboratum* Kott — see Kott, 1963, p. 96.
Note: The new name given by Kott is unnecessary because *P. solidum* Herdman is available and should now be applied. Presumably Kott realised this later (see Kott 1974 p. 412 Table V). *P. fragile* G12250, listed by Kott 1963, p. 96 is *not* a type.
- fungiformis*, *Polycarpa* Herdman (1899, p. 43, pl. Cyn XVI figs 1-10).
U146 (G2081), HOLOTYPE, Moreton Bay, Queensland.

- fuscum*, *Polyclinum* Herdman (1899, p. 82, pl. Pcl III figs 1-6).
U156 (G2101), HOLOTYPE, Port Jackson, New South Wales.
- gelatinosa*, *Polycitor* Kott (1957, p. 83, fig. 15).
Y1310, SYNTYPE, Mary Cove, Rottneest Island, Western Australia.
= *P. giganteum* (Herdman) — see Kott 1972a, p. 9.
- giganteum*, *Polyclinum* Herdman (1899, p. 79, pl. Pcl II figs 1-2).
U163 (G2099), SYNTYPE, Port Jackson, New South Wales.
= *Polycitor giganteum* (Herdman) — see Kott, 1972a, p. 9.
- globosum*, *Eudistoma* Kott (1957, p. 72).
Y1275, SYNTYPE, Little Geordie Bay, Rottneest Island, Western Australia, 13.12.1948.
- globosum Polyclinum* Herdman (1899, p. 80, pl. Pcl II, figs 3-8).
U157 (G2100), SYNTYPE, Port Jackson, New South Wales.
G12253, (2), SYNTYPES, locality same as U157.
= *Polycitor giganteum* (Herdman) — see Kott 1972a, p. 9.
- gordiana*, *Polyzoa* Michaelsen (1900, p. 49, Table I, fig. 1).
U279 (G4153), SYNTYPE, South Falkland
= *Polyzoa opuntia* Lesson — see Van Name, 1945, p. 236.
- gregaria*, *Dendrodoa* Kesteven (1909, p. 291, pls XXV figs 1-3; XXVI fig. 7; XXVII figs 1-5).
U563, (20), SYNTYPES, Hobart, Tasmania, A. Moreton.
U562, (4), SYNTYPES, locality same as U563.
Note: 5 specimens were sent to Professor Hartmeyer.
- imperfectus*, *Askonides* Kott (1962, p. 294, fig. 29).
Y1348, HOLOTYPE, Reevesby Island, S.A., 9 m, December, 1936, McCoy Soc. Expedition.
Y1349, PARATYPE, south of Switzer reef, north Queensland, 25.9.1948.
- incerta*, *Ascidia* Herdman (1899, p. 11, pl. Asc. I figs 5-8).
U135 (G2088), HOLOTYPE, Port Jackson, New South Wales.
= *A. sydneyensis* Stimpson — see Kott, 1952, p. 310.
- incrustans*, *Psammaplidium* Herdman (1899, p. 87, pl. Pcl VI figs 1-6).
U167 (G2111), HOLOTYPE, Port Stephens, New South Wales.
= *Aplidium arboratum* Kott — see Kott, 1963, p. 96.
See note under *fragile*, *Psammaplidium*. *P. incrustans*, G12251 listed by Kott (1963, p. 96) is not a type.
- intestinalata*, *Polycarpa* Kott (1952, p. 238, figs 48-49).
Y1750, HOLOTYPE, near Point Charles, Western Australia, 24°54'S, 113°16' E, (station 139W/48), 19.9.1948, C.S.I.R.O. Fisheries.
= *P. papillata* (Sluiter) — see Kott 1972a, p. 34.
Note: Kott (1952) records the type locality for the only described specimen (i.e. holotype) as Port Jackson, N.S.W. The locality details with the specimen labelled by Kott and returned to the Australian Museum are given above.
- investum*, *Synoicum* Kott (1963, p. 90, fig. 10).
U3928, HOLOTYPE, Bargara, Hervey Bay, Queensland, intertidal, under stones, 8.5.1961.

- jacksoni*, *Aplidium* Kott (1963, p. 110).
U3917, HOLOTYPE, Port Jackson, New South Wales, dredged.
- jacksoniana*, *Polycarpa* Herdman (1899, p. 50, pl. Cyn XIX figs 7-9).
G2085, HOLOTYPE, Port Jackson, New South Wales.
- jacksonianum*, *Sarcobotrylloides* Herdman (1899, p. 102, pl. Bot. II figs 1-8).
G2121, SYNTYPE, Port Jackson, New South Wales.
=*Botrylloides nigrum* Herdman — see Kott, 1952, p. 257.
- janis*, *Molgula* Kott (1952, p. 295, fig. 158).
Y792, (2), SYNTYPES, Victor Harbour, west side of Granite Island, South Australia,
25.1.1949, C.S.I.R.O. Fisheries.
Y1891, SYNTYPE, locality same as Y792.
=*M. mollis* Herdman — see Kott 1972a, p. 45.
- jugosum*, *Leptoclinium* Herdman & Riddell (1913, p. 886, pl. xcii figs 1-6).
G12205, SYNTYPE, off Port Jackson, 70-83 m, New South Wales.
G12206, SYNTYPE, off Coogee, 83-90 m, New South Wales.
G12207, SYNTYPE, Manning Bight, 30-33 m, New South Wales.
G12208, SYNTYPE, locality same as G12207.
G12209, SYNTYPE, Cape Three Points, 41-61 m, New South Wales.
Z1288, SYNTYPE, locality same as G12209.
Z1289, SYNTYPE, locality same as G12209.
Z1290, SYNTYPE, locality same as G12209.
Z1301, SYNTYPE, locality same as G12207.
Z1305, SYNTYPE, locality same as G12207.
=*Polysyncraton chondrilla* (Sluiter) — see Kott, 1962, p. 296, for G12205 and G12207.
Specimen G12204 listed by Kott is not a specimen of *L. jugosum* but *Distoma* sp. in
the Museum Register.

=*Didemnum lambitum* (Sluiter) — see Kott, 1962, p. 317, for G12208, Z1288, Z1290,
Z1305.
- The remaining three lots Z1301, G12206 and G12209 have not been definitely assigned
to another species by Kott.
- keruelenensis*, *Molgula* Kott (1954, p. 137, figs 17-18)
Y1893, SYNTYPE, Stn 6, Kerguelen, Southern Ocean, 8-9 m, B.A.N.Z.A.R.E.
- keruelenensis*, *Leptoclinides* Kott (1954, p. 165).
Y1491, HOLOTYPE, off Kerguelen, Southern Ocean, 50 m, 22.2.1930, B.A.N.Z.A
- lapidosa*, *Goodsiria* Herdman (1899, p. 99, pl. Pst III figs 1-12).
U352 (G2116), SYNTYPE, Port Jackson, New South Wales.
=*Polyandrocampa lapidosa* (Herdman) — Kott, 1952, p. 250.
- leeuwina*, *Pyura* Kott, (1952, p. 277, figs 118-121).
Y1840, SYNTYPE, north side of Trigg's Island, Western Australia, 27.12.1948.
Y1841, (2), SYNTYPES, locality same as Y1840.
- leptum*, *Botrylloides* Herdman (1899, p. 101, pl. Bot I figs 5-13).
U361 (G2120), SYNTYPE, Port Jackson, New South Wales.
Y1584, SYNTYPE, locality same as U361.
=*Botrylloides leachii* (Savigny) — See Kott, 1952, p. 258.
- leucophaeus*, *Chorizocormus* Herdman (1899, p. 97, pl Pst II, figs 1-6).
U169 (G2119), SYNTYPE, Port Jackson, New South Wales.

- U284, SYNTYPE, locality same as U129.
Y1983, SYNTYPE, locality same as U129.
- lissus*, *Leptoclinides* Hastings (1931, p. 93, fig. 12).
G13449, HOLOTYPE, Stn xvi, Great Barrier Reef Expedition.
= *L. rufus* (Sluiter) — See Kott, 1962, p. 286.
- littoralis*, *Culeolus* Kott (1956, p. 59, figs 1-4).
Y1745, ? PARATYPES, Intertidal zone below lighthouse on Cuvier Bay, attached to *Pyura stolonifera*, Hunter Island, N.W. Tasmania, Miss I. Bennett.
Note: These specimens were accompanied by label describing them as 'co-types'. Kott reports that there is a holotype but this either has not been chosen or is not housed in The Australian Museum.
- lobata*, *Styela* Kott (1952, p. 222, figs 21-24).
Y1683, SYNTYPE, D'Entrecasteaux Channel, Tasmania.
- lobatum*, *Psammaplidium* Herdman (1899, p. 85, pl. Plc V figs 6-12).
U164 (G2109), HOLOTYPE, Port Jackson, New South Wales.
= *Aplidium arboratum* (Kott) — see Kott, 1963, p. 96.
See note under *fragile*, *Psammaplidium*.
- longata*, *Styela* Kott (1954, p. 145, figs 28-29).
Y996, HOLOTYPE, off north east coast of Tasmania, 676-128 m, B.A.N.Z.A.R.E.
- longitubis*, *Polycitor* Kott (1957, p. 80, fig. 12).
Y802, HOLOTYPE, S.W. Australia.
Note: Kott recorded the holotype as being located in the University of W.A., but the specimen is now housed in the Australian Museum.
- magnetae*, *Didemnum* (*Polysyncraton*) Hastings (1931, p. 100, fig. 15).
G13482, HOLOTYPE (part), Turtle Island, Queensland, 14 m, Great Barrier Reef Expedition.
= *Polysyncraton magnetae* Hastings — see Kott, 1957, p. 303.
Kott's reference to A.M. G13485 is incorrect.
Part of the holotype is in the British Museum (Natural History), London.
- marshi*, *Atapozoa* Brewin (1956, p. 31, fig. 1).
U3843, HOLOTYPE, Trigg's Island, Western Australia, 20.12.1951, Mrs. L. Marsh.
Y1992, PARATYPE, locality same as U3843.
- marsupiale*, *Polyclinum* Kott (1963, p. 83, fig. 6).
U3915, HOLOTYPE, intertidal zone, Hunter Island, Bass Strait, Tasmania, January, 1952, Miss I. Bennett.
U3916, PARATYPE, locality same as U3915.
- medusa*, *Molgula* Kott (1952, p. 297, fig. 161).
Y794, SYNTYPE, Oyster Harbour, Albany, Western Australia, muddy bottom, December, 1948, C.S.I.R.O. Fisheries.
Y1900, SYNTYPE, locality same as Y794.
= *M. calvata* Sluiter — see Kott, 1964, p. 144.
- meridionalis*, *Podoclavella* Herdman (1899, p. 4, pl. Clav II figs 1-4).
U133 (G2091), HOLOTYPE, Port Jackson, New South Wales.

- minuta*, *Molgula* Kott (1952, p. 295, figs 159-160).
Y793, (c. 10), SYNTYPES, north outer reef and south undercut, Trigg's Island, off Fremantle.
- molguloides*, *Cynthia* Herdman (1899, p. 27, pl. Cyn VII figs 4-10).
U275, HOLOTYPE, Port Jackson, New South Wales.
= *Pyura molguloides* (Herdman) — see Kott, 1952, p. 271.
- mollis*, *Molgula* Herdman (1899, p. 54, pl. Mol I figs 1-4).
U150 (G2052), (4), SYNTYPES, Port Jackson, New South Wales.
G12226, (12), SYNTYPES, locality same as U150.
- mortoni*, *Molgula* Kesteven (1909, p. 289, pls. XXV figs 4-5; XXVI fig. 8; XXVII figs 11-12).
U559, HOLOTYPE, Hobart Harbour, Tasmania, 7-20 m, A. Morton.
= *M. sabulosa* (Quoy and Gaimard) — see Kott, 1952, p. 298.
- multilobata*, *Leptoclinides* Kott (1954, p. 166, figs 58-60).
Y1492, ? HOLOTYPE, off Maria Island, Tasmania, 174-155 m, 23.2.1931, B.A.N.Z.A.R.E.
- multiradicata*, *Cynthia* Herdman (1899, p. 30, pl. Cyn IX figs 1-5).
U384 (G2065), HOLOTYPE, Port Stephens, New South Wales, growing on *Styela whiteleggii* (= *S. pedata* — see p. 560).
= *Pyura spinifera* (Quoy & Gaimard) — see Kott, 1972c, p. 186.
- multistigmata*, *Perophora* Kott (1952, p. 313, figs 176-177).
U3904, SYNTYPE, Dunwich, Moreton Bay, Queensland, 6.11.1947, C.S.I.R.O. Fisheries.
U3969, SYNTYPE, locality same as U3904.
- nana*, *Ascopera* Herdman (1899, p. 57, pl. Mol I figs 10-14).
U268 (G2051), SYNTYPE, Port Jackson, New South Wales.
= ? *Molgula sabulosa* (Quoy and Gaimard) — see Kott, 1952, p. 298.
- nemorus*, *Parabotryllus* Kott (1975, p. 11, figs 11-15).
Y1981, PARATYPE, Upper Spencer Gulf, South Australia, 10 m, 5.9.1973, S. Shepherd.
Note: Holotype in South Australian Museum, E1031.
- nichollsi*, *Microcosmus* Kott, (1952, p. 290, figs 149-153).
Y1800 (2), SYNTYPES, Flinders Island, Victoria, 1.5.1935, A. Tubb.
- nigrum*, *Polyclinum* Herdman (1899, p. 84, pl. Pcl I figs 13-16).
U354, HOLOTYPE, Vaucluse Point, Port Jackson, New South Wales.
- opaca*, *Adagesia* Kott (1963a, p. 76).
U3952, HOLOTYPE, ½ mile S.E. of Red Beacon, Toorbul Point, Moreton Bay, Queensland, 29.10.1962, W. Stephenson.
- opacum*, *Aplidium* Kott (1963, p. 108, figs 21-22).
U3929, HOLOTYPE, Balnarring Beach, Victoria, 22.8.1936, A. Tubb.
- orbiculum*, *Polysyncraton* Kott (1962, p. 300, figs 34-35).
Y1486, HOLOTYPE, Mary Cove, Rottneest Island, Western Australia, P. Kott.
Y1479, PARATYPE, Salmon Bay, Inner Pool, Rottneest Island, W.A., January 1945, 18.11.51.

- Y1480, PARATYPE, Cape Vlamingh, Rottneest Island, W.A., 19.11.51.
 Y1483, PARATYPE, Fish Hook Bay, Rottneest Island, W.A.
 Y1484, PARATYPE, Port Noarlunga, South Australia, January, 1949.
 Y1485, PARATYPE, Christie Beach, Port Noarlunga, S.A., February, 1948.
 Y1487, PARATYPE, Rottneest Island, W.A.

- ordinatum*, *Psammaplidium* Herdman & Riddell (1913, p. 885, pl. xci figs 6-12).
 G12216, SYNTYPE, off Manning River, New South Wales, 39 m.
 = *Aplidium ordinatum* (Herdman & Riddell) — see Kott, 1963, p. 99.
- paessleri*, *Styela* Michaelsen (1898, p. 368)
 G4159 (3), SYNTYPES, Port Stanley, Falkland Islands, South Atlantic Ocean, Paessler.
- pannosum*, *Sarcobotrylloides* Herdman (1899, p. 105, pl. Bot III figs 1-5).
 G2123, SYNTYPE, Port Stephens, New South Wales.
 = *Botrylloides nigrum* Herdman — see Kott, 1952, p. 257.
- papillata*, *Styela* Kott (1954, p. 143, fig. 28).
 Y1701, SYNTYPE, off Kempland (stn 34), B.A.N.Z.A.R.E., 602 m.
 Y1702, SYNTYPE, off MacRobertson land (stn 30), B.A.N.Z.A.R.E., 456 m.
 = *S. nordenskjoldi* Michaelsen — see Kott, 1969, p. 112.
- parvum*, *Aplidium* Kott (1963, p. 112, fig. 26).
 Y1418, SYNTYPE, San Remo, Victoria, 3.6m, 18.10.36, A. Tubb, McCoy Soc.
- parvispinatus*, *Pyura australis* Kott (1952 p. 268 figs 97, 98).
 Y1832, HOLOTYPE, Robb's Jetty, Fremantle, Western Australia.
 = *P. australis* (Quoy and Gaimard) — see Kott, 1972c, p. 186.
- pavementis*, *Styela* Kott (1952, p. 226, figs 30-31).
 Y1696, HOLOTYPE, Thompson's Bay, Rottneest Island, Western Australia, piles of jetty, 16.12.1948, C.S.I.R.O. Fisheries.
- pedunculatum*, *Psammaplidium* Herdman (1899, p. 88, pl. Pl VI figs 7-9).
 U281 (G2112), SYNTYPE, ? Port Jackson, New South Wales.
 = *Ritterella herdmania* Kott — see Kott, 1957, p. 102.
 Note: Kott's species name is invalid as a replacement for Herdman's species name, since Tokioka's species name is the junior homonym, if the two species are congeneric as Kott maintains.
- personata*, *Styela* Herdman (1899, p. 41, pl. Cyn XV figs 1-7).
 U144 (G2074) (3), SYNTYPES, Port Jackson, New South Wales.
 = *Cnemidocarpa etheridgii* (Herdman) — see Kott, 1972a, p. 31.
- phallusioides*, *Ascidia* Herdman (1899, p. 12, pl. Asc II).
 U136 (G2089), SYNTYPE, Port Jackson, New South Wales.
 U252, SYNTYPE, locality same as U136.
 U235 (2), SYNTYPES, locality same as U136.
 U259 (G2090), SYNTYPE, locality same as U136.
 = *Phallusia depressiuscula* Heller — see Kott 1966a, p. 293.
- pinguis*, *Styela* Herdman (1899, p. 37, pl. Cyn XII figs 1-10).
 U141 (G2070) (2), SYNTYPES, Port Jackson, New South Wales.
 = *S. plicata* (Lesueur) — see Kott, 1952, p. 216.

- plana*, *Monoandrocarpa* Kott (1973 p. 250, figs 6, 7).
Y852 HOLOTYPE, off Cronulla, New South Wales, 160-180 m, 16.6.65, collected J. MacIntyre.
Y853, (3), PARATYPES, locality same as Y852.
- plana*, *Polycarpa aurata* Herdman (1899, p. 51, pl. Cyn XX figs 1-5).
U256 (G2077), HOLOTYPE, Port Jackson, New South Wales.
- plicata*, *Ascidia* Kott (1954, p. 150, fig. 31)
Y1662 (12), SYNTYPES, off Kerguelen (stn 59), 47m B.A.N.Z.A.R.E. 22.2.30.
= *A. translucida* Herdman — see Kott, 1969, p. 93.
- plicata*, *Colella* Herdman (1899, p. 62, pl. Dis II figs 1-15).
U152 (10), SYNTYPES, Port Jackson, New South Wales.
U299-U317 (18), SYNTYPES, locality same as U152.
= *Sycozoa cerebriformis* (Quoy and Gaimard) — see Brewin, 1953, p. 58.
- plicata*, *Pyura* Kott (1952, p. 278, fig. 122).
Y1856, HOLOTYPE, Hamelin Bay, Western Australia, on jetty piles, 14.1.1949.
- protectans*, *Amaroucium* Herdman (1899, p. 73, pl. Pcl III figs 7-10).
U160 (G2105), HOLOTYPE, Port Jackson, New South Wales.
= *Aplidium protectans* (Herdman) — see Kott, 1963, p. 102.
- prunum*, *Polyclinum* Herdman (1899, p. 83, pl. Pcl IV figs 14-16).
U159 (G2102), HOLOTYPE, Port Jackson, New South Wales.
= *Syonicum prunum* (Herdman) — see Kott, 1963, p. 87.
- pseudobaudinensis*, *Oxycorynia* Kott (1976, p. 54, fig. 1).
Y113, HOLOTYPE, Laverton Bay, Victoria.
Y1112, PARATYPE, Rottnest Island, Western Australia.
Y1122, PARATYPE, Balnarring Beach, Victoria.
Note: Both generic and specific names appear to be incorrectly spelt by Kott (*Oxycotinia pseudobaudiensis*) at the heading of the description of this species, which is herein treated as a *lapsus calami*. (Art 32a (ii), I.C.Z.N., 1961).
- pseudobesum*, *Aplidium* Kott (1963, p. 101).
Y1292, HOLOTYPE, Tathra, near Green Cape, New South Wales, 95 m, 14.10.1938, C.S.I.R.O.
U3924, PARATYPE, Eden, New South Wales, 50 m, 11.10.1948.
U3922, PARATYPE, locality same as U3924.
- pseudodiplosoma*, *Didemnum* Kott (1962, p. 321, fig. 47).
Y1527, HOLOTYPE, Port Noarlunga, South Australia, on jetty, January, 1949, P. Kott.
Y1526, PARATYPE, locality same as Y1527.
- punctans*, *Sidnyum* Kott 1954, p. 177.
Y918, HOLOTYPE, Commonwealth Bay, B.A.N.Z.A.R.E.
= *Aplidium circumvolutum* (Sluiter) — see Kott, 1969, p. 57.
- purpureum*, *Sarcobotrylloides* Herdman (1899, p. 104, pl. Bot III figs 6-10).
U171 (G2122), SYNTYPE, Port Jackson, New South Wales.
= *Botrylloides magnicoecum* Hartmeyer — see Michaelsen, 1922, p. 480.
- radiatum*, *Sidnyum* Kott (1954, p. 176).
Y1078, HOLOTYPE, Royal Sound, Kerguelen, B.A.N.Z.A.R.E., 2.3.1930.
= *Aplidium globosum* (Herdman) — see Kott, 1969, p. 55.

- ramificata*, *Styela* Kott (1952, p. 214, figs 3-5).
Y1691, HOLOTYPE, south side of Peel Island, Moreton Bay, Queensland, 3.11.1948.
- ramsayi*, *Microcosmus* Herdman (1899, p. 25, pl. Cyn VI figs 1-5).
G2061 (12), SYNTYPES, Port Jackson, New South Wales.
= *M. australis* Herdman — see Millar, 1963, p. 741.
- rectangularis*, *Styela* Kott (1952, p. 224, figs 27-29).
Y1700, SYNTYPE, Fremantle, Western Australia, collected from either on jetty piles, traffic jetty or hull of "Bonthorp", 9.1.1949.
Y783, SYNTYPE, same locality as Y1700.
- rotnesti*, *Didemnum* Kott (1962, p. 322, fig. 49).
Y1515, HOLOTYPE, Mary Cove, Rottnest Island, Western Australia, reef undercut, 1.11.1951, P. Kott.
Y1523, PARATYPE, off Maria Island, Tasmania (stn 113) B.A.N.Z.A.R.E.
- rotundatum*, *Amaroucium* Herdman (1899, p. 71, pl. Pcl I figs 1-4).
U162 (G2104), HOLOTYPE, Port Jackson, New South Wales.
= *Aplidium rotundatum* (Herdman) — see Kott, 1963, p. 92 (in Key).
- rubricollum*, *Aplidium* Kott (1963, p. 103, fig. 14).
Y1417, HOLOTYPE, Reevesby Is., South Australia, December, 1936.
Y1403, PARATYPE, Thompson's Bay, Rottnest Island, Western Australia, 18.12.48.
Y1415, PARATYPE, Balnarring Beach, Vic. 27.7.1936, A. Tubb.
- sacciformis*, *Polycarpa* Herdman (1899, p.48, pl. Cyn XIX figs 1-4).
U249 (G2084), HOLOTYPE, Port Jackson, New South Wales.
- sluiteri*, *Polycarpa* Herdman (1899, p. 46, pl. Cyn IV fig. 1 p1, Cyn XVII figs 6-9).
U254 (G2083), HOLOTYPE, Port Jackson, New South Wales.
= *P. tinctor* (Quoy and Gaimard) — see Kott, 1964, p. 134.
Note: specimen is attached to *Ascidia phallusioides* (U252); syntype, *Molgula forbesii* (U253) and *M. draschii* (U255).
- solanoides*, *Cynthia* Herdman (1899, p. 29, pl. Cyn VIII).
U360 (G2164), HOLOTYPE, Port Jackson, New South Wales.
? = *Microcosmus australis* (Herdman) — see Kott, 1976, p. 85.
- solidum*, *Psammaplidium* Herdman (1899, p. 85, pl. Pcl VI figs 1-5).
U165 (G2108), HOLOTYPE, Port Jackson, New South Wales.
= *Aplidium arboratum* Kott — see Kott, 1963, p. 96.
See note under *fragile*, *Psammaplidium*.
- spiculatum*, *Trididemnum* Kott (1962, p. 281, figs 12-13).
Y1626, HOLOTYPE, Thompson's Bay, Rottnest Island, Western Australia, off *Styela etheridgii*, (= *Cnemidocarpa etheridgii* — see p. 551). P. Kott, 8.12.1948.
Y1619, PARATYPE, east end of Wreck Bay, Tasmania, on rocks, 29.3.1939.
Y1624, PARATYPE, locality same as Y1619.
Y1627, PARATYPE, Heron Island, Queensland, May, 1961.
Y1628, PARATYPE, Parrakeet Bay, Rottnest Island, Western Australia, from reef undercut. 14.12.1948.
Y1629, PARATYPE, Outer Harbour, South Australia, 27.1.1949.
Y1630 PARATYPE, Point Peron, Western Australia, outer edge of reef, 6.12.1949.

- Y1631, PARATYPE, Thompson's Bay, Rottnest Island, Western Australia, January, 1949.
Y1632, PARATYPE, Basin, Rottnest Island, Western Australia, reef undercut, 15.11.1951.
- spinifera*, *Cynthia* Herdman (1899, p. 32, pl. Cyn X figs 1-12).
G2067, HOLOTYPE, Port Jackson, New South Wales.
= *Microcosmus spiniferus* (Herdman) — see Kott, 1952, p. 286.
- spiralis*, *Molgula* Kott (1954, p. 134).
Y1921, HOLOTYPE, Enderby Land (stn 41), B.A.N.Z.A.R.E.
= *M. malvinensis* Arnback — see Kott, 1969, p. 149.
- stephenensis*, *Polycarpa* Herdman (1899, p. 45, pl. Cyn XVII figs 1-5).
U148 (G2082), HOLOTYPE, Port Stephens, New South Wales.
= *P. pedunculata* Heller — see Kott, 1972a, p. 35.
- stolonifera*, *Microcosmus* Kott (1952, p. 291, figs 154-156).
Y1798, SYNTYPE, Coast of King Island, Bass Strait, 3.12.1948.
- stolonifera*, *Styela* Herdman (1899, p. 41, pl. Cyn XV figs 8-11).
U145 (G2075), HOLOTYPE, Moreton Bay, Queensland.
- subarborensis*, *Polycitor* Kott (1957, p. 81, fig. 14).
Y1298, HOLOTYPE, Ulladulla, New South Wales, 81 m, 4.1.1945, D. Rochford.
- subfuscus*, *Chorizocormus* Herdman (1899, p. 96, pl. Pst I figs 8-11).
U272 (G2118), HOLOTYPE, Port Jackson, New South Wales.
- sydneyensis*, *Chorizocormus* Herdman (1899, p. 95, pl. Pst I figs 1-7).
U261, SYNTYPE, Port Jackson, New South Wales.
U257, SYNTYPE, locality same as U261.
- sydneyensis*, *Molgula* Herdman (1899, p. 55, pl. Mol I figs 5-9).
U267 (G2053), HOLOTYPE, Port Jackson, New South Wales.
= *M. mollis* Herdman — see Kott, 1952, p. 298.
- tamaramae*, *Sidneioides* Kesteven (1909, p. 278, pls xxv fig. 9; xxvi figs 1-6).
U564, HOLOTYPE, Tamarama Bay, Sydney, New South Wales.
- tasmanoides*, *Sycozoa* Kott (1954, p. 157, fig. 41).
Y1231, SYNTYPE, Maria Island, Tasmania 174-155 m (stn 113), B.A.N.Z.A.R.E.
- tenuicaulis*, *Colella* Herdman (1899, p. 64, pl. Dist. I figs 1-16).
U326-330, SYNTYPE, Port Stephens and Port Jackson, New South Wales.
U383, SYNTYPE, locality same as U326-330.
= *Sycozoa pedunculata* (Quoy and Gaimard) — see Kott, 1972b, p. 234.
- tenuis*, *Molguloides* Kott (1954, p. 138, figs 19-21).
Y1172 (2), SYNTYPES, off MacRobertson Land (stn 29), 1266 m, B.A.N.Z.A.R.E.
= *M. vitrea* (Sluiter) — see Kott, 1969, p. 159.
- thetiense*, *Psammaplidium* Herdman & Riddell (1913, p. 884, pl. xci figs 1-5).
G12218, HOLOTYPE, coast of New South Wales.
= *Aplidium lobatum* Savigny — see Kott, 1963, p. 97.
- thompsoni*, *Ascidia* Kott (1952, p. 312, figs 174-175).
Y1668, HOLOTYPE, Great Taylor Bay, Tasmania, 9 m, on scallop shell, 25.5.1941.

- translucida*, *Polycitor* Kott (1957, p. 81, fig. 13).
Y1301, SYNTYPE, Point Peron, west of Point John, Western Australia, reef undercut, 8.12.1948.
- triggiensis*, *Polyandrocarpa* Kott (1952, p. 248, fig. 62).
Y1574, SYNTYPE, Trigg's Island, north outer reef, Western Australia, 29.12.1948, C.S.I.R.O. Fisheries.
Y1575, SYNTYPE, same locality as Y1574.
- triggsensis*, *Aplidium* Kott (1963, p. 104, fig. 16).
U3923, HOLOTYPE, Trigg's Island, near Fremantle, Western Australia, on wall of reef undercut, 29.12.1949.
Y1405, PARATYPE, Shelly Beach, Nornalup, Western Australia, 29.1.1939.
Y1408, PARATYPE, Trigg's Island, Western Australia, 29.12.1948.
Y1421, PARATYPE, Rottneest Island, Western Australia, 19.12.1948.
Y1427, PARATYPE, Balnarring Beach, Victoria, 7.3.1936.
Y1428, PARATYPE, Thompson's Bay, Rottneest Island, Western Australia, 18.12.1948.
Note: Kott (1976, p. 61) refers to this species as *triggiensis* but in the original description the name is spelt *triggsensis* which in this case must be the spelling of the name adopted (Art 32a (ii), I.C.Z.N., 1961).
- tuberculata*, *Boltenia* Herdman (1899, p. 17, pl. Cyn II).
U286 (2), SYNTYPES, Port Jackson, New South Wales.
U290 (G2056) (4), SYNTYPES, locality same as U286.
U350 (G2057) (2), SYNTYPES, locality same as U286.
= *Pyura spinifera* (Quoy and Gaimard) — see Kott, 1952, p. 269.
- unilineata*, *Polycarpa* Kott (1952, p. 246, figs 59-61).
Y1776, HOLOTYPE, Mackay, Queensland, 10 m, 12.6.1939, C.S.I.R.O. Fisheries.
- valentinae*, *Corella* Kesteven (1909, p. 286, pls xxv figs 6-8; xxvi fig. 9; xxvii figs 6-10).
U565 (8), SYNTYPES, Hobart Harbour, Tasmania, 9 m.
U566 (2), SYNTYPES, locality same as U565.
- whiteleggii*, *Styela* Herdman (1899, p. 40, pl. Cyn II figs 1-6).
U142, SYNTYPE, Port Stephens, New South Wales.
U282, SYNTYPE, Port Jackson, New South Wales.
= *Styela pedata* (Herdman) — see Kott, 1972c, p. 185.
- zschau*, *Alloeocarpa* Michaelsen (1900, p. 32, pl. 11 fig 20).
U279, SYNTYPE, South Georgia, German South Polar Exped. 1882-3.
= *Alloeocarpa incrustans* (Herdman) — see Van Name, 1945, p. 239.

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