Moll. Res. 15: 71–102 (1994).

A revision of the Recent Australian species of the turrid genera *Inquisitor* and *Ptychobela*

Fred E. Wells
Western Australian Museum
Perth 6000, Australia

Recent Australian species of the genera *Inquisitor* and *Ptychobela* are revised, and many species previously included in *Inquisitor* are excluded. A total of 13 species are recognized in *Inquisitor*, including two described as new from Western Australia, and two species are recognized in *Ptychobela*. *Pleurotoma torresiana* Smith, 1884 is considered to be a synonym of *I. sterrha* (Watson, 1881); *Brachytoma alma* Thiele, 1930 is synonymized with *I. lassulus* Hedley, 1922; and *I. fibratus* Hedley, 1922, *Drillia hololeuca* Odhner, 1917 and *Drillia spaldingi* Brazier, 1876 with *I. spicata* Hinds, 1843. *Inquisitor sterrha* is recorded for the first time from southern Indonesia and southern Papua New Guinea.

Keywords: *Inquisitor*, *Ptychobela*, revision, Australia

Introduction

The family Turridae *sensu lato* is the largest of the all the molluscan families, with Kilburn (pers. comm.) estimating that there are over 5,000 Recent species and Bouchet (1990) showing that there have been 679 genus group names proposed; Taylor *et al.* (1993) recognise 337 genera and subgenera as valid. Over 10,000 nominal Recent and fossil species have been described. Classification at both the species and generic levels within the Turridae has been chaotic, with little recent revisionary work having been done on this vast family. However recent published and unpublished anatomical data, particularly relating to the structure of the foregut, have been analyzed by Taylor *et al.* (1993). Their analysis reconstructed the Conoidea, restricting the Turridae, erecting new families and transferring some taxa to the Conidae. Subsequently Taylor (in press) has provided additional information on the foregut anatomy of several species.

The only complete revision of Australian turrids is the work of Hedley (1922). Since Hedley's paper appeared the primary works on the family in Australia have been by Laseron (1954) for New South Wales, and the Indo-Pacific revisions of the Turrinae and Turriculinae by Powell (1964, 1966; 1969). In the last few years Kosuge (1985–1993) has recorded a number of Recent turrids from the deep waters of the continental slope on the margins of the North West Shelf off northern Western Australia. Powell (1944), Cotton (1947b) and Long (1981) provided the major works on fossil Australian turrids.

The present paper is the fifth in a series revising the Australian Recent Turridae. The first four papers (Wells, 1990; 1991a; 1991b; 1993) examined all of the drilliine genera occurring in Australia except the small genus *Iredalea*. The present paper revises the crassispirine genera *Inquisitor* Hedley, 1918 and *Ptychobela* Thiele, 1925. The status of the two genera has been uncertain, with Powell (1966) regarding

Ptychobela as a synonym of *Inquisitor*, and Shuto (1969) considering *Ptychobela* to be a subgenus of *Inquisitor*. Springsteen and Leobrera (1986) and Kilburn (1988) separated the two on the basis of radular morphology. The problem was examined in detail by Kilburn (1989), who showed that they are in fact distinct genera. However, the basic differences between the genera are in the structure of the radula. In the absence of live collected specimens from which to obtain radulae the assignment of Australian species to either *Inquisitor* or *Ptychobela* must be regarded as tentative. Taylor *et al.* (1993) placed both genera in the family Turridae, subfamily Crassispirinae.

Methods

Type material has been sought wherever possible from the museum in which it is deposited. Most of the nontype material examined is at the Australian Museum, Sydney. A secondary source has been the Western Australian Museum, Perth. The collections of the Queensland Museum, Museum of Victoria, South Australian Museum and Auckland Institute and Museum have also been examined, but the primary interest in these museums has been type material.

Descriptions are based on shells oriented in the traditional way, spire up, with the aperture facing the viewer. Synonymies are not complete; emphasis is given to systematic revisions, the historical literature, references to the species occurring in Australia, and an indication of the overall range of the species in Indo-Pacific localities. Australian ranges are given clockwise around the coast.

The following abbreviations are used: AIM, Auckland Institute and Museum; AMS, Australian Museum, Sydney; BM(NH), British Museum, Natural History, London; MNHN, Museum National d'Histoire Naturelle, Paris; MHNG, Museum d'Histoire Naturelle, Geneva; MV, Museum of Victoria, Melbourne; QM, Queensland Museum, Brisbane; SAM, South Australian Museum, Adelaide; SMNH, Swedish Museum of Natural History; TM, Tasmanian Museum, Hobart; WAM, Western Australian Museum, Perth; ZMB, Zoological Museum, Berlin; l, shell length; w, shell width; a, length of aperture.

Systematics

Species removed from *Inquisitor*

Hedley (1918) proposed the genus *Inquisitor* and later (Hedley, 1922) provided an extensive list of species, many of which are from the southeastern corner of Australia and which share a common shell morphology. Finlay (1924) considered *Drillia metcalfei* Angas, 1867 not to be an *Inquisitor*, but instead a member of the genus *Austrotoma*. Powell (1942) agreed that the species is not an *Inquisitor* but instead erected the genus *Vexitomina* for *D. metcalfei*. Laseron (1954) transferred several southeastern Australian *Inquisitor* to *Vexitomina*, proposals accepted by Powell (1969). These and other changes have substantially modified the genus *Inquisitor* from the original concept of Hedley (1922). The changes are summarized below:

Drillia metcalfei Angas, 1867 was transferred to *Vexitomina* as the type species of the genus by Powell (1942). Laseron (1954) expanded the genus to include seven

species from New South Wales, three of which had been included by Hedley (1922) in *Inquisitor*. These were: *Inquisitor coriorudis* Hedley, 1922; *Pleurotoma* (*Drillia*) *sauvis* Smith, 1888; and *Drillia coxi* Angas, 1867. All of these proposals were accepted by Iredale and McMichael (1962) and by Powell (1969), who revised the genus *Vexitomina* and incorporated several species from other genera.

Inquisitor plurinodulatus Cotton, 1947 (also cited by Cotton, 1959) is not an *Inquisitor*. The shell has spiral cords crossed by axial cords which give it a beaded appearance unlike *Inquisitor*. These structures also occur on shoulder, also in contrast to *Inquisitor*. The axial ribs are flattened, plate-like. The aperture is also too wide and rectangular. The species would be better placed in *Vexitomina* Powell, 1942.

Inquisitor sexradiatus Odhner, 1917 was also included in *Inquisitor* by Hedley (1922), Cotton (1947b) and Kosuge (1993). However examination of the holotype demonstrated its clavine shape, small size and few but strong axial ribs suggest this species should be placed in *Clavus*. It was not examined by Wells (1991a).

Drillia mastersi Brazier, 1876 was included in *Inquisitor* by Hedley, 1922 but has a lower spire, broader shell, and more rectangular aperture than *I. sterrhus*, the type of *Inquisitor*. The species is rejected from *Inquisitor*, but no recommendation is made of a proper placement for it.

Mangelia immaculata Tenison Woods, 1875 (1876) was transferred to a new genus, *Paracuneus*, as the genotype by Laseron, 1954 along with *Pleurotoma* (*Drillia*) *spadix* Watson, 1886. These proposals were also accepted by Powell (1969).

Inquisitor petilinus Hedley, 1922 was transferred to a monospecific genus, *Conticosta*, by Laseron (1954). Powell regarded *Conticosta* as a subgenus of *Inquisitor*. While no decision is made here on the validity of *Conticosta, C. petilinus* is not considered to be congeneric with *I. sterrhus*.

Mangilia crassicingulata Schepman, 1913 was recorded by Schepman from off Cape Jaubert, Western Australia, and included in *Inquisitor* by Hedley (1922). Powell (1966) also included the species in *Inquisitor*, but Shuto (1970) transferred it to *Pseudoetrema*. From the illustration provided by Schepman (1913: pl. 29, f. 1), the species is not an *Inquisitor*.

Inquisitor granobalteus Hedley, 1922 was considered to be a subspecies of *Turricula nelliae* (E. A. Smith, 1877) by Powell (1966; 1969), a determination agreed to by Wilson and Gillett (1979).

Inquisitor lacertosus Hedley, 1922 was transferred to *Micantapex* by Laseron (1954), which Powell (1966) regarded as a subgenus of *Bathytoma*. The species was included in *Clavus* by Wells (1991a).

Pleurotoma radula Hinds, 1843 is very close to *Vexitomina metcalfei* and was compared with it by Hedley (1922). As the species has not been recorded from New South Wales it was not discussed by Laseron (1954). The generic status of this species needs investigation. The type of this species is not in the BM(NH) type cabinet and could not be located in the general collection.

Pleurotoma (*Surgula*) *radulaeformis* Weinkauff, 1876 was not seen by Hedley (1922). Hedley remarked that the species is unknown to Australian malacologists, but suggested an apparent resemblance to *Vexitomina metcalfei*, the type of *Vexitomina* Laseron, 1954. Kilias (in. litt., 1992) believes the types of this species have been destroyed.

Inquisitor spurius was a name introduced by Hedley, 1922 for *Pleurotoma tayloriana* Reeve, 1846. Powell (1966; 1969) regards this as a subspecies of *Turricula nelliae* (E. A. Smith, 1877).

Pleurotoma (*Drillia*) *multilirata* Smith, 1877 was included in *Inquisitor* by Hedley, 1922. Laseron (1954) pointed out correctly that whatever its proper classification is, the species is not an *Inquisitor*. Laseron also considered that the species does not occur in New South Wales, even though the type locality is Port Jackson. The type in the BM(NH) (1860.5.31.42) has a locality of Port Jackson?, suggesting that the locality may be in error. The specimen figured by Hedley (1922) from 300 fathoms off Sydney was actually the type. There is thus no confirmed Australian record of the species.

Pleurotoma laterculata Sowerby, 1870 was recorded by Hedley (1922) in the genus *Inquisitor* based on specimens recorded from Queensland by Smith (1884) and Watson (1886). However, these specimens are in the BM(NH) and are actually *Inquisitor flavidulus* Lamarck, 1804.

Genus *Inquisitor* Hedley, 1918

Type species: *Pleurotoma sterrha* Watson, 1881 by original designation.

Inquisitor: Hedley, 1918: M79. Hedley, 1922: 236–247. Powell, 1942: 93. Shuto, 1965: 168–172. Shuto, 1969: 195–198. Shuto, 1970: 163. Cotton, 1947a: 13–14; Cotton, 1947b: 7–10. Ludbrook, 1958: 87. Kilburn, 1988: 257–267. Taylor and Wells, in press.

Pseudoinquisitor Powell, 1942: 96. Shuto, 1965: 173. Powell, 1966: 79.

Diagnosis: Shells small to large, 13 to 57 mm, high spired, solid. Protoconch small, smooth, rounded, 2 whorls. Up to 12 flattened to convex teleoconch whorls. Suture thin, not channeled, may be undulating. Sculpture complex, dominated by axial ribbing which tends to start part way down whorl. Spiral cords of varying strength may be present, often including a strong subsutural cord. Outer lip thickened, often incurved. Sinus deep, U shaped. Callus absent. Columella narrow to medium width, smooth. Aperture deep. Anterior canal short, usually notched. Colour variable, off-white to colourful. Marginal plates of radula with short shaft with long cutting edge (Kilburn, 1989). Indo-Pacific; Recent and fossil at least to the Eocene, shallow water, primarily tropical.

Remarks: Shuto (1965) recognized both *Inquisitor* and *Pseudoinquisitor* at the generic level but Powell (1966: 79) concluded *Pseudoinquisitor* is in fact a synonym of *Inquisitor*.

The genus *Ptychobela* Thiele, 1925 has been considered by many authors to be a synonym of *Inquisitor*, but the late Virginia Orr Maes examined the radulae and considered the two genera to be separate, a view followed by Springsteen and Leobrera (1986) and Kilburn (1988). The question was investigated in detail by Kilburn (1989).

Powell (1944) listed 5 species of *Inquisitor* (as *Pseudoinquisitor*) from the Miocene of Victoria and Ludbrook (1958) recorded two species from South Australia.

As indicated above, the genus *Inquisitor* as recognized in this paper has been restricted from the concept of Hedley (1922). There is still considerable shell variation

between some of the species. However until the radulae become available for study and related genera are better understood, it seems best not to restrict the genus further.

Inquisitor sterrhus (Watson, 1881)

Plate 1, Figs. 1–4

Pleurotoma sterrha Watson, 1881: 426. Watson, 1886: 305, pl. 21, figs. 3a–c.

Pleurotoma torresiana Smith, 1884: 37, pl. 4, figs. D, D1. Melvill and Standen, 1899: 156.

Inquisitor sterrhus (Watson). Hedley, 1922: 246. Cotton, 1947b: 7. Rippingale and McMichael, 1961: pl. 17, fig. 10.

Drillia sinensis (not of Hinds). Brazier, 1876: 152.

Inquisitor formidabilis (not of Hedley). Rippingale and McMichael, 1961: pl. 17, fig. 11 (not fig. 10).

Shell: Shell large, 45 mm, heavy, narrow, very high spire. Protoconch high, smooth, rounded, 2 whorls, 0.42 mm high, 0.58 mm wide. Teleoconch up to 13 convex whorls. Suture impressed, slightly undulating. Whorls with broad, low axial ribs, which often line up on adjacent whorls, 14 on penultimate whorl, 16 on body whorl, extend to tip of shell. Ribs form 1/3 way down whorl, enlarge rapidly just above midwhorl and extend to next suture. Occasionally adjacent ribs fuse together and may form low varix. Numerous spiral cords, usually 7 on area between suture and upper edge of rib, third of which is largest. 8 prominent spiral cords on ribs of penultimate whorl, may be interspersed with fine spiral lirae. About 24 spiral cords on ribs and lower surface of body whorl. Numerous axial growth lines present. Outer lip thickened, margin crenulate, stromboid notch absent. Sinus on upper shoulder, deep U shaped. Aperture subrectangular, deep. Columella broad, flattened, umbilicate, slightly convex. Anterior canal of moderate length and depth, notched. Shell colourful; sutural area, both above and below sutures, has a yellowish band which extends over lower body whorl, centre of whorl white. Area between axial ribs moderate chocolate brown. Upper whorls orange brown, aperture similar.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
sterrha					
syntypes	34.9	11.1	12.2	0.32	0.35
	26.9	9.3	9.3	0.35	0.35
torresiana					
syntypes	34.1	10.7	12.2	0.31	0.35
	21.2	7.4	8.4	0.35	0.40
Moreton Bay, Qld. (AIM)					
Mean (n=6)	38.0	13.4	13.3	0.36	0.36
S. D.	5.9	1.4	1.7	0.03	0.02
Range	31.1–	11.5–	11.1–	0.33–	0.33–
	45.7	15.1	15.3	0.40	0.38

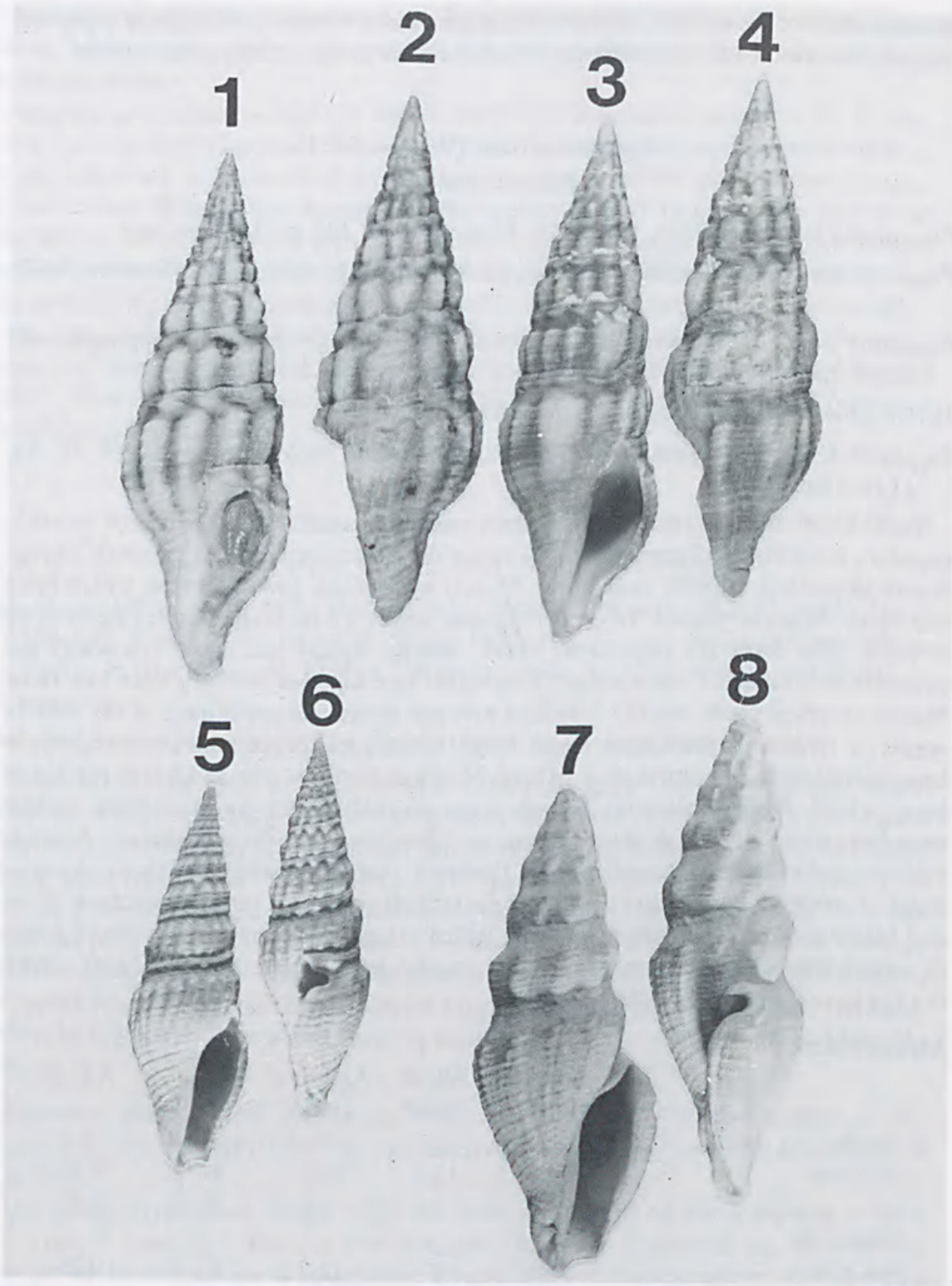

Plate 1. 1–4. *Inquisitor sterrhus* (Watson, 1881). 1–2. Syntype of *Pleurotoma sterrha*. BM(NH) 1887.2.9.995. 34.9 mm. 3–4. Syntype of *Pleurotoma torresiana* Smith, 1884. BM(NH) 1882.12.6.70. 34.1 mm. 5–6. *Inquisitor dampierius* (Hedley, 1922). Lectotype of *Melatoma dampieria*. AMS A.122. 21.5 mm. 7–8. *Inquisitor flindersianus* Hedley, 1922. Syntype of *I. flindersianus*. AMS C.14161. 31.8 mm.

Location of types: *sterrhus*: 2 syntypes, BM(NH) 1887.2.9.994 and 995. *torresiana*: 2 syntypes, BM(NH) 1882.12.6.70 and BM(NH) 1882.2.23.591

Type localities: *sterrhus*: 5–22 m, Cape York, Qld. *torresiana*: 13–16 m, Friday I., Gulf of Carpentaria, Qld. and Prince of Wales Channel, Torres Straits, Qld.

Material examined: Syntypes of both species. AUSTRALIA: QLD: Gulf of Carpentaria: 18 m, Mapoon (2 AMS; AIM); Karumba (AMS); 22 m, W of Nassua R. (AMS); Forsyth I., Wellesley Group (AMS); off Cape York Township (AMS); Torres Strait (2 AMS); low tide, Boigu I. (WAM); 46–55 m, Darnley I. (AMS); 9–15 m, Murray I. (AMS); 7–26 m, Albany Passage (2 AMS; AIM); Princess Charlotte Bay (AMS); 34 m, 11 m, 13°12'S; 143°34'E (AMS); 18 m, 14°28'S; 144°55'E (AMS); N of N. Direction I. (AMS); 9–18 m, Hope I., SE of Cooktown (AMS); 16–22 m, Low Isles (AIM); Low Isles, near Port Denison (AMS); Buchan's Point, N of Cairns (AMS; 2 AIM); Michaelmas Cay, off Cairns (AMS); Armstrong's Beach, S of Innisfail (AMS); Townsville (4 AMS); Cape Pallendra, 10 km N of Townsville (AMS); Magnetic I., off Townsville (2 AMS); Ross River, Townsville (AMS); Lindeman I., Whitsunday Passage (2 AMS); 9 m, Bowen (AMS); Queen's Beach, Bowen (AMS); 31 m off Hayman I. (AMS); Yeppoon (2 AIM); north of Bustard Head, near Ethel Rocks (AIM); 70 m, NE of Gillett Cay, Swain Reefs (AMS); 54 m, off Herald Prong, Swain Reefs (AMS); NE Herald Cay (AMS); 10 m, Big Sandy Cay, Swain Reefs (AMS); 54 m off North-West I. (AMS); Keppel Bay (AIM); 45 m, Keppel Bay (AMS); Port Curtis (AMS); Rat I., Port Curtis (AIM; AMS); 16–22 m, Gatcombe Head, Port Curtis (AMS); 2–5.5 m, Quoin I.. Port Curtis (AMS); Gladstone Harbour (AMS; AIM); 15 m off Picnic Point, Hervey Bay (AMS); Dundowron Beach (2 AMS); 55 m, Tin Can Bay (AIM); Mooloolaba Beach (AMS); Moreton Bay: 12 m (AMS); Peel I. (3 AIM; AMS; WAM); off southwest Reef (AIM); 5–7 m off Dunwich (AIM; AMS); Sandgate (AIM); NW of Hanlon Light (AMS); 9 m off Woody I., Fraser I. (AMS). PNG: Hunuabada, near Port Moresby (AMS); W. end Manubada I., off Port Moresby (AMS). INDONESIA: 5–7 km W of Tg Lelat Trangan, Aru (6°46'S; 133°58'E) (WAM).

Distribution: Southern Papua New Guinea and Indonesia and from Yeppoon in the Gulf of Carpentaria and south along the Queensland coast to Moreton Bay.

Remarks: It is somewhat surprising that Smith (1884) described *Pleurotoma* (*Drillia*) *torresiana* as the shells are clearly conspecific with *Pleurotoma sterrha* described by Watson three years earlier. However Smith was apparently unaware of Watson's species and made no mention of it in his description of *P. (D.) torresiana*. There is no question that the two species are conspecific. They were both described from northern Queensland and have the same shell characteristics of size, general shape, number of whorls, sculpture, and colour.

Inquisitor dampierius (Hedley, 1922)

Plate 1, Figs. 5,6.

Melatoma dampieria Hedley, 1922: 250, pl. 45, fig. 41.

Antimelatoma dampieria (Hedley). Cotton, 1947b: 7.

Splendrillia dampieri (sic). Wells and Bryce, 1986: 120, pl. 40, f. 464.

Shell: Shell of moderate size, 41 mm, heavy, narrow, high spire. Protoconch small, smooth, 2 whorls, upper whorl rounded, lower with straight sides, 0.48 mm high, 0.66 mm wide. Up to 12 teleoconch whorls. Suture thin, crenulated. Sculpture very complex, dominated by strong, narrow axial ribs, 16 on penultimate whorl, 15 on body whorl. Ribs on body whorl variable, some extend well below shoulder but others end and are replaced by small ribs offset to each side, do not reach anterior tip of shell, begin 1/3 of the way down the whorl where they are largest, decrease but reach lower suture. Very strong, rounded subsutural spiral cord followed by up to 5 low spiral cords before ribs. About 8 pronounced, rounded spiral cords on ribs of each whorl, 27 on body whorl which extend to anterior tip. Small varices formed at irregular intervals on spire. Numerous axial growth lines. Outer lip extends beyond varix, slightly thickened and slightly incurved, indistinct stromboid notch, margin crenulated by spiral cords. Sinus subsutural, deep V shape. Callus strong, dome shaped. Columella thin, smooth, slightly convex. Aperture elongate, deep, narrow. Anterior canal short, narrow, deep, anterior end notched. Colour uniform orange to dark brown, aperture similar.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Lectotype					
Paralectotype	21.5	7.5	8.4	0.35	0.39
Broome (AIM)					
Mean (n=14)	31.2	10.1	10.8	0.33	0.35
S.D.	3.8	1.0	1.3	0.02	0.02
Range	26.5–40.8	9.0–12.1	9.2–13.8	0.30–0.35	0.31–0.36

Location of types: Lectotype AMS A.122. 2 paralectotypes, AMS A.122.

Type locality: Shark Bay, W. A.

Material examined: AUSTRALIA: WA: Shark Bay (Paralectotype); Shark Bay (Lectotype); Shark Bay (Paratype); Shark Bay (WAM); Useless Loop, Shark Bay (WAM); South Passage, Shark Bay (2 WAM); 7 km NE Cape Peron, Shark Bay (WAM); W side Heirrisson Prong, Shark Bay (26°03'S; 113°20'E) (WAM); ENE Castle Point, Dorre I., Shark Bay (25°28'S; 113°08'E (WAM); near Denham, Shark Bay (AMS); Exmouth Gulf (3 WAM); between Bundegi Reef and Exmouth Homestead (AMS); SE of Exmouth Homestead (AMS); 17 miles south of Exmouth (AMS); Giralia Bay, Exmouth Gulf (WAM); Sandalwood Point, Exmouth Gulf (WAM); E side Pascoe I. (20°58'S; 115°20'E)(WAM); Hooley Creek, Onslow (WAM); Onslow (WAM); Off Long I. off Onslow (WAM); 12 km off Long I. off Onslow (WAM); Roebuck Bay, Broome (AMS); Broome (3 AMS; 7 AIM; WAM). NT: Darwin (WAM).

Distribution: Shark Bay, Western Australia to Broome, Northern Territory.

Remarks: *Inquisitor dampierius* is similar to *I. spaldingi* (Brazier, 1876), but is much larger (up to 40 mm versus 15 mm), darker in colour, with stronger axial ribbing and a larger protoconch. *Inquisitor dampierius* is similar in size to *I. flindersianus* Hedley, 1922 from which it may be separated by having a larger protoconch, darker

colour, more numerous (16 vs. 12) but smaller axial ribs, more prominent subsutural cord, and the outer lip not reflected inwards. *Inquisitor dampierius* can be separated from *I. spaldingi* Brazier, 1876 by being larger (up to 40 mm vs. 21 mm), with weaker spiral cords, and the outer lip not reflected inwards.

Inquisitor flindersianus Hedley, 1922

Plate 1, Figs. 7,8.

Pleurotoma alabaster var. Brazier, 1876: 154 (not *P. alabaster* Reeve).

Inquisitor flindersianus Hedley, 1922: 239, pl. 44, fig. 28. Cotton, 1947b: 7.

Shell: Shell small for genus, 25 mm, broad, high spire, solid. Protoconch rounded, smooth, 2 whorls, 0.54 mm high, 0.68 mm wide. Teleoconch up to 9 convex whorls. Suture thin, straight, distinct. Sculpture of strong axial ribs which begin at upper suture, reach maximum midwhorl, taper off, but reach lower suture, 12 on penultimate whorl, 14 on body whorl. Final rib of body whorl swollen into varix. Ribs extend well down body whorl but not to tip. Strong subsutural, knobby spiral cord followed by several spiral lirae. 7 spiral cords cross ribs of penultimate whorl, about 25 extend over entire surface of body whorl from upper ribs to anterior end of shell. Numerous microscopic lirae cross spiral cords. Outer lip slightly thickened, crenulate. Sinus deep, U shaped but narrowly constricted by strong callus, at 45° angle to shell. Columella thin, smooth, slightly convex. Aperture deep, elongate-ovate. Anterior canal short, broad, shallow, slightly notched. Colour light orange, nodules formed where cords cross ribs are white on shoulder as are some down the body whorl. Protoconch orange, aperture white.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Syntypes					
AMS C.14161	31.8	11.8	13.8	0.37	0.43
	25.9	10.0	10.8	0.39	0.42
AMS C.7575	28.3	10.3	11.4	0.36	0.40
AMS C.43724	29.4	10.7	12.8	0.36	0.44
Albany Passage, Torres Strait, Qld. (AMS C.55676 &7)					
Mean (n=7)	22.1	8.4	9.5	0.38	0.43
S. D.	5.2	1.3	1.8	0.04	0.03
Range	17.3–30.8	7.1–10.3	7.8–12.4	0.33–0.43	0.40–0.48

Location of types: Syntypes, 2 specimens. AMS C.14161. 1 specimen. AMS C.7575. 1 specimen, AMS C.43724.

Type locality: 18 m, Mapoon, Queensland (AMS C.14161); 55 m, Darnley I., Torres Strait, Qld. (9°35'S; 143°46'E) (AMS C.7575); 9–15 m, off Murray I., Torres Strait, Qld. (9°56'S; 144°04'E)(AMS C.43724); 7–26 m, Albany Passage, Cape York Peninsula, Qld. (10°45'S; 142°37'E) (AMS 42728).

Material examined AUSTRALIA: NT: Darwin (AMS); 51 m depth, Clarence Straits, south of Bathurst I., N.T. (12°01'S; 130°08'E) Muriel King Memorial Expedition Stn. B1/2&3. QLD: Van Diemans Inlet (2 AMS); 18 m, Mapoon (AMS); Torres Strait: Darnley I. (AMS); off Murray I. (AMS); Albany Passage (2 AMS); 5–11 m, Peak Point,(AMS); 16–22 m, Low I., off Port Douglas (2 AMS); Lucinda (AMS); 0–45 m, off Townsville (3 AMS); Magnetic I. (AMS); 27 m, Whitsunday Passage (AMS); Yeppoon (2 AMS); Keppel Bay (2 AMS); Rat I., Port Curtis, Gladstone (AMS); Port Curtis (2 AMS); 15–24 m, Gladstone Harbour (2 AMS); 18 m, Round Hill (AMS); 18 m, Tin Can Bay (AMS); 5–7 m, off Dunwich, North Stradbroke I. (AMS).

Distribution: Western Pacific; Darwin, Northern Territory to Stradbroke I., Queensland.

Remarks: *Inquisitor flindersianus* is similar to *I. spicata* in its small size, north Queensland distribution, numerous axial striations, the shape of the aperture, deep sinus and 45° angle to the shell, but *I. flindersianus* can be easily separated by being larger, heavier, orange in colour, lacking granulations below the suture and having a wider body whorl with weaker spiral sculpture.

Inquisitor spicata (Hinds, 1843)

Plate 2, Figs. 1–8.

Clavatula spicata Hinds, 1843: 39. Hinds, 1844: 17, pl. 5, fig. 11.

Drillia spaldingi Brazier, 1876: 153. Hedley, 1922: 245. Cotton, 1947b: 7.

Inquisitor fibratus Hedley, 1922: 238, pl. 43, fig. 27. Cotton, 1947b: 7.

Drillia hololeuca Odhner, 1917: 58, pl. 2, fig. 61.

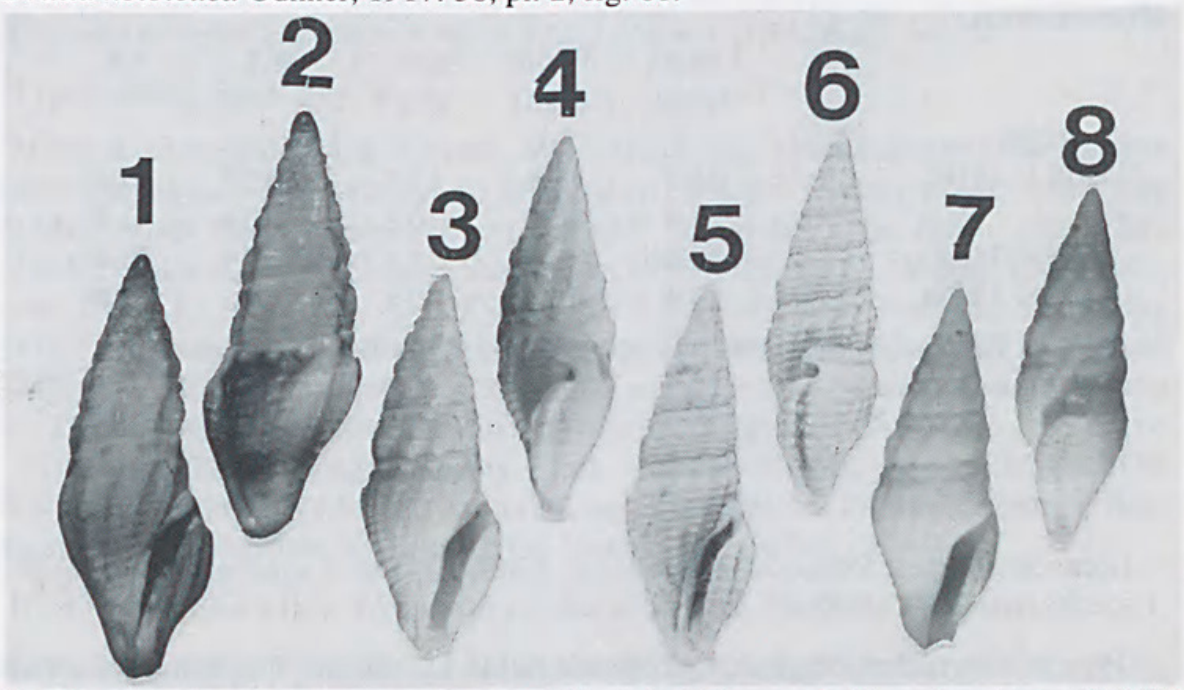

Plate 2. 1–8. *Inquisitor spicata* (Hinds, 1843). 1–2. Holotype of *Clavatula spicata*. BM(NH) 1879.2.26.52. 9.8 mm. 3–4. Syntype of *I. spaldingi*. AMS A.98. 13.5 mm. 5–6. Holotype of *I. fibratus* Hedley, 1922. AMS C.43728. 14.6 mm. 7–8. Holotype of *Drillia hololeuca* Odhner, 1917. SMNH 1075. 17.2 mm.

Inquisitor hololeuca (Odhner). Hedley, 1922: 241. Cotton, 1947b: 7.

Shell: Shell small for genus, 21 mm, narrow, very high spire, solid. Protoconch low, smooth, dome shaped, of 2 whorls, 0.32 mm high, 0.50 mm wide. Up to 9 teleoconch whorls. Suture narrow, slightly undulating, channeled, with granulose lower margin. Strong, narrow axial ribs begin at upper suture, thin out but re-emerge rapidly and reach maximum at midwhorl, extend to lower suture, 11 on penultimate whorl, 13 on body whorl. Final rib of body whorl swollen into a varix; no varices on upper whorls. Ribs extend nearly to tip of body whorl. Numerous low, rounded spiral cords, one large cord subsuturally followed by about 3 axial striae. About 8 spiral cords on ribs of penultimate whorl may be interspersed with lirae. About 27 spiral cords on ribs and lower part of body whorl, extend to tip of shell, may be interspersed with lirae. Large numbers of microscopic axial striae between cords over entire surface of shell. Aperture deep, elongate, subrectangular. Outer lip thickened, shallow, indistinct stromboid notch. Deep U shaped sinus on upper shoulder with pronounced callus causing sinus to be at 45° angle to shell. Columella narrow, smooth. Shell truncate, anterior canal short, shallow, broad, slightly notched. Known only from dead collected material which is uniform off-white colour.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
spicata					
Holotype	9.8	1.6	—		
spaldingi					
Figured syntype	13.5	5.1	5.1	0.38	0.38
Other syntypes					
Mean (n=7)	14.0	5.1	5.4	0.36	0.38
S. D.	1.4	0.6	0.6	0.01	0.02
Range	12.3–16.0	4.5–5.9	4.6–6.3	0.35–0.38	0.35–0.41
fibratus					
Holotype	14.6	5.3	5.3	0.36	0.36
Paratype (AIM)	15.2	5.2	5.3	0.34	0.35
Paratypes (AMS)					
Mean (n=6)	15.7	5.3	5.4	0.34	0.34
S. D.	0.7	0.2	0.3	0.02	0.02
Range	14.5–16.4	5.0–5.5	5.1–5.8	0.31–0.37	0.32–0.37
hololeuca					
Holotype	17.2	5.9	6.2	0.34	0.36
Other specimens					
Yeppoon, Qld. (AIM)					
Mean (n=5)	17.1	5.7	5.7	0.33	0.33
S. D.	3.2	1.1	1.0	0.01	0.01
Range	12.3–20.9	4.2–6.7	4.2–6.7	0.32–0.35	0.32–0.35

Operculum: Not known.

Location of types: *spicata*: Holotype, BM(NH) 1879.2.26.52. *spaldingi*: Syntype, 1 specimen. AMS A.98. *fibratus*: Holotype, AMS C.43728. 10 paratypes, AMS C.43728 and 1 paratype, AIM 49128. *hololeuca*: Holotype, SMNH No. 1075.

Type localities: *spicata* Bow Island. *spaldingi*: 20 m, Bet Island, Torres Strait, Queensland. *fibratus*: 7–26 m, Albany Passage, Torres Strait, Queensland. *hololeuca*: 72 km WSW Cape Jaubert, Western Australia.

Material examined: Types. QLD: Van Diemen's Inlet, Gulf of Carpentaria (AMS); Mapoon, (AMS); Torres Strait: Albany Passage (AMS); 4 m, off Yeppoon (AMS); Facing Island, N of Gladstone (AMS); 4 m, Gladstone Harbour (AMS); Barney Point, Port Curtis, Gladstone (AMS), Bowen (AMS); 2–5.5 m, Quoin I., Port Curtis (AMS); Bowen (AMS).

Distribution: From Cape Jaubert, Western Australia to Bowen, Queensland. The holotype of *P. hololeuca* is the only Western Australian record of this species.

Remarks: This species is easily recognized primarily by the granulated lower edge of the suture, and also by its small size and fine axial lirae. It has been redescribed several times. The holotype of *I. spicata* is smaller than the other type material, but the shell characters are similar.

The holotype of *Inquisitor fibratus* is similar in size to the figured syntype of *I. spaldingi* (Brazier, 1876) but differs in having a broader shell, weaker axial ribs and spiral cords, suggesting that the two are separate species. However, the figured specimen is quite worn. There is a full range of broader shells among the other syntypes, and the more freshly dead specimens of *I. spaldingi* have the stronger sculpturing of *I. fibratus*. Both species were described from the shallow waters of Torres Strait, and it is concluded they are conspecific.

Powell (1966) believes *Drillia hololeuca* to be very close to *I. fibratus* which was described much later, and considered that at best it would be a subspecies. The holotype of *D. hololeuca* fits clearly within the range of variation seen within *I. spaldingi* in terms of its length and other shell measurements. The only major difference is that the lower edge of the suture is not as granulated as in eastern specimens. While *D. hololeuca* was described from Western Australia, and is still the only W. A. record, this difference does not warrant subspecific recognition.

Inquisitor lassulus Hedley, 1922

Plate 3, Figs. 1–4.

Inquisitor lassulus Hedley, 1922: 242, pl. 44, fig. 33. Cotton, 1947b: 7.

Brachytoma alma Thiele, 1930: 585, pl. 4, f. 62.

Shell: Shell small for genus, 21 mm, narrow, biconic, very high spire, solid. Protoconch high, conical, rounded at end, smooth, 3 whorls, 0.54 mm high, 0.64 mm wide. Up to 9 teleoconch whorls. Suture narrow, slightly undulating, indistinct. Sculpture complex, dominated by strong but narrow axial ribs which begin 1/3 way

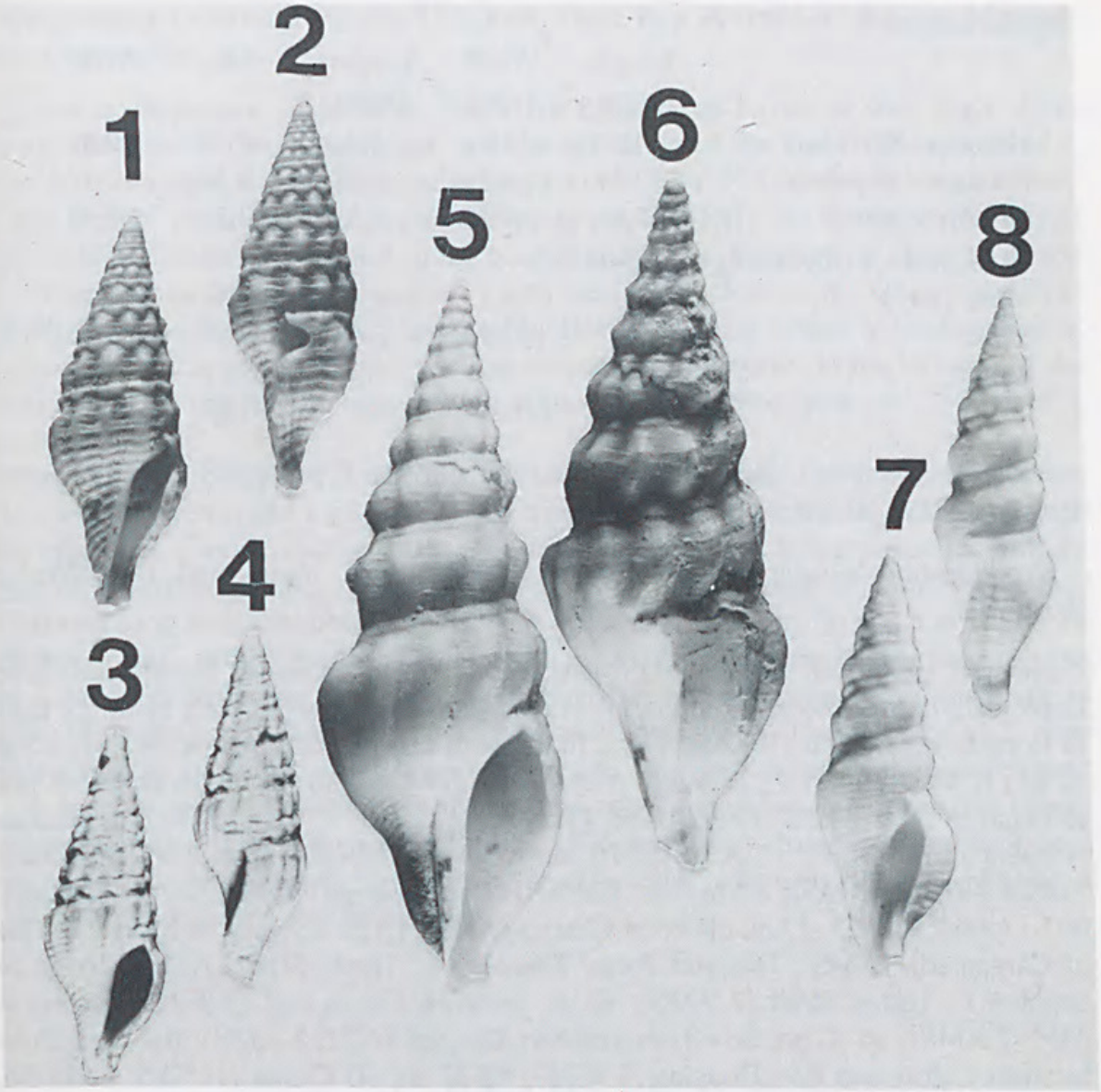

Plate 3. 1–4. *Inquisitor lassulus* Hedley, 1922. 1–2. Holotype of *I. lassulus*. AMS C.29734. 14.0 mm. 3–4. Holotype of *Brachytoma alma* Thiele, 1930. ZMB 67579. 11.8 mm. *Inquisitor kilburni* n.sp. 5–6. Holotype of *I. kilburni*. WAM 92–92. 31.6 mm. 7–8. *Inquisitor hedleyi* (Verco, 1909). Syntype of *Drillia hedleyi*. AMS C.31071. 18.5 mm.

down whorl, extend to lower suture. Ribs rapidly peak then decrease down whorl, 11 on penultimate whorl, 12 on body whorl, extend well down body whorl. Final rib of body whorl swollen into a varix, additional varices at about 1 whorl intervals on spire. Strong sculpturing of low, flattened spiral cords. Largest is subsutural, undulating, 5 additional ones on penultimate whorl, 20 on body whorl, extend to tip of shell. Numerous axial striae between cords. Outer lip extends well beyond varix, thin, distinct stromboid notch. Sinus on upper shoulder very deep, U shaped, constricted at entrance by strong callus, at 60° angle to shell. Columella very thin, slightly convex, smooth. Aperture deep, elongate. Anterior canal long, narrow, partially covered by columella, tip notched. Colour glossy white with orange tint between ribs, bright orange on subsutural cord. Protoconch and aperture glossy white.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	A/L	W/L
Holotype (*lassulus*)	14.0	4.7	5.4	0.34	0.39
Paratype (*lassulus*)	12.5	4.5	4.5	0.36	0.36
Holotype (*alma*)	11.8	4.2	4.3	0.36	0.36
33 m, west of Hayman I., Qld. (AMS)					
Mean (n=7)	16.1	5.5	5.8	0.34	0.37
S. D.	2.7	0.6	0.6	0.03	0.04
Range	12.6–20.3	4.9–6.4	5.0–6.8	0.31–0.38	0.33–0.45

Location of types: *lassulus*: Holotype, and one paratype, AMS C.29734. *alma*: Holotype, ZMB 67579.

Type locality: *lassulus*: 15 m, Weary Bay, Queensland. *alma*: Shark Bay, Western Australia.

Material examined: Types. AUSTRALIA: WA: SE Exmouth Homestead, S. of Learmonth (AMS); 84 m, 12 km NNW Anchor I., off Onslow (WAM); 51 m, 12 km N of Long I., off Onslow (WAM); 77 m, 14 km N of Long I., off Onslow (WAM); 42 m, 32 km N of Delambre I., Dampier Archipelago (WAM); 36–37 m, 96 km NNE Port Hedland 19°30.9–28.2'S; 118°49.2–55.4'E (AMS). 112 m, 157 km NNW Port Hedland (19°08.8'S; 118°01.3'E (3 AMS); 110 m, 133 km NNW Dampier (19°28.9–29.0'S; 116°29.4–0'E (3 AMS); 82 m, 144 km NNE Port Hedland (19°04, 4–2'S; 119°04.4–00'E (AMS); NT: 27–37 m, off Point Charles (AMS). QLD: 28 m, S. of Sweers I., Gulf of Carpentaria (AMS); Hospital Point, Thursday I., Torres Strait (AMS); 46–55 m, Darnley I., Torres Strait (2 AMS); 37 m, between Cairns and Endeavour Reefs (2 AIM; 2 AMS); 16–22 m, Low Isles, off Port Douglas (AIM; 8 AMS); Buchan's Point between Cairns and Port Douglas (2 AIM); 40–37 m, off Cairns (16°55'S; 146°07'E) (AMS); 33–35 m, off Cairns (16°51'36–00'S; 146°01'12"–04'E) (AMS); 64 m, 11°50'S; 143°34.2'E (AMS); 24 m, 12°9.0'S; 143°13.2'E (AMS); 22 m, 13°28.2'S; 143°42'E (2 AMS); 15 m, 14°25.1'S; 144°48.6'E (AMS); 12–14 m, Deacpolis Reef, Cape Flattery 14°50'S; 145°17'E (AMS); 18 m, 15°39.3'S; 145°22'E (AMS); 21 m, 15°42.9'S; 145°25.6'E (AMS); 29 m, 15°45.6'S; 145°35'E (AMS); 8–9.5 m, off Townsville (AMS); 27 m, Palm I., N of Townsville (2 AMS); 27 m, Whitsunday Passage (AMS); 36–45 m, off Bowen (AMS); 33 m, W of Hayman I. 20°03'S; 148°50'E (AMS); 42 m, E of Sarina 21°27.5'S; 150°08'E (2 AMS); 64–73 m, 3 km NE west side Gillett Cay, Swains Reef (AMS); 187 m, SE of Swain's Reef 22°26.27–20.2'S; 153°17.13–6'E (AMS); 75–80 m, off Moreton Bay 27°31'S; 153°40'E (2 AMS); 183 m, NNE Cape Moreton (AMS).

OTHER AREAS: 22–33 m, SW of Yule I., PNG (AMS); 29–30 m, Sunda Strait, Java Sea, Indonesia (2 AIM); 42 m, Java Sea, Indonesia 6°42'S; 105°17'E (AIM); 200 m, Java Sea, Indonesia (7°33'S; 5°36'E (AIM); 34–37 m, between Du Rowa and Kai Dulah, Kai, Indonesia (5°32'S; 132°46'E) (2 WAM); 60–66 m, 13 km SW of Tg Ratoe, Maikoor, Aru, Indonesia (6°07'S; 133°57'E) (WAM); 55 m, Mussadem (AIM); 64 m, Persian Gulf (AIM); 37–64 m, Muscat (2 AIM).

Distribution: Indo-West Pacific; 22–200 m, Shark Bay, Western Australia to Moreton Bay, Queensland.

Remarks: *Inquisitor lassulus* is distinctive because of its small size, high spire, strong subsutural cord, colouration, and the 60° angle of the sinus. The colour of *I. lassulus* is variable, and the holotype selected by Hedley (1922) is simply a white form.

The type of *Inquisitor sinensis* should be in the BM(NH), but it is not in the type cupboard nor could it be located in the general collection. The locality given by Hinds is "New Guinea; Straits of Macassar; China Sea", very close to the Queensland type locality of *I. lassulus*. The figure provided by Reeve (1843) is similar to the holotype of *I. lassulus*, and it is possible the two are conspecific. However, in the absence of the holotype of *I. sinensis*, a conservative approach is adopted here and the name *I. sinensis* retained.

Powell (1966) compared *Brachytoma alma* Thiele, 1930 with *Splendrillia harpularia* (Desmoulins, 1842) and tentatively listed it as an *Inquisitor*. However, I have examined the type of *B. alma* from Shark Bay, Western Australia, and it is conspecific with the type of *I. lassulus* Hedley, 1922 from Weary Bay, Queensland. It is an eroded shell 14.0 mm long with the protoconch broken off, a chipped outer lip and a drill hole on the upper spire. All colouration has been lost. The shell has all the major characteristics of *I. lassulus*, including the rounded protoconch, heavy subsutural cord, and narrow ribs, 13 on the body whorl, and 11 on the penultimate whorl. The holotype of *B. alma* is in the same size range as the types of *I. lassulus* and has similar shell measurements.

I. lassulus is easily distinguished from the other Australian *Inquisitor*, but closely resembles *Pleurotoma tuberosus* Smith, 1875 but has a heavier subsutural cord, narrower, more rounded protoconch, smaller and narrower ribs. In addition *I. tuberosus* is recorded only from Japan.

Inquisitor kilburni n.sp.

Plate 3, Figs. 5–6.

Shell: Shell large for genus, 32 mm, heavy, high spire. Protoconch small, bulbous, 2 whorls, 0.63 mm high, 1.08 mm wide. 9 teleoconch whorls. Upper whorls triangular, lower convex, rounded. Suture thin, nearly straight, with indistinct spiral cord just below. Dominant sculpture of strong, broad axial ribs which begin 1/3 down whorl, reach largest at midwhorl, decrease but reach lower suture, 9 on body whorl, 11 on penultimate whorl, tend to line up on adjacent whorls. Outer portion of body whorl of holotype smooth, but repaired, and it is uncertain whether ribs would have occurred in this area; outer lip of paratype chipped back. Ribs reach well down body whorl but not to anterior tip. No varix formed. Fine spiral striae present on all whorls, begin at upper margin of axial ribs, 11 on penultimate whorl, about 25 on body whorl, extend to anterior tip of shell. Outer lip thin, rounded, stromboid notch small but distinct. Sinus of moderate depth, broad, U shaped, small, low, indistinct callus present. Columella thin, distinct, surface smooth, margin raised. Aperture deep, moderate width, elongate. Anterior canal short, broad, moderate depth, anterior margin indistinctly notched. Colour off-white, aperture glossy white.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Holotype	31.6	11.6	11.6	0.37	0.37
Paratype	29.6	10.7	11.7	0.36	0.40

Holotype: WAM 92–92. 146–150 m depth, W of Lancelin, W.A. (31°00'S; 114°52.5'E)

Paratypes: WAM 93–92(1). 131 m depth, W of Bluff Point, W.A. (27°40'S; 113°20'E). WAM 94–92(1). 128 m depth, NW of Bluff Point, W.A. (27°40'S; 113°03'E).

Material examined: Types.

Distribution: 131–150 m depth, Lancelin to Bluff Point, Western Australia

Remarks: *Inquisitor kilburni* is most similar to *I. formidabilis* Hedley, 1922 but can be distinguished by its smaller size (32 mm vs. 43 mm), more numerous axial ribs (11 vs. 9 on penultimate whorl), lack of an upturned flare on the anterior canal. In addition the surface of *I. formidabilis* is much rougher, with much more pronounced spiral cords.

Inquisitor kilburni is similar to *I. flindersianus* Hedley, 1922 but lacks the strong spiral striae and recurved outer lip.

Inquisitor kilburni also resembles *I. minutosternalis* in size, shape and general appearance, but can be readily distinguished by the lack of numerous spiral striae which are present on *I. minutosternalis*.

Etymology: I am pleased to name this species after Dr. Richard N. Kilburn of the Natal Museum, South Africa in recognition of the considerable work he has done in the field of turrid systematics and for his encouragement of my own research.

Inquisitor hedleyi (Verco, 1909)

Plate 3, Figs. 7,8.

Drillia hedleyi Verco, 1909: 302–303

Inquisitor hedleyi (Verco). Hedley, 1922: 241. Cotton, 1947b: 7. Cotton, 1959: 392.

Shell: Shell small, 13 mm, light, narrow, biconic, very high spire and elongate anterior canal. Protoconch small, high, conical 2 whorls, 0.42 mm high, 0.59 mm wide. 7 slightly angular teleoconch whorls. Suture straight, impressed. Whorls convex with strong, broad axial ribs, 11 on body whorl, 9 on penultimate whorl, angle to right, tend to match up on adjacent whorls. Ribs begin 1/3 way down whorl, enlarge rapidly, reach peak at midwhorl, decrease but reach lower suture, do not extend beyond shoulder of body whorl, ribs less distinct on body whorl. Final rib of body whorl swollen into varix. Upper surface of whorl with faint spiral striae. About 9 low, somewhat stronger spiral striae on penultimate whorl, about 35 on body whorl extend to anterior tip of shell. Final rib on body whorl enlarged into varix; thin, outer lip

extends beyond varix. Sinus deep, U shaped, entrance constricted by strong callus, points up at 45° angle. Columella very thin, nearly straight. Aperture deep, narrow, elongate. Anterior canal elongate, narrow, shallow, anterior tip rounded. Colour off-white, aperture semiglossy.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
AMS syntype	18.5	4.6	7.7	0.25	0.41
BM(NH) paratype	19.1	5.9	7.7	0.31	0.40
SAM syntypes	14.4	4.4	5.6	0.31	0.39
	13.0	3.8	5.0	0.29	0.38

Location of types: Syntype, 1 specimen. AMS C.31071. 183 m off Beachport, S.A. (37°29'S; 140°00'E) Syntypes, 2 specimens. BM(NH) 1910.3.29.37–38. 201 m off Beachport, South Australia.

Syntypes, 2 specimens. D.15930. 366 m, off Beachport.

Material examined: Syntypes. SA: 183 m, 64 km S of Cape Wiles. 201 m off Beachport (SAM); 237 m off Beachport (SAM); 274 m off Beachport (SAM); 190 m off Stu I. (SAM); 190 m off Neptune I. (SAM); 165 m Cape Jaffa (SAM); 237 m Cape Jaffa (SAM).

Remarks: *Inquisitor hedleyi* is easily differentiated from the other Australian *Inquisitor* by being a narrower shell, with an elongated anterior canal, and markedly weaker axial and spiral sculpture.

Inquisitor glauce Dall, 1918

Plate 4, Figs. 1,2.

Pleurotoma (Drillia) ventricosus Smith, 1888: 301.

Drillia ventricosa Smith. Hedley, 1908: 487, pl. 10, f. 3. (not *Pleurotoma ventricosa* Deshayes, 1833).

Pleurotoma glauce Dall, 1918: 333. New name for *Pleurotoma (Drillia) ventricosa* Smith, 1888 (not *P. ventricosa* Deshayes, 1833, i.e. *P. ventricosa* Lamarck, 1804). *Inquisitor glauce* Dall. Hedley, 1922: 240. Cotton, 1947b: 7.

Shell: Shell medium, 27 mm, heavy, high spire. Protoconch small, low, rounded, smooth, 3 whorls, 0.66 mm high, 0.84 mm wide. 9 teleoconch whorls. Suture straight, impressed. Whorls convex with 13–15 low, broad axial ribs/whorl crossed by fine axial striae. About 17 small spiral cords on penultimate whorl, about 50 on body whorl. Axial ribs absent on upper part of whorl, begin at middle of whorl and extend to next suture; become low and fade out on lower part of body whorl. Final rib on body whorl enlarged into varix; thin, crenulated lip extends beyond varix. Small but distinct stromboid notch. Sinus deep, U shaped, entrance slightly constricted, points up at 45° angle. Inner surface of aperture thickened but does not form callus. Columella thin,

nearly straight, anterior canal broad, shallow. Aperture elongate, thin. Outer colour orangeish with spiral white streaks. Aperture orangeish internally, white at margins.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
(*ventricosa*)					
Holotype	27.3	11.4	13.5	0.42	0.49

Location of type: (*ventricosa*) Holotype, 1 specimen. BM(NH) 1860.5.19.28.

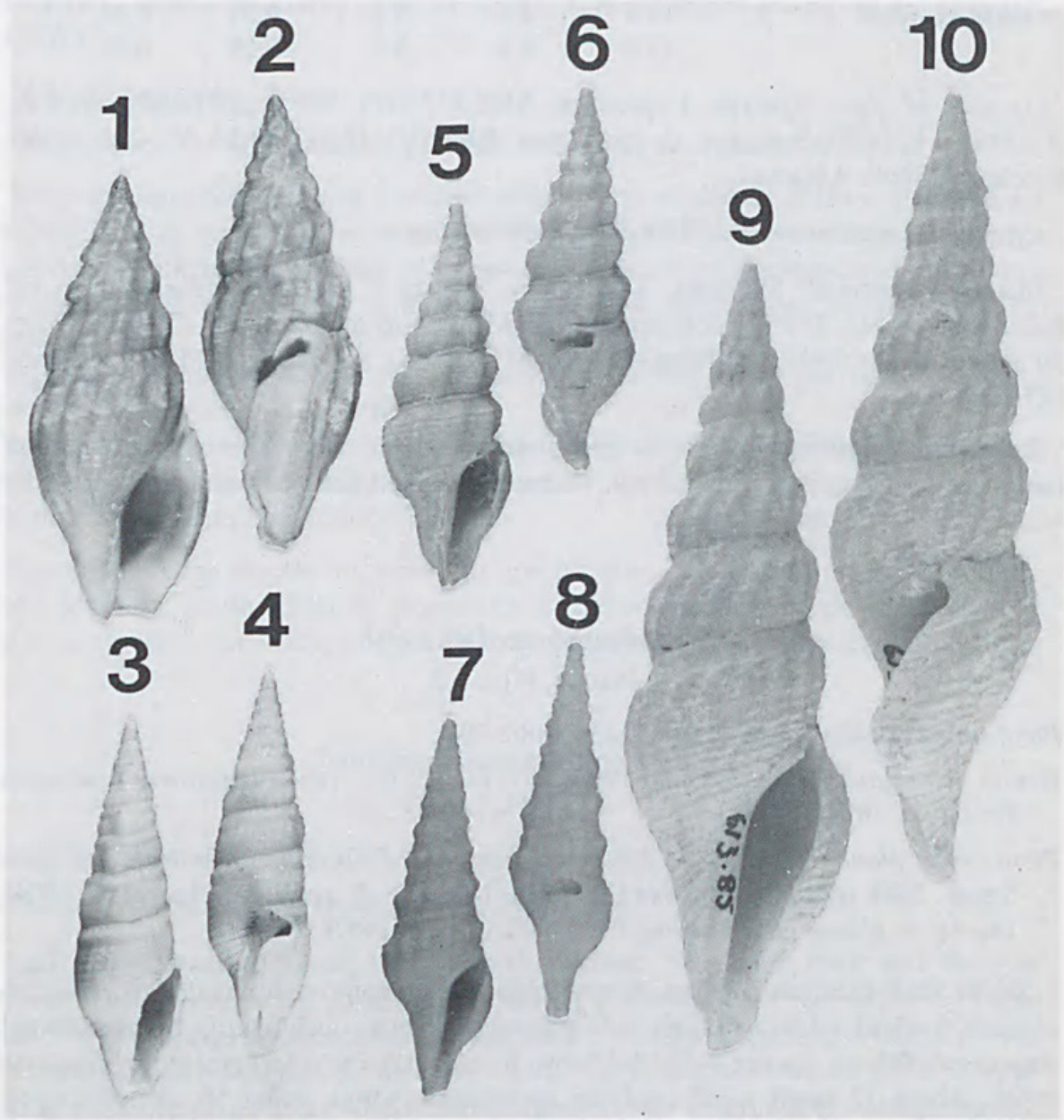

Plate 4. 1–2. *Inquisitor glauce* Dall, 1918. Holotype of *Pleurotoma* (*Drillia*) *ventricosa* Smith, 1888. BM(NH) 1860.5.19.28. 27.3 mm. 3–4. *Inquisitor odhneri* n.sp. Holotype of *I. odhneri*. WAM 85–92. 20.6 mm. 5–6. *Inquisitor minutosternalis* Kosuge, 1993. Holotype of *I. minutosternalis*. WAM 26–86. 25.4 mm. 7–8. *Inquisitor minimarus* Kosuge, 1993. Holotype of *I. minimarus*. WAM 12–86. 17.7 mm. 9–10. *Inquisitor angustus* Kuroda and Oyama, 1971. WAM 613–85. 47.5 mm.

Type locality: Between Percy I. and the mainland, Qld.

Material examined: Holotype

Remarks: *Inquisitor glauce* is closest to *I. sterrhus* but has smaller, broader ribs which are more vertical. The spiral cords of *I. sterrha* are larger with more lirae occurring between the ribs.

Inquisitor odhneri n. sp.

Plate 4, Figs. 3,4.

Shell: Shell small for genus, 23 mm, solid, very high spire. Protoconch small, high, smooth, 2 whorls, 0.74 mm high, 0.64 mm wide. 10 flat teleoconch whorls. Suture slightly channeled, straight. Sculpture complex with no single feature dominant. Pronounced spiral cord just below suture. Numerous axial lirae below cord give way to 22 axial ribs per whorl. Axial ribs low, narrow, crossed by five spiral cords on penultimate whorl. Ribs continue most of the way down body whorl but become very faint; about 20 spiral striae on body whorl. Beaded appearance where ribs and striae cross. Some ribs swollen into varices at intervals of about 0.5 whorls on upper whorls, 2/3 on lower whorl. Outer lip thin, slightly incurved. Sinus on shoulder deep, U shaped. Callus small but distinct. Aperture elongate, subrectangular. Columella thin, smooth. Shell truncate, anterior canal short, broad, deep. Shell and protoconch glossy white, varices yellowish. Aperture chalky white.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Holotype	20.6	6.3	6.9	0.31	0.34
Paratypes (WAM)	23.2	7.1	7.7	0.31	0.33
(AIM)	20.7	6.2	6.5	0.30	0.31
	20.1	6.5	6.5	0.32	0.32
(juvenile)	14.4	4.6	4.2	0.32	0.29
(AMS)	21.2	6.4	6.5	0.30	0.31
	20.9	6.1	6.3	0.29	0.30

Holotype: 42 m depth, 36 km N of Delambre I., Dampier Arch., W. A. WAM 85–92.

Paratypes: 42 m depth, 36 km N of Delambre I., Dampier Arch., W. A. (WAM 87–92(1) and WAM 88–92(2) and AIM(3 spec); 40 m, 11–13 km N of Delambre I., Dampier Arch., W. A. (WAM 84–92(1); 37–45 m, E of Monte Bello Is., W. A. (20°26'S; 116°00'E) (WAM 86–92(1); 50–52 m, 61 km N off Port Walcott, W. A. (19°59'S; 119°16'E)(WAM 91–92(1); 26 m depth, 22 km W of Eaglehawk I., Dampier Arch, W. A. (WAM 89–92(2) 42 m depth, NW of Little North I., Easter Group, Houtman Abrolhos, W. A. (WAM 90–92(1)

Distribution: 42 to 80 m depth, Houtman Abrolhos to Port Walcott, Western Australia.

Remarks: This species was referred to *Drillia varicosa* Reeve, 1843 by Odhner (1917), but Powell (unpubl.) regards it as being a separate species, differing from

Inquisitor varicosa in being constantly whitish with varices tinted yellow, the varices being wider apart, and there being more but weaker axial ribs. There are as many as 5 varices per whorl in *I. varicosa*, and the intermediate axials are fewer but stronger. In addition *I. varicosa* is a larger, heavier shell.

Inquisitor odhneri is similar to *I. minimarus* in size and shape, but can be readily distinguished by the lack of strong axial ribs, less angular whorl outline, broader shell, and the beaded appearance, which is lacking on *I. minimarus*.

Etymology: The late Dr. A. W. B. Powell recognized *I. odhneri* as a new species and included a preliminary description of it in a manuscript on the Indo-Pacific Clavinae intended for publication in Indo-Pacific Mollusca. Unfortunately the manuscript, and the new species, were never published. I have followed Dr. Powell's intentions and have named the species after Dr. Odhner.

Inquisitor minutosternalis Kosuge, 1993

Plate 4, Figs. 5,6.

Inquisitor minutosternalis Kosuge, 1993: 12, 13, pl. 5, figs. 3,4, text fig. 2.

Shell: Shell small for genus, up to 26 mm, solid, very high spire. Protoconch small, high, smooth, 2 whorls, 0.80 mm high, 1.05 mm wide. 10 strongly convex teleoconch whorls. Suture undulating, slightly channeled. Sculpture complex, dominated by strong, broad axial ribs, 9 on penultimate whorl, begin below spiral cord, rapidly expand, reach peak at about midwhorl, decrease but reach lower suture, 10 on body whorl, extend well beyond shoulder but not to anterior tip of shell. Pronounced spiral cord just below suture. Numerous strong axial striae below cord, about 8 on penultimate whorl, about 20 on body whorl. Occasional ribs swollen into varices. Outer lip thin, slightly incurved with distinct stromboid notch. Sinus subsutural, deep, margins callused, entrance slightly constricted by outer lip and strong subsutural callus. Aperture elongate, narrow, subrectangular. Columella narrow, smooth, margin strongly callused. Shell truncate, anterior canal short, broad, deep, anterior tip slightly raised. Shell colour uniform semiglossy off white, varices yellowish.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Holotype	25.4	8.8	9.3	0.35	0.37
Paratype lot (n=5)					
Mean	22.8	8.3	8.9	0.37	0.39
S.D.	2.5	0.5	0.7	0.02	0.02
Range	20.6–26.5	7.6–9.1	8.1–9.6	0.34–0.39	0.36–0.41

Type material: Holotype and 2 paratypes, WAM 26–86; an additional 12 specimens are in the lot.

Type locality: 200 m depth, 210 km N of Port Hedland, Western Australia (18°25'S; 118°22'E).

Other material examined: 156 m depth, 193 km NW of Port Hedland, Western Australia (19°06'S; 117°17'E).

Distribution: Known only from 156 to 200 m depth, N of Port Hedland, Western Australia.

Remarks: *Inquisitor minutosternalis* is closest to *I. kilburni* in size, shape and general appearance, but can be readily distinguished by the presence of numerous spiral striae which are absent on *I. kilburni*.

Inquisitor minimarus Kosuge, 1993

Plate 4, Figs. 7,8.

Inquisitor minimarus Kosuge, 1993: 11,12, pl. 5, figs. 1,2, text fig. 1.

Shell: Shell very small for genus, up to 18 mm, light, narrow, very high spire. Protoconch small, high, smooth, 2.5 whorls, 1.00 mm high, 1.05 mm wide, final whorl develops strong spiral keel at midwhorl. 9 strongly angular teleoconch whorls. Suture narrow, distinct, nearly straight, slightly channeled. Sculpture complex, dominated by strong, narrow axial ribs, 14 on penultimate whorl, begin below spiral cord, rapidly expand to reach distinct bimodal peak at midwhorl, decrease but reach lower suture, 13 on body whorl, extend well beyond shoulder but not to anterior tip of shell, penultimate rib swollen into strong varix. Pronounced spiral cord just below suture. Numerous strong axial striae below cord, 6 on penultimate whorl, about 21 on body whorl. Outer lip thin, strongly incurved with distinct, shallow stromboid notch. Sinus subsutural, at 45° angle to shell axis, very deep, margins callused, entrance slightly constricted by outer lip and strong subsutural callus, slight channel across surface of callus. Aperture elongate, narrow, subrectangular. Columella narrow, smooth, slightly convex, margin strongly callused. Shell truncate, anterior canal short, broad, deep, anterior tip slightly notched. Shell colour uniform semiglossy off white.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Holotype	17.7	5.4	6.4	0.31	0.36

Type material: Holotype, WAM 12–86.

Type locality: 154 m depth, 184 km NW of Port Hedland, Western Australia (18°47'S; 117°58'E).

Other material examined: 200 m depth, 210 km N of Port Hedland, Western Australia (18°25'S; 118°22'E).

Distribution: Known only from 154 to 200 m depth N pf Port Hedland, Western Australia.

Remarks: *Inquisitor minimarus* is closest to *I. odhneri* in size and shape, but can be readily distinguished by the presence of strong axial ribs, more angular whorl outline, narrower shell, and the lack of a beaded appearance found on *I. odhneri*.

Inquisitor angustus Kuroda and Oyama, 1971

Plate 4, Figs. 9,10.

Inquisitor angustus Kuroda and Oyama, 1971: 216, pl. 56, fig. 9, pl. 110, fig. 13.
Kosuge, 1992: 169, 170, pl. 59, figs. 8,9, text fig. 1.

Shell: Shell large for genus, up to 58 mm, light, narrow, very high spire. Protoconch worn and eroded in Western Australian material. Up to 12 convex teleoconch whorls. Suture narrow, distinct, nearly straight, slightly channeled. Sculpture complex, dominated by strong, narrow axial ribs, 16 on penultimate whorl, begin below suture cord, rapidly expand to reach rounded peak at midwhorl, decrease but reach lower suture, 15 on body whorl, extend well beyond shoulder but not to anterior tip of shell, penultimate rib swollen into strong varix. Numerous strong axial striae below cord, 8 on penultimate whorl, about 24 on body whorl. Outer lip thin, strongly incurved with broad, indistinct, shallow stromboid notch. Sinus subsutural, at 45° angle to shell axis, very deep, moderate width, U shaped, margins callused, entrance slightly constricted by outer lip and strong low subsutural callus. Aperture elongate, narrow, subrectangular. Columella narrow, smooth, slightly convex, margin callused. Shell truncate, anterior canal short, narrow, deep, anterior tip slightly notched and raised. Shell colour indeterminate in Western Australian material, heavily eroded light gray.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
WAM 613–85					
Mean (n=5)	52.8	13.5	19.1	0.26	0.36
S.D.	4.4	0.7	1.3	0.02	0.02
Range	47.5–58.3	12.5–14.2	17.3–20.7	0.24–0.29	0.34–0.40

Type material: Holotype presumably in Natural Science Museum, Tokyo.

Type locality: 70–80 m depth, Barane, Sagami Bay, Japan.

Material examined: 200 m depth, 210 km N of Port Hedland, Western Australia (18°25'S; 118°22'E).

Distribution: Japan to northwestern Australia.

Remarks: The Western Australian specimens of *Inquisitor angustus* were identified and figured by Kosuge (1992), and the identification is based on Kosuge's analysis. The material represents a considerable range extension from the type locality in Japan.

Inquisitor angustus is part of a suite of *Inquisitor* species that are very similar in appearance. Other species included in the group are *I. jeffreysi* (Smith, 1875) and *I. nudivaricosus* Kuroda and Oyama, 1971 and *Ptychobela flavidula* (Lamarck, 1816). The radula of *I. angustus* has not been figured, but when it is whether the species belongs in *Inquisitor* or *Ptychobela* will be clear. *Inquisitor angustus* is of the same size as the other three species but has a narrower shell, higher spire, and weaker axial ribbing.

Inquisitor formidabilis Hedley, 1922

Plate 5, Figs. 1,2.

Inquisitor formidabilis Hedley, 1922: 239, pl. 44, fig. 29. Cotton, 1947b: 7. Wilson and Gillett, 1979: 272, pl. 66, f. 12. Wells and Bryce, 1986: 120, pl.40, f. 465. Kosuge, 1992: 170–171, pl. 59, fig. 11.

Clavus formidabilis Short and Potter, 1987: 108, pl. 53, fig. 4.

Shell: Shell very large, to 57 mm, solid, very high spire. Protoconch small, high, conical, smooth, 2 whorls, 0.33 mm high, 0.36 mm wide. Up to 12 convex teleoconch whorls. Suture thin, undulating. Sculpture complex, dominated by up to 12 axial ribs per whorl. Small subsutural spiral cord on lower whorls of some specimens. Ribs develop about 1/4 of the way down the whorl, greatest just above midwhorl, taper rapidly and do not reach lower suture, extend well down body whorl. Numerous fine axial striae begin on spiral cord, angle to right and fade out, re-emerge on rib and angle to left, crossed by about 12 rounded spiral cords on penultimate whorl, giving shell a cross hatched appearance. About 24 spiral cords on body extend to base of shell, lower cords separated by a single spiral lirae. Final rib on body whorl swollen into a varix. Outer lip thin, incurved, with indistinct stromboid notch. Sinus subsutural, moderate depth, U shaped. Callus weak. Columella smooth, very thin. Aperture elongate-ovate. Anterior canal short, broad, shallow, strongly recurved, with shallow notch. Colour gray to light brown, aperture white, protoconch orangeish.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
Syntypes	46.8	15.0	18.3	0.32	0.39
	42.9	14.9	15.2	0.35	0.35
Yeppoon, Qld. (AIM)					
Mean (n=11)	45.5	15.2	18.5	0.34	0.41
S. D.	6.7	1.7	2.7	0.01	0.01
Range	36.3–	13.2–	15.2–	0.32–	0.38–
	57.0	18.1	23.7	0.36	0.42

Location of types: Syntypes, 2 specimens. AMS C.14161.

Type locality: 18 m depth, off Mapoon, Gulf of Carpentaria, Qld.

Material examined: AUSTRALIA: NT: Gunn Point, E of Darwin (WAM); Port Keats (AMS); Groote Eylandt (AMS). QLD: Gulf of Carpentaria: 18 m, W of Edward River (AMS); Mapoon (2AMS; AIM); Townsville (AMS; AIM); Magnetic I., off Townsville (AIM); 37 m, off Bowen (AMS); headland between Kings and Queens Beaches, Port Denison (AMS); Gloucestor I. (AMS); St. Bees I. (AMS); Seaforth, Mackay (AMS); Yeppoon, (3 AMS; 2 AIM); Buchan's Point (AIM); Keppel Bay (2 AMS; 2 AIM); Long Beach, Keppel Bay (AMS); Gint I., Keppel Bay (WAM); Gladstone (2 AIM); Gladstone Harbour (AMS); Port Curtis, Gladstone (AMS); 5–7 m, North Stradbroke I. (AMS).

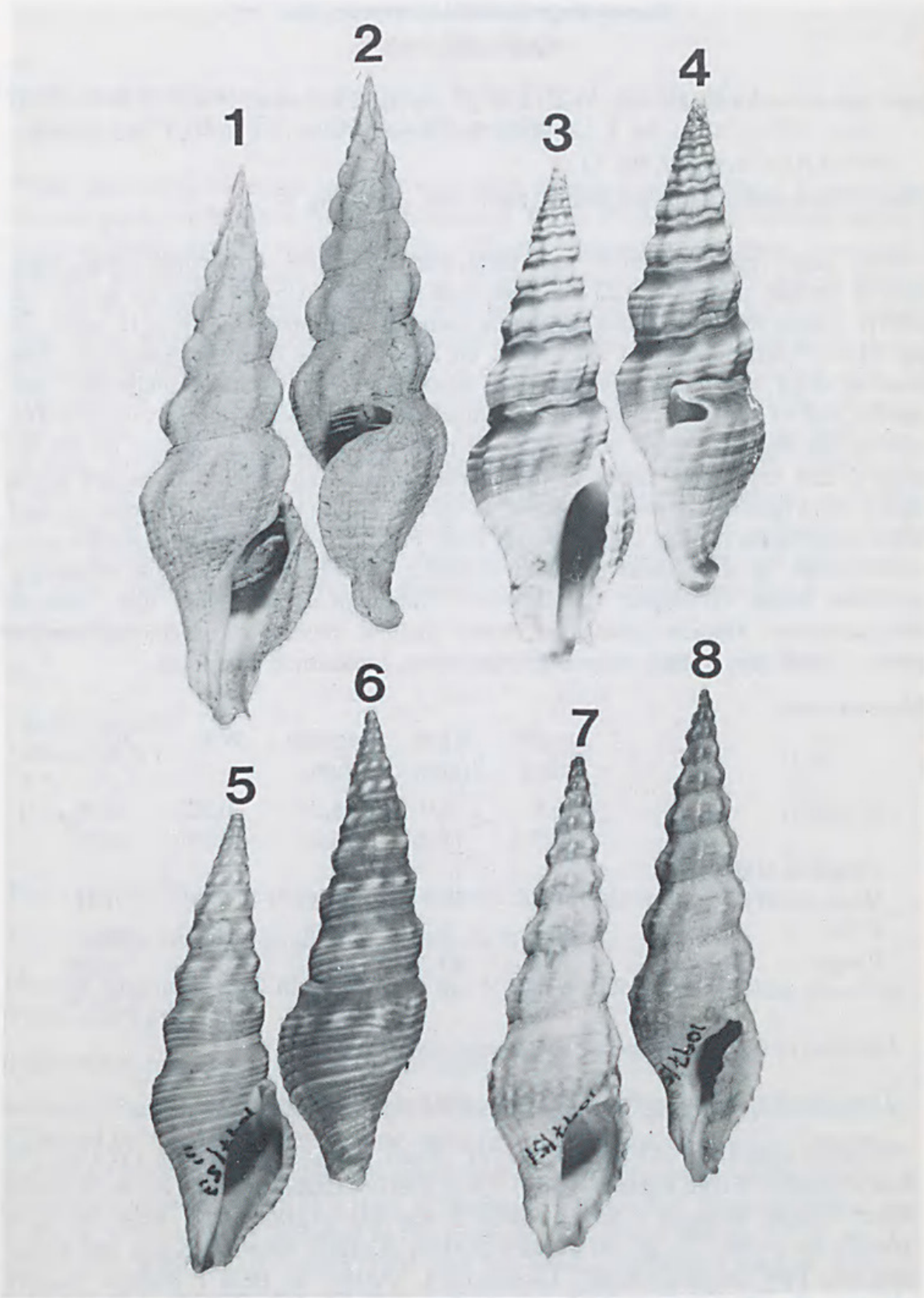

Plate 5. 1–2. *Inquisitor formidabilis* Hedley, 1922. Syntype of *I. formidabilis*. AMS C.14161. 46.8 mm. 3–6. *Ptychobela nodulosa* (Gmelin, 1791). 3–4. Neotype of *Murex nodulosus*. ANSP 231901. 43 mm. 5–6. Possible syntype of *Clavatula crenularis* Lamarck, 1816. MHNG. 40.0 mm. 7–8. *Ptychobela flavidula* (Lamarck, 1822). Holotype, MHNG 1097/51. 38.9 mm.

Distribution: 5–37 m, Gunn Point, east of Darwin, Northern Territory to Stradbroke, Queensland.

Remarks: *Inquisitor formidabilis* is closest to *Ptychobela flavidula* (Lamarck, 1816) but can be distinguished by having fewer but stronger axial ribs, crossed by weaker spiral cords, with the whorls more tightly wound. The basis for separating *Inquisitor* from *Ptychobela* is differences in the radula of the type species of the two genera (Springsteen and Leobrera, 1986; Kilburn, 1988; 1889). As the radula of *I. formidabilis* is unknown, it seems preferable to retain the species in *Inquisitor* until a radula becomes available.

Genus *Ptychobela* Thiele (1925)

Diagnosis: Shells medium to large, 45 to 57 mm, narrow, high spired, solid. Protoconch small, smooth, rounded, 2 whorls. Up to 12 flattened to convex teleoconch whorls. Suture thin, slightly channeled, straight or slightly undulating. Sculpture complex, dominated by axial ribbing which tends to start part way down whorl, 9–15 on penultimate whorl. Spiral cords of varying strength may be present, 4–7 on upper whorls, 15–20 on penultimate whorl, sometimes including a strong subsutural cord. Outer lip thickened, often incurved. Sinus subsutural, may be U shaped. Callus absent. Columella narrow to medium width, smooth. Aperture deep. Anterior canal moderately long, usually notched. Colour variable, off-white to colourful. Marginal plates of radula awl-shaped with sharp tip that lacks cutting edges (Kilburn, 1989). Indo-Pacific; shallow water, to at least 320 m, tropical.

Remarks: As mentioned above, *Ptychobela* was erected by Thiele (1925) with the type species being *Clavatula crenularis* Lamarck, 1816. Kilburn (1989) considers generic recognition of *Ptychobela* to be warranted because of differences in the radula from *Inquisitor*.

Ptychobela nodulosa (Gmelin, 1791)

Plate 5, Figs. 3–6.

Murex nodulosus Gmelin, 1791: 3562.

Clavatula crenularis Lamarck, 1816: pl. 440, f. 3 a,b.

Pleurotoma crenularis Lamarck, 1822: 92. Deshayes, 1843: 347. Reeve, 1843: pl. 7, sp. 54.

Drillia crenularis Pritchard and Gatliff, 1900: 172, doubted by Hedley 1922

Ptychobela crenularis (Lamarck). Thiele, 1925: 181, pl. 34, f. 29,31.

Brachytoma crenularis (Lamarck). Yen, 1942: 239.

Inquisitor crenularis (Lamarck). Powell, 1966: 239. Wilson and Gillett, 1979: 272, pl. 66, f. 11. Wells and Bryce, 1986: 120, pl. 40, f. 469.

Ptychobela nodulosa (Gmelin). Kilburn, 1989: 187–190, f. 1–4.

Shell: Shell of medium size, 45 mm, narrow, medium weight, very high spire. Protoconch smooth, glassy, rounded, 2 whorls, 0.40 mm high, 0.64 mm wide. 12 teleoconch whorls. Suture thin, slightly undulating. Nodulose axial ribs develop about halfway down whorl, low bulges, may or may not extend to lower suture, 10 on penultimate whorl, 9 on body whorl. Final rib on body whorl swollen into a varix which extends well down the shell. Other ribs restricted to shoulder. About 15 thin spiral cords on penultimate whorl, vary in size with large ones being subsutural and 4 at equal intervals beginning on upper rib. One major subsutural spiral cord on body whorl. 16 additional cords beginning at top of ribs and extending down entire whorl, some separated by spiral striae. Outer lip thin, slightly incurved, crenulated with distinct stromboid notch. Sinus subsutural, deep, U shaped at base, but broadens at top with upper flange with strong callus below. Columella thin, smooth. Aperture elongate-ovate, narrow, deep. Anterior canal narrow, deep, moderate length, anterior tip of shell notched. Shell glossy, background colour grayish-brown, darker between ribs, nodules and spiral cords white. Aperture whitish at opening, darker internally. Upper whorls and protoconch glossy brown.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
possible syntypes	40.0	13.1	16.1	0.33	0.40
	36.7	13.1	16.1	0.36	0.44
	35.5	15.0	12.1	0.42	0.34
	30.6	12.9	14.0	0.42	0.46

Location of type: *nodulosa*: Neotype, ANSP 231901. *crenularis*: Possible syntypes, MHNG.

Type localities: Unknown.

Material examined: Type. AUSTRALIA: WA: 31 m, N of East Wallabi I., Wallabi Group, Houtman Abrolhos (WAM); 72 m, Dirk Hartog I., Shark Bay (WAM); Shark Bay (20°53'S; 115°22'E); SW of Point Cloates (22°43'S; 113°40'E) (2 WAM); W side Point Cloates (22°43'S; 113°40'E) (2 WAM); N end of bay N of Point Cloates (22°37'S; 113°38'E) (4 WAM); 14m, North side of Point Cloates (22°30'S; 113°42'E) (WAM); North West Cape (WAM); Bandicoot Bay, Barrow I. (20°52'S; 115°19'E) (WAM); 13 m, Thevenard I., off Onslow (WAM); 51 m, 11 km N of Long I., off Onslow (2 WAM); Onslow (WAM); Monte Bello Is. (AMS); Port Hedland (WAM; AMS); 90 mile Beach (AMS); Broome (8 AIM; 6 AMS; 4 WAM); Roebuck Bay, Broome (5 AMS); Cable Beach, Broome (AMS).

OTHER AREAS: Bali, Indonesia (AIM); Singapore (AIM); Ko Phuket, west coast of Malaysia (AIM); Quezon Prov., Philippines (AIM); Qarigara Bay, Sama, Philippines (AMS); southwest sea of Formosa (MHNG).

Distribution: Indo-West Pacific; Intertidal to 72 m, Houtman Abrolhos to Troughton Island, Western Australia.

Remarks: This is a variable species. The possible type series of *Clavatula crenularis* Lamarck, 1816 in the MHNG has four specimens, which are quite variable. All share the same general structure and shape, but the details differ significantly. Two of the four have very high, narrow spires (w/l ratios of 0.33 and 0.36), but the other two, which are also smaller, are relatively broader (0.42). On all four the axial ribs begin at or below midwhorl. On one possible syntype they do not extend to the lower whorl, but on three specimens they do. Colour of the four ranges from very light to dark gray; the ribs are noticeably lighter on the darker specimens.

Ptychobela nodulosa co-occurs with *Inquisitor dampierius* (Hedley, 1922) on the north coast of Western Australia. *Inquisitor dampierius* has a thinner shell, more numerous and stronger axial ribs which extend over more of the whorl, more numerous and stronger spiral striae, darker colour and a more beaded appearance.

Ptychobela flavidula (Lamarck, 1822)

Plate 5, Figs. 7,8.

Murex gibbosus Chemnitz, 1795 (in part)(nonbinom.): 113, pl. 190, figs. 1829, 1830.

Pleurotoma flavidula Lamarck, 1822: 92. Kiener, 1839–40: 30, pl. 6, fig. 2 and pl. 18, fig. 2. Reeve, 1843: pl. 8, fig. 66.

Drillia flavidula (Lamarck). Tryon, 1884: 177, pl. 10, fig. 56, 57.

Clavus (*Clathrodrillia*) *flavidulus* (Lamarck). Grant and Gale, 1931: pl. 26, fig. 4a, b.

Brachystoma flavidula (Lamarck). Yen, 1942: 238. Kira, 1964: pl. 36, fig. 10.

Clathrodrillia flavidula (Lamarck). Hinton, 1972: 60, pl. 30, f. 15.

Ptychobela flavidula (Lamarck). Springsteen and Leobrera, 1986: 268, pl. 76, f. 18.

Inquisitor flavidula (Lamarck). Kosuge, 1992: 170, pl. 59, f. 10.

Shell: Shell large, up to 56 mm, narrow, very high spire, solid. Protoconch small, smooth, conical, 2 whorls, 0.58 mm high, 0.68 mm wide. Up to 12 teleoconch whorls. Suture thin, indistinct, nearly straight, slightly channeled on lower whorls. Sculpture complex, dominated by low axial ribs, 15 on penultimate whorl, 13 on body whorl, angled to left. Final rib of body whorl swollen into a varix. Ribs begin about 1/4 way down the whorl, reach maximum above midwhorl, taper off but reach lower suture, extend well down body whorl, but not to tip. Ribs crossed by prominent series of triangular spiral cords, 7 on penultimate whorl, 15–20 on body whorl, smaller cords may be between larger ones. Numerous spiral striae occur over entire whorl surface. Low nodules occur where spiral cords cross axial ribs. Numerous fine axial growth lines also present. Outer lip thin, slightly incurved. Sinus subsutural, moderately deep, upper margin does not come forward. Moderately strong callus present. Aperture elongate-oval, relatively narrow, deep. Columella smooth, thin, slightly convex. Anterior canal moderately long, moderate width and depth, tip reflected upwards, slightly notched. Colour uniform light brown or yellowish with a single purple band across the body whorl (see description of holotype of *P. flavidula* below), nodules and aperture lighter.

Measurements:

	Length (mm)	Width (mm)	Aperture (mm)	W/L	A/L
flavidula					
holotype	38.9	11.3	13.3	0.29	0.34
146–184 m north of Caloundra, Qld. (AIM)					
	56.2	16.2	22.4	0.29	0.40
	54.8	16.6	22.2	0.30	0.41

Location of types: MHNG 1097/51.

Type localities: Red Sea.

Material examined: AUSTRALIA: WA: 42 m, off Little North I., Easter Group, Houtman Abrolhos (28°38'S; 113°54'E) (WAM); NW of Bluff Point (27°40'S; 113°20'E) (WAM); 128–131 m, W of Dirk Hartog I. (25°54'S; 112°38'E) (WAM); 128–130 m, W of Carnarvon (24°58'S; 112°30'S) (WAM); 95 m, 16 km N of Anchor I., off Onslow (WAM); 119 m, 16 km N of Anchor I., off Onslow (3 WAM); 119 m, 32 km NW of Anchor I. off Onslow (WAM); 13 m, Thevenard I., off Onslow (WAM); 200–202 m, 207 km NW of Port Hedland (19°04'S; 117°06'E) (WAM); 32 km N of Adele I. (WAM); 80 km NE of Adele I. (WAM); 92 m, 80 km ENE Troughton I. (WAM); 92 m, 208 km ENE Troughton I. (WAM); 344 km ENE Troughton I. (2 WAM). NT: 53–59 m, Clarence Straits, S of Bathurst I. (12°01'S; 130°08'E) (WAM); QLD: 284 m, E of North West I. (AMS); 210–229 m, E of Lady Musgrave I. (AMS); 128–183 m depth, off Caloundra (AIM); 132–155 m, off Mooloolaba (Maroochydore) (AMS).

OTHER AREAS: 128 m, NW of Tajandu I., Kai, Indonesia (5°30'S; 132°18'S) (2 WAM); 57–73, off W coast of Wasir I., W. Wokam, Aru, Indonesia (5°30'S; 134°12'E) (WAM); 46–51 m, W of Tg Derehi, Trangan, Aru, Indonesia (6°26'S; 133°57'E) (WAM); 73–92 m, off W coast of Wasir I., W. Wokam, Aru, Indonesia (5°30'S; 134°12'E) (WAM); 146 m, 5 km NW of Tg. tuwau, Selaru, Tanimbar, Indonesia (8°12'S; 130°49'E) (WAM); Rabaul, PNG (AMS); 37 m, Yule I., PNG (AMS).

Distribution: 18–320 m depth, Indo-West Pacific; Dirk Hartog Island, Western Australia to Moreton Bay, Queensland.

Remarks: *Inquisitor formidabilis* Hedley, 1922 is very close to *P. flavidula*, and the two are initially difficult to separate. *Inquisitor formidabilis* can be distinguished by having fewer but stronger axial ribs, crossed by weaker spiral cords, with the whorls more tightly wound. A 55 mm specimen of *P. flavidula* from off Cape Moreton, Queensland has for example 10 teleoconch whorls compared to 12 for a 52 mm specimen of *I. formidabilis* from off Yeppoon.

Acknowledgements

I am very pleased to acknowledge the following individuals who have all helped in one way or another with the work on this paper: Mr. C. Bryce, the late Mr. G. M. Buick, Mrs. G. M. Hansen, and Ms A. Jaros (Western Australian Museum); Dr. W. F. Ponder and Mr. I. Loch (Australian Museum); Ms. K. L. Gowlett-Holmes (South Australian Museum); Dr. J. Taylor and Ms. K. Way (British Museum [Natural

History]); the late Dr. R. S. Houbrick (Smithsonian Institution); Dr. R. Kilias (Zoological Museum, Berlin); Dr. A. Warén (Swedish Museum of Natural History); Dr. G. M. Davis (Academy of Natural Sciences, Philadelphia) and Mr. B. Stephenson and Ms. J. Oates (Auckland Institute and Museum). Major financial support for the project came from the Australian Biological Resources Study. The study was also assisted by travel funds from the Smithsonian Institution and the Ian Potter Foundation.

The late Dr. A. W. B. Powell of the Auckland Institute and Museum was in the process of revising the Indo-Pacific Turridae before he retired. As I began to work on *Inquisitor* I was fortunate enough to see a draft manuscript of the Clavinae written by Dr. Powell, probably in the early 1960's. I have benefited from being able to compare my opinions with Powell's' but of course I am responsible for any errors I may have made.

Literature cited

Angas, G. F. 1867. Descriptions of thirty-two new species of marine shells from the coast of New South Wales. Proceedings of the Zoological Society 1867: 110–117.

Brazier, J. 1876. A list of the Pleurotomidae collected during the Chevert Expedition, with the description of the new species. Proceedings of the Linnean Society of New South Wales 1: 151–162.

Cossmann, M. 1896. Essais de paleoconchologie comparee. Paris 2: 58–179.

Cotton, B. C. 1947a. Some southern Australian Turridae. South Australian Naturalist 24: 13–16.

Cotton, B. C. 1947b. Australian Recent and Tertiary Turridae. Field Naturalists Section, Royal Society of South Australia Publication 4: 1–34.

Cotton, B. C. 1959. South Australian Mollusca. Archaeogastropoda. Adelaide, British Science Guild.

Dall, W. H. 1918. Notes on the nomenclature of the molluscs of the family Turritidae. Proceedings of the United States National Museum 54: 313–333.

Deshayes, G. P. 1833 . Pleurotome (*Pleurotoma*). In: Lamarck, J. B. P. A. de M. Histoire naturelle des animaux sans vertebres. 2nd ed. 9: 342–373.

Finlay, J. H. 1924. The molluscan fauna of Target Gully. Transactions of the New Zealand Institute 55: 514–516.

Grant, U.S. and Gale, H. R. 1931. Catalogue of the Marine Pliocene and Pleistocene Mollusca of California and Adjacent Regions. San Diego Society of Natural History, Memoir 1: 477–612.

Gray, J. E. 1838. Molluscous animals and their shells. In: Beechey, F. W. The zoology of Capt. Beechey's voyage to the Pacific and Behring's Straits in His Majesty's ship Blossom London.

Habe, T. and Kosuge, S. 1966. New genera and species of the tropical and subtropical Pacific molluscs. Venus 24: 312–341.

Hedley, C. 1908. Studies on Australian Mollusca. Part X. Proceedings of the Linnean Society of New South Wales 33: 456–489.

Hedley, C. 1918. A checklist of the marine fauna of New South Wales. Part 1. Mollusca. Journal and Proceedings of the Royal Society of New South Wales 51: M1–M120.

Hedley, C. 1922. A revision of the Australian Turridae. Memoirs of the Australian Museum 13: 213–359.

Hinds, R. B. 1843. Descriptions of new shells, from the collection of Sir Edward Belcher, R.N., C.B. & c. Proceedings of the Zoological Society 1843: 36–46.

Hinds, R. B. 1844. The zoology of the voyage of H. M. S. Sulphur under the command of Captain Sir Edward Belcher, R.N., C.B.E., F.R.G.S., etc. during the years 1836–42. Mollusca. Smith, Elder and Co., London. Vol. 2: 1–45.

Hinton, A. 1972. Shells of New Guinea and the central Indo-Pacific. R. A. Brown & Assoc., Port Moresby.

Iredale, T. and McMichael, D. F. 1962. A reference list of the marine Mollusca of New South Wales. Memoirs of the Australian Museum 11: 1–109.

Kiener, L. C. 1839–40. (Pleurotome) Iconica coquilles vivante 5: 1–84.

Kilburn, R. N. 1988. Turridae (Mollusca: Gastropoda) of southern Africa and Mozambique. Part 4. Subfamilies Drilliinae, Crassispirinae, and Strictispirinae. Annals of the Natal Museum 29: 167–320.

Kilburn, R. N. 1989. Notes on *Ptychobela* and *Brachytoma*, with the description of a new species from Mozambique (Mollusca: Gastropoda: Turridae). Annals of the Natal Museum

Kira, T. 1964. Shells of the western Pacific in color. Osaka, Hoikusha Publishing Company.

Kosuge, S. 1985. Noteworthy Mollusca from north-western Australia (1) Preliminary report. Bulletin of the Institute of Malacology of Tokyo 2: 58–59.

Kosuge, S. 1986. Report on the family Turridae collected along the northwestern coast of Australia (1). Bulletin of the Institute of Malacology of Tokyo 2: 80–91.

Kosuge, S. 1988a. Report on the family Turridae collected along the northwestern coast of Australia (2). Bulletin of the Institute of Malacology of Tokyo 2: 101–108.

Kosuge, S. 1988b. Report on the family Turridae collected along the northwestern coast of Australia (3). Bulletin of the Institute of Malacology of Tokyo 2: 118–124.

Kosuge, S. 1990. Report on the family Turridae collected along the northwestern coast of Australia (4). Bulletin of the Institute of Malacology of Tokyo 2: 149–155.

Kosuge, S. 1992. Report on the family Turridae collected along the northwestern coast of Australia (5). Bulletin of the Institute of Malacology of Tokyo 2: 1162–173.

Kosuge, S. 1993. Report on the family Turridae collected along the northwestern coast of Australia (6). Bulletin of the Institute of Malacology of Tokyo 3: 10–15.

Kuroda, T., Habe, T. and Oyama, K. 1971. The shells of Sagami Bay. Maruzen, Tokyo.

Lamarck, J. P. B. A. de M. 1816. Tableau encyclopedeque et methodique des trois regnes de la nature. Paris.

Lamarck, J. B. P. A. de M. 1822. Pleurotome (*Pleurotoma*). In: Histoire naturelle des animaux sans vertebres. Paris: Lamarck. 7: 90–102.

Laseron, C. F. 1954. Revision of the New South Wales Turridae (Mollusca). Australian Zoological Handbook (Royal Zoological Society of New South Wales, 56 pages.

Long, D. C. 1981. Late Eocene and Early Oligocene Turridae (Gastropoda: Prosobranchiata) of the Brown's Creek and Glen Aire clays, Victoria, Australia. Memoirs of the National Museum of Victoria 42: 15–55.

Ludbrook, N. H. 1958. The molluscan fauna underlying the Adelaide plains. Part V. Gastropods (Eratoidae to Scaphandridae). Transactions of the Royal Society of South Australia 81: 43–112.

Melvill, J. C. 1917. A revision of the Turridae (Pleurotomidae) occurring in the Persian Gulf, Gulf of Oman and North Arabian Sea, as evidenced mostly through the results of dredgings carried out by Mr. F. W. Townsend, 1893–1914. Proceedings of the Malacological Society of London 12: 140–201.

Melvill, J. C. and Standen, R. 1899. Report on the marine Mollusca of Torres Straits. Zoological Journal of the Linnean Society 27: 150–206.

Morrison, J. P. E. 1966. On the subfamilies of Turridae. Annual Report of the American Malacological Union for 1965: 1–2.

Odhner, N. H. 1917. Mollusca. Results of Dr. E. Mjoberg's Swedish scientific expeditions to Australia 1910–13. Kungl. svenska Vetenskapsakademiens Handlingar. 52(16): 1–100.

Powell, A.W.B. 1942. The New Zealand Recent and Fossil Mollusca of the Family Turridae. With general notes on Turrid nomenclature and systematics. Bulletin of the Auckland Institute and Museum 2: 1–192.

Powell, A.W.B. 1944. The Australian Tertiary Mollusca of the Family Turridae. Records of the Auckland Institute and Museum 3: 1–68.

Powell, A. W. B. 1964. The family Turridae in the Indo-Pacific. Part 1. The subfamily Turrinae. Indo-Pacific Mollusca 1: 227–346.

Powell, A. W. B. 1966. The molluscan families Speightiidae and Turridae. An evaluation of the valid taxa, both Recent and fossil, with lists of the characteristic species. Bulletin of the Auckland Institute and Museum 5: 1–184.

Powell, A. W. B. 1967. The family Turridae in the Indo-Pacific. Part 1a. The subfamily Turrinae concluded. Indo-Pacific Mollusca 1: 409–444.

Powell, A. W. B. 1969. The family Turridae in the Indo-Pacific. Part 2. The subfamily Turriculinae. Indo-Pacific Mollusca 2: 215–416.

Pritchard, G. B. and Gatliff, J. H. 1900. Catalogue of the marine shells of Victoria. Part III. Proceedings of the Royal Society of Victoria 12: 170–205.

Reeve, L. A. 1843–46. Monograph of the genus *Pleurotoma*. Conchologia Iconica 1: pls. 1–369.

Rippingale, O. H. and McMichael, D. F. 1961. Queensland and Great Barrier Reef shells. Brisbane, Jacaranda Press.

Schepman, M. M. 1913. Toxoglossa. Siboga Expedition Monographs 49(1)e: 365–452.

Short, J. W. and Potter, D. G. 1987. Shells of Queensland and the Great Barrier Reef. Marine gastropods. Drummoyne, NSW, Golden Press.

Shuto, T. 1961. Conacean Gastropods from the Miyazaki Group, Palaentological Study of the Miyazaki Group 9. Memoirs of the Faculty of Science, Kyushi University, series D. Geology 11: 71–150.

Shuto, T. 1965. Turrid gastropods from the Upper Pleistocene Moeshima Shell Bed. Memoirs of the Faculty of Science, Kyushi University, series D. Geology 16: 143–207.

Shuto, T. 1970. Taxonomical notes on the turrids of the Siboga collection originally described by M. M. Schepman, 1913 (Part II). Venus 29: 37–53.

Smith, E. A. 1875. A list of the Gasteropoda collected in Japanese seas by Commander H. C. St. John R.N. Annals and Magazine of Natural History Series 4, 15: 1–27.

Smith, E. A. 1877. Diagnoses of new species of Pleurotomidae in the British Museum. Annals and Magazine of Natural History Series 4, 19: 488–501.

Smith, E. A. 1884. Mollusca. In: Report on the Zoological collections made in the Indo-Pacific Ocean during the voyage of HMS Alert 1881–1882. London: British Museum (Natural History) Part 2: 483–508.

Smith, E. A. 1888. Diagnoses of new species of Pleurotomidae in the British Museum. Annals and Magazine of Natural History Series 6, 2: 300–317.

Sowerby, G. B. 1870. Descriptions of forty-eight new species of shells. Proceedings of the Zoological Society of London. 1870: 249–259.

Springsteen, E. J. and Leobrera, F. M. 1986. Shells of the Philippines. Manila, Carfel Shell Museum.

Taylor, J. D., Kantor, Y. I. and Sysoev, A. A. 1993. Foregut anatomy, feeding mechanisms, relationships and classification of the Conoidea (=Toxoglossa) (Gastropoda). Bulletin of the Natural History Museum, London (Zoology) 59: 125–170.

Taylor, J.D. In press. Foregut anatomy of the larger species of Turrinae, Clavatulinae and Crassispirinae (Gastropoda: Conoidea) from Hong Kong. In: Morton, B. (Ed.). The malacofauna of Hong Kong and Southern China. 3. Hong Kong University Press, Hong Kong.

Taylor, J. D. and Wells, F. E. In press. A revision of the Recent Hong Kong species of the turrid genera *Inquisitor* and *Ptychobela*. In: Morton, B. (Ed.). The malacofauna of Hong Kong and Southern China. 3. Hong Kong University Press, Hong Kong.

Tenison Woods, J. E. 1875 (1876). Descriptions of new Tasmanian shells. Proceedings of the Royal Society of Tasmania 1875: 134–162.

Thiele, J. 1930. Gastropoda und Bivalvia. In: Die Fauna Sudwest-Australiens 5: 561–603.

Trew, A. 1987. James Cosmos Melvill's new molluscan names. National Museum of Wales, Cardiff. 84 pp.

Tryon, G. W. 1884. Conidae and Pleurotomidae. Manual of Conchology 6: 151–413.

Verco, J. 1909. Notes on South Australian marine Mollusca, with descriptions of new species. – Part 12. Transactions of the Royal Society of South Australia 33: 293–340

Watson, R. B. 1881. Mollusca of H.M.S. 'Challenger' Expedition. Part IX. Zoological Journal of the Linnean Society 15: 413–455.

Watson, R. B. 1886. Report on the Scaphopoda and Gastropoda collected by HMS Challenger during the years 1873–76. Challenger Reports, Zoology 15: 1–756.

Weinkauff, H. 1875–76. *Pleurotoma*. In: Martini and Chemnitz, Conchylien Cabinet 4: 1–136.

Wells, F. E. 1990. A revision of the Recent Australian Turridae referred to the genera *Splendrillia* and *Austrodrillia*. Journal of the Malacological Society of Australia 11: 73–117.

Wells, F. E. 1991a. A revision of the Recent Australian turrid genera *Clavus, Plagiostropha* and *Tylotiella*. Journal of the Malacological Society of Australia 12: 1–33.

Wells, F. E. 1991b. A new species of *Splendrillia*, with comments on two other species of the genus (Gastropoda: Turridae). Journal of the Malacological Society of Australia 12: 63–67.

Wells, F.E. 1993. New records of *Splendrillia* (Gastropoda: Turridae) from northwestern Australia, with the description of a new species. Journal of the Malacological Society of Australia 14: 113–117.

Wells, F.E. In press. A revision of the drilliine genera *Splendrillia* and *Plagiostropha* from New Caledonia, with additional records from other areas. Memoirs d'Museum National d'Histoire Naturelle, Paris.

Wells, F. E. and Bryce, C. W. 1986. Seashells of Western Australia. Perth, Western Australian Museum.

Wilson, B. R. and Gillett, K. 1979. A field guide to Australian shells. Sydney, Reed.

Yen, T.-C. 1942. A review of Chinese gastropods in the British Museum. Proceedings of the Malacological Society of London 24: 170–289.

Wells, Fred E. 1994. "A revision of the Recent Australian species of the turrid genera Inquisitor and Ptychobela." *Molluscan Research* 15(1), 71–102. https://doi.org/10.1080/13235818.1994.10673660.

View This Item Online: https://www.biodiversitylibrary.org/item/295139
DOI: https://doi.org/10.1080/13235818.1994.10673660
Permalink: https://www.biodiversitylibrary.org/partpdf/325986

Holding Institution
The Malacological Society of Australasia

Sponsored by
Atlas of Living Australia

Copyright & Reuse
Copyright Status: In copyright. Digitized with the permission of the rights holder.
Rights Holder: The Malacological Society of Australasia
License: http://creativecommons.org/licenses/by-nc-sa/4.0/
Rights: http://biodiversitylibrary.org/permissions

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.

This file was generated 30 November 2023 at 13:04 UTC