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AUSTRALIAN MOLLUSCAN NOTES.

No. 1.

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(Plates xxii-xxv.)

To these RECORDS I have contributed notes on the mollusca trawled off the continental shelf,[1] and also stray notes on other forms from New South Wales. More material is being received from the trawlers through the assistance of Captain K. Möller, and another enthusiast, Mr. W. Dingeldei. The latter has also collected many specimens from the dredge dump at Dundas, and some interesting records are here chronicled from his efforts. I have reported[2] many strange molluscs in Sydney Harbour secured by means of examining the dredgings made by the dredge "Triton." The master, Captain Comtesse, has continued his researches, and has also obtained the assistance of other members of his crew, and recently Mr. E. F. Nash was placed in command of the dumping of the material at Dundas on the Parramatta River. Examination of the dump has revealed many interesting species and has shown that the tropical fauna was more extensive than anticipated, and was immensely rich. Later some of the more interesting points may be detailed, but as the continuous search is still productive speculation may be withheld. One point may be emphasized, however, and that is that the tropical forms appear to show more relationship with those of New Caledonia than with those of the Queensland coast.

As in my previous articles, I have to thank Miss J. K. Allan and Mr. G. C. Clutton, of this Museum, for the excellent drawings and photographs which embellish this paper and which render the species easily recognizable.

Solemya velesiana sp. nov.

No large shells have yet been found after over one hundred years' search by excellent collectors, so that it seems reasonable to conclude that the Sydney shell is always small, and therefore a species distinct from the large shell inhabiting southern Australia, which, moreover, was described from King George's Sound, south-western Australia. The local species is more like the Queensland shell described as *Solemya terræreginæ* Iredale,[3] but more dilated anteriorly and more closely ribbed posteriorly.

The generic name *Solemya* was introduced by Lamarck with two species *australis* and *mediterranea*. Children in 1823 named *mediterranea* as type, observing that Lamarck's type was *australis*, an observation negativing his selec-

[1] Iredale.—REC. AUST. MUS., xiv, 1925, pp. 243-270; xvii, 1929, pp. 157-189.
[2] Iredale.—Aust. Zool., v, 1929, pp. 337-352.
[3] Iredale.—Mem. Q'land Mus., ix, June 29, 1929, p. 262, pl. xxx, fig. 13.

tion. Gray selected in 1847 *mediterranea*, so in order to clarify the situation I introduce *Solemyarina* for these small species, designating *velesiana* as type, and it may be used for all the Australian species pending some decision on Children's action.

Ennucula gen. nov.

The type species of *Nucula* is *nucleus* Linné, a European species which differs appreciably from antipodean shells so classed, the latter having a notably oblique chondrophore, above which the teeth become much smaller, and the angle of opposition of the two rows of teeth is scarcely marked; further, the edge of the European shell is strongly denticulate, whereas ours is practically smooth.

Two or three species appear to have been confused under the name *consobrina* A. Adams and Angas, but Hedley[4] has figured the type and it has a rather small chondrophore with numerous teeth both anteriorly and posteriorly. A somewhat similar shell which has been lumped, but which agrees with Hedley's figure of the type of *simplex* A. Adams, is easily distinguished by the few teeth anteriorly and the long oblique chondrophore. This is the species Hedley referred to as *antipodum* Hanley from Port Stephens, but Hanley's species is very distinct and is not known yet from New South Wales. As A. Adam's name is invalid, I am naming the local shell *Ennucula astricta* sp. nov.

When these shells were being sorted it was noticed that less oblique shells which had been regarded as *obliqua* Lamarck from the Harbour differed from the true Tasmanian *obliqua* trawled off southern New South Wales in their smaller size, more elongate chondrophore, more posterior teeth and fewer teeth anteriorly succeeding the chondrophore. The pseudolunule was also less marked and the anterior side less elevated. It is therefore named *Ennucula duritas* sp. nov.

I have noted that *Nucula prætenta* was not a *Pronucula* but was a *Nucula*, that was in the broad sense. Specimens from 800 fathoms, 35 miles east of Sydney, identical with Smith's species, have the surface radially rayed, the inner margin of the shell denticulate and the hinge line more angulate than it is in *Ennucula*, the teeth more distant, the chondrophore small and scarcely exceeded by any teeth. A new genus *Deminucula* is therefore introduced for it.

Our deep-water form of *dilecta* from 300 fathoms east of Sydney is more elongate but otherwise agrees well with Smith's figure.

Grandaxinæa gen. nov.

When I described *Glycymeris magnificens*[5] I had only valves which had been dead for some time, but immediately afterwards Captain K. Möller brought in a number, including one perfect very recently dead valve. Consideration of this and the rest of our Glycymerids compels separation into three groups, one for *G. magnificens*, another for *G. flabellatus*, and the third for *G. flammeus*. By the usage of small groups we can more easily determine the species and work out their inter-relationships. Thus I introduce *Grandaxinæa*, naming *G. magnificens* as type, and we can then trace this group through its Neozelanic relations and its geological forbears. By proposing *Tucetona* for the group typified by *G. flabellatus* we can similarly determine its congeners, and the smooth shells may be

[4] Hedley.—Proc. Linn. Soc. N.S.W., xxxviii, 1913, xvi, figs. 4, 6.
[5] Iredale.—Rec. Aust. Mus., xvii, Sept. 4, 1929, p. 161, pl. xxxviii, figs. 1, 2.

classed under *Veletuceta*, *G. flammeus* being named as type, though more than one genus may be here confused through inability to recognize the essential distinguishing characters. These will perhaps be determined by study of series of juvenile shells. Distribution of the local shells in these groups at once shows up the value of the groups; thus the anomalous *gealei* has been confused with *flabellatus*, but it is better classed under *Grandaxinæa* until more specimens are collected. I added *crebreliratus*[6] Sowerby for a northern shell and admitted *tenuicostatus* Reeve for a southern shell, but I find that *tenuicostatus* Reeve is undoubtedly the same shell that Sowerby described as *crebreliratus* from Moreton Bay, whence probably Reeve's specimens also came. Hedley introduced *capricorneus* for a shell common at the Capricorn Group, and this seems to be the same species. Lamy and Hedley both recognized the alliance but did not publish the identity, and then Lamy allowed *tenuicostatus* for the small shells sent from Victoria. Many were collected at Twofold Bay, and I wrote that the sculpture was stronger than that of *crebreliratus*, but that was the Sydney form wrongly so regarded. The true *crebreliratus* (*i.e.*, *tenuicostatus* Reeve) is more strongly sculptured than the southern shell, which I here name *Veletuceta fossa* sp. nov. The latter is also more circular in outline and the teeth smaller and closer, the periostracum less velvety. The shell from northern New South Wales recorded as *crebreliratus* is here named *Veletuceta thackwayi* sp. nov., and differs from the true *crebreliratus* in its weaker sculpture, its more angulate side and its persistent periostracum. These species will be figured comparatively later. It may be noted that in its angulation *V. thackwayi* recalls *V. fringilla* Angas,[7] which occurs along the mainland of Queensland, and is associated with *V. hanleyi* Angas[8] described from an unknown locality. If these two should prove identical *fringilla* Angas has both priority and locality, yet it has been regarded as a synonym of *hanleyi*.

A fine new species of *Melaxinæa* also occurs with these at Townsville, Innisfail, and elsewhere. It is just as flat as *M. labyrintha* Iredale and has the same generic hinge line, the teeth numbering twelve or thirteen on each side. It differs at sight in lacking the pronounced ears, being nearly circular, and the sculpture consists of radials, closely packed, with a fine lattice of threads; it is named *Melaxinæa litoralis*, sp. nov.

Versipella gen. nov.

When I dealt with Limopsid molluscs[9] I left in abeyance the form appearing in the New South Wales list under the name *Limopsis tenisoni* Tenison Woods as there appeared to be much confusion in connection with it. Recent criticism reveals the existence of two species, neither of which can be regarded as conspecific with *tenisoni*, and these are here described. The species most like *tenisoni* is not so oblique, is less cancellate, has fewer teeth; it can be named *Versipella soboles* gen. et sp. nov. The specimen selected as type is from 300 fathoms east of Sydney.

A very different kind of shell is trawled in deep water off the south coast of New South Wales, being larger and more oblique, with a broad ligamental area,

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[6] Iredale.—Proc. Linn. Soc. N.S.W., xlix, 1924, p. 189.
[7] Angas.—Proc. Zool. Soc. (Lond.), 1872, p. 612, pl. 42, fig. 10.
[8] Angas.—Proc. Zool. Soc. (Lond.), 1879, p. 418, pl. xxxv, fig. 3.
[9] Iredale.—Rec. Aust. Mus., xvii, Sept. 4, 1929, p. 159.

the teeth numerous and crowded, becoming misplaced posteriorly. This curious shell agrees in general with a Lower Miocene Patagonian fossil named *Limopsis insolita* Sowerby. I am naming the New South Wales shell *Senectidens dannevigi* gen. et sp. nov.

From 111 fathoms off Cape Byron, northern New South Wales, another species of *Aspalima* was secured. It is smaller, more strongly sculptured and has fewer hinge teeth than *Aspalima erecta*, and may be called *Aspalima solator* sp. nov.

It may be here recorded again that in the genus *Aspalima* the internal margins of the valves are strongly denticulate, a feature quite foreign to our other Limopsids, and one which indicates a different origin. A most curious species from the 100 fathom dredging off Wollongong, New South Wales, has the general aspect of a young Glycymerid and is not cancellate but with only concentric growth lines; the umbo is central and the shell is not oblique, a little broader than high. The hinge is composed of few teeth, five on each side, well separated though the ligamental pit does not intrude; the pit is well marked and narrow, thus definitely ranging the species with the Limopsids, and the margins of the valves are smooth. For this extraordinary little shell the genus *Glycilima* is proposed, the species being named *paradoxa*; it may be related to some fossils as there is a *Limopsis æquilatera*, but it does not agree in the features of the umbones and sculpture.

Cosa sagana sp. nov.

From off Wollongong, New South Wales, material was dredged by Hedley in 100 fathoms, and this dredging was not minutely worked out. In this two sets of unnamed "*Philobrya*" were found and are here indicated.

C. sagana differs from all the other New South Wales species of *Cosa* in being long and broad and having a very pronounced cap. The sculpture is stronger than that of *Hochstetteria inornata* Hedley, which it most approaches, but its hinge line is that of *Cosa*, most like that of *C. tatei*. Eight major rays can be counted, the cancellate sculpture being weak.

Cosa pharetra is also very distinct, being more circular than *pectinata*, more densely sculptured with radials, closely noduled by concentric lines. The hinge line is very long and slightly interrupted by the ligament only, and the cap is small and little raised.

Notomytilus crenatuliferus Tate (No. 40) must be omitted from our list as at present there is no authentic record of its occurrence.

Streptopinna saccata inusitata Iredale.

I introduced this genus to the Australian fauna[10] from specimens collected at Michaelmas Cay, north Queensland, and Caloundra, Queensland. My colleague, Mr. G. P. Whitley, Ichthyologist, was with me when both these were collected, and, being recently at Trial Bay, northern New South Wales, he collected many shells for me, and among them brought back a fragment which he regarded as referable to this species. This fragment was too small to base an unexpected addition to our list upon, but I agreed that it represented this shell. To our delight Mr. H. S. Mort brought in a small but perfect shell from Coff's Harbour, and thus

[10] Iredale.—Austr. Zool., iv, May 18, 1927, p. 333, pl. xlvi, figs. 9-11.

confirmed our conclusion and allowed indubitably the inclusion of such an interesting form. It has been suggested that *Streptopinna* was based on anomalous growths of different species, but in Australian waters, where we have many species of Pinnidæ, the shells allotted to *Streptopinna* are all conspecific and distinct in texture and sculpture from any of the species.

Malleus novelesianus sp. nov.

One of the strange shells brought into the Museum, usually from Broken Bay, is the large Hammer-head Oyster, and as specimens have accumulated they are seen to agree in the large hammer and to differ constantly from the tropical shells known as *Malleus albus* Lamarck.[11]

In the tropical shells the hammer-head is much shorter than the handle, and is also usually of weaker structure, whereas in the local shell the hammer-head is as large as the handle, sometimes even larger.

A curious little "hammer-oyster" which produces no hammer, and which has a peculiar corrugated nucleus, then extending irregularly, has been identified as *Malleus legumen* Reeve, but differs from that Philippine Island shell in this respect and in hinge features, and is here named *Parimalleus cursator* gen. et sp. nov.

Electroma zebra (Reeve).

Although specimens of this species had been collected more than once in these waters, it was not included by Hedley in the New South Wales list, but examination of the records leaves no doubt as to their authenticity, and the recent discoveries of tropical forms makes this a very commonplace visitor.

A rather common shell at Caloundra, south Queensland, which has also occurred in New South Wales, is included in our list as *Pteria lata* Gray. It is not that species, and has been figured by Reeve as *Avicula heteroptera*,[12] but it is not Lamarck's species of that name. The new name *Austropteria saltata* is provided for this species.

Pteria maura Reeve was described from Sydney, and, although it has not recently been met with, it has been collected at Port Curtis, Queensland, along with *Electroma zebra* (Reeve) and many specimens of *Austropteria saltata*. *P. maura* belongs to the genus *Austropteria*.

Spondylus prionifer sp. nov.

(Pl. xxiv, fig. 1.)

Some beautiful upper valves recalled the many spined tropical forms and suggested identity. Comparison with specimens recently collected in northern Queensland showed little difference, but the nomination was difficult, the only similar shells having been described from the Philippines. In the Sydney Harbour shells the spines are very numerous, twenty major rows and as many minor being counted on the early part of the whorl, while the major ones persist to the edge, developing long spines; the minor ones increase in number but not in strength. The colour of the dead shells is uniform pale red, whereas the Queensland shells are blotched. The spines are flattened and on their edges minutely

[11] Lamarck.—Hist. Anim. s. Vert., vi, (1), 1819, p. 144.
[12] Reeve.—Conch. Icon., x, 1857, pl. xvi, sp. and fig. 67.

denticulate, the under-surface grooved. The inside is white, the outer edge simple and pink.

Length of small but perfect valve, 42 mm., breadth 40 mm., longest spine 15 mm.

Hab.—Sydney Harbour, New South Wales.

Plicatula essingtonensis elusa subsp. nov.

(Pl. xxv, figs. 5-6.)

The genus *Plicatula* is represented on the New South Wales list by the species *P. australis* Lamarck, although Whitelegge had previously used the name *P. imbricata* Menke. Many specimens secured by Comtesse and Nash are of the latter type, none resembling the species known from Queensland as *P. australis*.

Menke's name was preoccupied, so Finlay provided a substitute,[13] *P. menkeana*, but there was already a similar form named from the same geographical region, *P. essingtonensis* Sowerby,[14] and as the distinction seems merely one of habit, Sowerby's name is preferable. The New South Wales specimens vary in the number of ribs and shape and are imbricately sculptured on the main ribs, the wide interstices being radially striate, and all being smaller, may be named subspecifically as above.

Hab.—Sydney Harbour, New South Wales.

Varotoga gen. nov.

Hedley figured the animal of his *Solecardia cryptozoica*,[15] and this species is named as type of *Varotoga*, as *Solecardia* was simply a general name for any glassy oval shell. It has been long recognized that the shells differed in texture and teeth characters, but no attempt has been made to straighten matters up. Three different animals were observed among the specimens at Low Island, and similar discrepancy at once appears in connection with the two Sydney species. Hedley's species lives in the muddy inland waters, while *Scintilla strangei* Deshayes[16] lives under stones on the open sea-coast reefs. The animal of this species differs from that of *Varotoga* in lacking pustules, being translucent and milky white, and in the development of siphonal processes at each end. This animal will be figured later, but here the new genus *Lactemiles* is introduced for it alone.

Petricola rubiginosa (A. Adams and Angas).

A beautiful shell brought in by Captain Comtesse puzzled me and I was astonished to find it included in the New South Wales list under the above genus. I had been working at the coral-living species of *Petricola* from Queensland, and this species did not recall them. *Petricola* was introduced by Lamarck[17] with three species, but none specifically described, the first being *P. sulcata*, a new name for *Venus lithophaga* Retz, the second *P. costata*, a new name for *Venus lapicida*, and the third *P. striata*, a *nomen nudum*.

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[13] Finlay.—Trans. New Zeal. Inst., lvii, 1926 (1927), p. 527.
[14] Sowerby.—Conch. Icon (Reeve), xix, Oct., 1873, pl. iii, sp. and fig. 8.
[15] Hedley.—Proc. Linn. Soc. N.S.W., xli, April 4, 1917, p. 684, pl. xlvi, fig. 1; pl. li, fig. 40.
[16] Deshayes.—Proc. Zool. Soc. (Lond.), 1855, p. 181; 1856. Hedley.—Proc. Linn. Soc. N.S.W., xxxviii, Nov., 1913, p. 268, pl. xvi, figs. 16-19.
[17] Lamarck.—Systême des Animaux sans Vertèbres, 1801, p. 121.

Gray selected the first named[18] and this species is not like the Sydney shell. It may here be mentioned that two earlier type designators have been discovered and utilized. Children[19] *anonymously* described and figured the Lamarckian Genera of Shells and named types, but these were merely the first species named in the "Histoire des Animaux sans Vertèbres," and can only be utilized in connection with Lamarckian genera as of that introduction. Thus in the present case *striata* is named as type, but we have seen that at the first introduction the name was not validly proposed. Anton[20] has likewise been brought into use and there seems to be no bar to consideration of his designations, but in this case also he selected *striata*, leaving Gray to make a valid designation.

Choristodon was proposed by Jonas[21] for a new species, *C. typicum*, boring into rocks at the Island of St. Thomas, and this has been determined as equal to *V. lithophaga* Retz, and therefore *Choristodon* becomes an absolute synonym of *Petricola* as typified by Gray.

Naranio was added by Gray[22] for the *lapicida* series, and this generic name can be used for the coral-boring Queensland species, but cannot be adopted for the Sydney shell, *rubiginosa*, which lives in mud, and is here made the type of a new genus, *Velargilla*.

Quadrans parvitas sp. nov.

(Pl. xxii, figs. 10-12.)

When on the dredge and also at the dump I collected a quantity of shell fragments from which to pick out smaller shells than would interest Captain Comtesse and Mr. Nash. The latter filled a sack later and sent it me and many small and remarkable shells have been found in it. A curious little Tellinid recalling the tropical *Quadrans gargadia* Linné was one of these, and, on studying Bertin's Monograph of the Tellinidæ,[23] a very similar shell was found described from New Caledonia as *Tellina* (*Quadrans*) *minor*. Discussion whether the Sydney shell was identical or not is unnecessary, as Bertin's name had been anticipated by Jeffreys.[24]

Compared with Bertin's figure, the Sydney shell has the anterior end less produced and is a little deeper, the striation more marked, and the hinge is more compressed.

Cantharidus eximius (Perry).

Under this specific name Hedley confused two species, a large one and a small one. A reference is given to a note by himself[25] wherein he placed *Elenchus ocellatus* Gould, from a photograph of the type, as the young of the above-named species. Gould's species was collected by W. Stimpson in Sydney Harbour, and is quite valid, being easily separated by its more elongate shape, its coloration, its size and the more prominent tooth on the columella. At the same place Hedley

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[18] Gray.—Proc. Zool. Soc. (Lond.), 1847, p. 184.
[19] Children.—Quarterly Journal Phil. Sci., xiv-xv, 1822-1824.
[20] Anton.—Verz. Conch., 1838, p. 2.
[21] Jonas.—Zeit. für Malak. (Menke), 1844, p. 185.
[22] Gray.—Ann. Mag. Nat. Hist., (2), xi, 1853, p. 38.
[23] Bertin.—Nouv. Archiv. Mus. Paris, (2), i, 1878, p. 267, pl. ix, fig. 5, *a*, *b*, *c*.
[24] Jeffreys.—Brit. Conch., ii, 1863, p. 376.
[25] Hedley.—Proc. Linn. Soc. N.S.W., xxxiii, 1908, p. 465.

pointed out that Swainson had figured *C. eximius*,[26] but that Swainson's name *Elenchus splendidulus* appeared to him to be referable to the New Zealand shell. This conclusion cannot be upheld as Swainson's description (p. 352, footnote) reads: "Small, entirely fawn colour, or light brown; aperture of the most brilliant purple and emerald green. Australia." As Swainson had Tasmanian shells, I designate Tasmania as type locality of *E. splendidulus*, and it thus becomes an absolute synonym of Perry's *eximius*, whose figure is very like Swainson's. I refer both *eximius* and *ocellatus* to *Phasianotrochus*.

Thalotia comtessei sp. nov.

(Plate xxiii, fig. 8.)

Hedley included *Calliostoma decoratum* in the New South Wales list, citing many synonyms. I pointed out that[27] this choice was invalid and proffered one of the synonyms, selecting *Thalotia* as a better generic refuge than *Calliostoma*. It now appears that my name selection must be abandoned and therefore I have to describe as a new species this common Sydney shell. It is dedicated to Captain Comtesse, whose researches are worthy of daily recognition such as is offered by the shell under consideration.

Shell conical, variously coloured, straight-sided, base a little convex. Adult whorls eight, protoconch one and a half smooth, succeeding sculpture consisting of five concentric beaded linæ, the lowest more pronounced; interstitial threads are developed with age; eight similar liræ on base. Columella curved, ending in a slight notch; outer lip thin. Colour of normal specimen brownish red, more or less flamed with darker. Height 21 mm., breadth 14 mm.

Type from Sydney Harbour, New South Wales.

Before leaving the Trochoids a very beautiful shell trawled by Captain K. Möller off Disaster Bay in about 50 fathoms may be described as *Fautor excultus* sp. nov. (Pl. xxii, fig. 15). It is a bright fawn, marked on prominent liræ with red dashes. The whorls are seven, an apical one slightly exsert, rounded, sutures impressed, imperforate. The sculpture consists of fine rounded liræ with threads between, there being no longitudinal sculpture. The liræ number about twenty on the penultimate whorl, half the number being smaller than the other half, and only half a dozen prominent. The base is similarly sculptured. Columella slightly arcuate, inner lip reflected over umbilical depression, which is white, and semi-noduled anteriorly; aperture slightly rhomboid, outer lip simple. Length 15 mm., breadth 12 mm.

Bembicium nodulosum (Gray).

Through the influence of authorities not conversant with the life histories of the molluscs whose shells they are studying, only one species of *Bembicium* appears on the New South Wales list. But the youngest collector differentiates two, and these are found to have different habitats, one living on the open shore and entering the harbours, while the other lives among the mangroves and in less saline water. Their form is very distinct when series are studied, the former being comparatively smooth, a flat broad cone in shape, the latter being strongly noduled and a long elevated cone. These range along the whole coast, but

[26] Swainson.—Treatise on Malacology, May, 1840, p. 220, fig. 40.
[27] Iredale.—Proc. Linn. Soc. N.S.W., xlix, 1924, p. 229.

geographic variation has entailed much of the confusion. While the open coast form can bear the name *B. melanostoma* Gmelin, based on a shell collected by Captain Cook's party at Botany Bay, the only name available for the nodulose form appears to be Gray's. A photograph has recently appeared in the *Australian Museum Magazine*.[28]

Carswellena gen. nov.

Many large specimens of *Turbo militaris* Reeve in bad condition have been collected by Captain Comtesse and E. F. Nash, and when the former had secured a few of *Turbo exquisitus* Angas, the latter sorted out quite a large series which showed this little species to uncoil so as to show sometimes a false umbilicus. This feature seemed to ally it to *Senectus*, which it resembles in shell character, but the operculum as figured by Hedley[29] indicates that the relationship may be with *T. stamineus*. As the alliance can not be close, the new genus *Carswellena* is introduced for it alone. As 441*a* Hedley allowed *Turbo petholatus* Linné, but this must be entirely rejected, as the record of Angas obviously referred to the species now recognized as *militaris* Reeve, some northern specimens of the tropical *petholatus* even showing a similar coloration. Further, the very large size of the *militaris* suggests close relationship to the monster South Australian *jourdaini*, an unexpected conclusion. Again, the New South Wales shell listed as *Turbo undulatus* Martyn must bear the name *Lunella anguis*, after an excellent figure also by Martyn but correctly named by Gmelin.

Laciniorbis morti sp. nov.

(Pl. xxii, figs. 4-6.)

Fifty years ago Martens described *Adeorbis fimbriatus* from McCluer Bay, New Guinea, from a depth of 732 metres (about 400 fathoms). Twenty-six years later[30] he proposed a new genus *Laciniorbis* for this species, giving excellent figures.

A very beautiful shell was dredged in shallow water off Murray Island ten years later by Hedley and was left unnamed, its exact systematic position being doubtful and Martens' figures being forgotten.

Mr. H. S. Mort picked out of the dredgings a smaller shell recalling the Torres Strait specimen, and a stray reference to Martens' paper in another connection recognized the generic relationship. Later Mr. Mort found another specimen and I also recovered one, and comparison shows constant distinction from the two tropical species. The Torres Strait shell, which is here figured and named *Laciniorbis hedleyi* (Pl. xxii, figs. 1-3), has a more depressed spire than the New Guinea form and has the basal sculpture less pronounced. On the other hand, the Sydney shells, here named after Mr. Mort, are smaller, with more pronounced sculpture above and equally as strong below.

Shell discoidal, minute, openly coiled, sutures subcanaliculate, the periphery strongly keeled, the spire depressed. Colour white. The first whorl is minute and is succeeded by three rapidly increasing whorls on the same plane; sculpture consists of fine spiral concentric liræ increasing from five to ten to twelve,

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[28] Aust. Mus. Mag., III, 1929, p. 344.
[29] Hedley.—Proc. Linn. Soc. N.S.W., xxvi, 1902, p. 701, pl. 34, fig. 7.
[30] Martens.—Arch. f. Nat. (Wiegmann), lxiii, 1, 12, Nov., 1897, p. 175.

interstices very finely threaded. At the periphery a fine lamina is produced from a keel, the base being slightly convex and with similar spiral liræ, which, however, are more distant and number about eight, which persist into the open umbilicus. The mouth is wider than deep, the edges thin, the columella short and curved and a little reflected, the inner lip crossing the body whorl as a glaze and almost forming a free aperture. Height 3 mm., breadth 10 mm.

Type from Sydney Harbour.

The Torres Strait shell measures 18 mm. in breadth and 4·5 mm. in height.

Theodoxis souverbianus (Gassies).

Under this name Hedley included the species named *Neritina pulcherrima* by Angas, who had described it from the "Sow and Pigs" reef, Sydney Harbour.[31] At the same time Angas recorded *Neritina rangiana* Recluz from the same locality which is missing from our list without explanation.

Hedley appears to have regarded the two records as referable to the same thing, but two species do occur here, many specimens being picked out of the Harbour dredgings by Comtesse, Nash, Mort, Dingeldei, and myself. Baker has recently monographed the group[32] and has separated a subfamily Smaragdiinæ for the genus *Smaragdia*, introducing a subgenus *Smaragdella* for the *souverbiana* series. This name must be used and Angas' specific name reinstated. I have not yet located the second species under Baker's scheme, so for the present I am including it under the name *Neritina rangiana* auct. Its correct name will be recorded very shortly.

Phenacolepas mirabilis Sowerby.

Mr. H. S. Mort collected (October, 1929) a broken but fine specimen of this handsome shell at Yamba, mouth of the Clarence River, northern New South Wales, a new record for the State. It is not uncommon, generally broken, however, at Caloundra, south Queensland, whence the type was probably collected, Sowerby simply giving "Australia."[33]

For the present this species will represent *Phenacolepas* in our fauna, as the species previously referred has been transferred to *Cinnalepeta* Iredale.[34]

Opposirius idoneus gen. et sp. nov.

(Pl. xxii, fig. 7.)

An elongated representative of one of the series variously regarded as *Separatista*, *Lippistes*, *Trichotropis* and *Sirius*, which must be contrasted with *Dolichosirius cupiens* described below.

Shell elongate, last whorl equal to spire, whorls rounded, sutures deep. Colour of dead shell fawn. Two glassy, erect, apical whorls are succeeded by five adult sculptured whorls; on each whorl two main spiral liræ with one fainter above and a weaker one below forming a sutural bead. On the last whorl there are five distant raised spiral liræ, not nodulose, but wavy; between these are faint threads, which are overriden by fine threads following growth lines, so that a very weak cancellation can be seen. Columella a little sinuate, inner lip thin, a little reflected,

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[31] Angas.—Proc. Zool. Soc. (Lond.), 1871, p. 19, pl. i, fig. 25.
[32] Baker.—Proc. Acad. Nat. Sci. Philad., lxxv, May 15, 1923, p. 117 et seq.
[33] Sowerby.—Proc. Malac. Soc. (Lond.), ix, March, 1910, p. 66, fig. in text.
[34] Iredale.—Mem. Q'land Mus., ix, June 29, 1929, p. 274.

almost hiding an umbilical chink guarded by a fairly stout funicle; outer lip thin and sharp, canal very short and open. Length 13 mm., breadth 6 mm.

Hab.—Sydney Harbour, picked out of dredgings by Mr. E. F. Nash.

Dolichosirius cupiens gen. et sp. nov.

(Pl. xxii, fig. 9.)

Shell elongately trochiform, whorls eight, apex missing, whorls very rounded, shoulders tabulate, sutures very deep. Colour brown marked with red. Sculpture: penultimate whorl with rounded periphery carrying five spiral rounded liræ, there being three spiral threads on shoulder; on the last whorl minor threads intervene, while on the base there are five major and five minor spirals. The interstices are crossed by slanting longitudinal threads, comparatively widely spaced and stout.

Columella almost straight, sharply truncate, inner lip reflected over narrow umbilical chink: outer lip thin, aperture almost circular, canal very narrow. Length 11 mm., breadth 8 mm.

Hab.—Sydney Harbour, picked out of dredgings by Mr. H. S. Mort.

This and the preceding do not appear to be closely related, yet each might have been referred to the same group had either been studied alone. It is therefore suggested that a family Siriidæ be used for these until the animals are studied; they do not appear to have anything whatever to do with *Lippistes* or *Trichotropis*.

Family STROMBIDÆ.

At Michaelmas Cay, north Queensland, many species of Strombs were collected, and a review was undertaken. This proved of the greatest interest and was in progress when the opportunity of again studying them at Low Isles occurred; a later trip to Three Isles assisted their elucidation, and then Mr. Melbourne Ward collected many specimens at Torres Strait and the Capricorn Group. The "Triton" dredgings revealed a similar fauna in Sydney Harbour, and the unexpectedness of this discovery has been intensified by the recognition of a very distinct species. The Capricorn Group will be personally visited soon and further study will be made on points at present under consideration.

In the meanwhile, in order to record the strange Sydney finds, the following notes are published, anticipatory to the monographic account.

The "*auris-dianæ*" group comprises a few species which have been continually confused by "cabinet-workers," yet which are very distinct in the field. A few group names have been utilized, and I find that *Euprotomus* is the correct one, a curious conclusion inasmuch as this generic name has been generally used in another connection. On the Queensland mainland a species is found which also occurred at Low Island; this has been known as *melanostomus* Swainson, but may have to bear the specific name *aratrum* Bolten. On the Great Barrier Reef two species occur together, one rough and one smooth, and these have been called *auris-dianæ* Linné, most authorities differing as to their distinction and also as to their nomination if distinct. In Australian waters two very clearly distinct species are found, the rough one being the true *auris-dianæ* of Linné, the smooth one being called *bulla* Bolten. None of these three has occurred as yet in Sydney Harbour but a beautiful new species, here named *Euprotomus donnellyi*, has been discovered instead. Fragments were first found and these were so like the

Polynesian species known as "*aratrum* Martyn" that they were put on one side until better material was secured, although the existence of a species of *Euprotomus* in this locality was of such interest that it deserved record even on imperfect material. A fine damaged specimen was then found and it did not show great distinction from the Polynesian species, but Donnelly, second engineer at Dundas, picked out a perfect specimen, which is named after him and which is one of the most remarkable finds yet made. It differs from all the other members of the genus *Euprotomus* in lacking the development of the lip finger.

Captain Comtesse then produced another species of Stromb which he had separated from *campbelli*, also found in the Harbour, though previously known only from the North Coast. This proved to be *vittatus*, and for this well-known group I provide the name *Doxander*, *vittatus* being named as type.

Then, not to be outdone, Mr. E. F. Nash found another little species, *pulchellus* Reeve (Pl. xxiii, fig. 12), while looking for small Strombs in the hope of re-finding *flammeum* Link, as already noted. The latter duly turned up, but, sorting out small siftings, I secured another little species, which is here called *Canarium otiolum*, sp. nov.

So far, then, we have found in Sydney Harbour the following Strombs:

Conomurex luhuanus Linné.
Canarium flammeum Link.
urceus Linné.
otiolum Iredale.
Labiostrombus dilatatus Swainson.
Doxander vittatus Gmelin.
campbelli Griffith and Pidgeon.
Dolomena pulchella Reeve.
Euprotomus donnellyi Iredale.

On the New South Wales list is *Strombus elegans* Sowerby, recorded by Angas, which has not yet turned up.

Canarium otiolum (Pl. xxiii, fig. 6) is small, spire exsert, varicose, outer lip a little expanded, sinuate. Colour of dead shell cream, variously banded with pale brown. Six adult whorls succeed a smooth, bulbous, mucronately tipped protoconch; the adult whorls are regularly four-varicose, the last whorl showing none but the outer lip thickened and a little varicose. Internally this is finely ridged, the inner lip smooth. Fourteen longitudinals appear on the shoulder of the last whorl but soon become obsolete on the body; a small sutural roll succeeds, the sutures followed by concentric ridges which are undefined on the face of the body whorl but become more pronounced towards the base. On the penultimate whorl two or three longitudinals appear irregularly between each varix, the concentric liræ less pronounced and becoming still less as we approach the apex. Length 22 mm., breadth 10 mm.

Type from Sydney Harbour, N.S.W.

This species belongs to the "*floridus*" (= *flammeum*) series but has a more developed spire, more definitely varicose, and is smaller in size.

Euprotomus donnellyi (Pl. xxiii, fig. 19) is large with expanded outer lip with no finger. Coloration of dead shells, fawn marbled with white, the aperture white, the inner glaze covering the body whorl, a brown patch towards the posterior end of the aperture, inside of outer lip strongly ridged and brownish. Sculpture: Earlier whorls with a median keel upon which pointed nodules develop, which

become more distantly placed as the shell grows, six or seven on the body whorl, although there are twelve on the penultimate and fourteen on the antepenultimate. Above the shoulder close threads persist, which weaken and are obsolete on the body whorl; no sutural roll. Outer lip expanded and running up two full whorls but producing no finger. Canal strongly recurved backwards. Length 75 mm., breadth 45 mm.

Type from Sydney Harbour, New South Wales.

Distorsio francesæ sp. nov.

(Plate xxiii, fig. 2.)

I figured this species under the name *Distorsio reticulata* Bolten (from the Island of Hitoe, one of the Moluccas), but good specimens show valid differences, and these are confirmed by the collection of a beautiful living shell by Messrs. Melbourne Ward and W. Boardman at North-west Island, Capricorn Group. This specimen shows a periostracum of finely packed threads running along the spiral, and longitudinal sculpture with long prominent processes throughout along the strong cross ribs; the mouth in this living shell is very beautifully coloured rose-flesh. The Philippine shell has the mouth yellow brown and a longer canal and the teeth, though very similarly placed, also show variation. Another photograph is here presented from a fine specimen collected by Captain Comtesse, collected in Sydney Harbour, and is named in honour of Mrs. Comtesse.

Family BURSIDÆ.

Although four species referable to this family were on the New South Wales list, none had been met with by Hedley during his thirty years of searching. The four names read *Gyrineum pusillum* Broderip, *Bursa bufo* Bolten, *B. granifera* Lamarck and *B. mammata* Bolten. Type designations by Children and Anton having now to be taken into consideration, Dall's results,[35] upon which all recent work has been based, must be reviewed. Children's selection of the type of *Ranella* is *gigantea*, which will thus replace *Eugyrina* Dall for the European species, a favourable result. Rovereto[36] designated *spinosa* as type of *Gyrineum* Link,[37] thus leaving *Apollon* Montfort[38] for the series of *gyrinus*. It may be noted that Dall,[39] confusing in his mind *Gyrineum* and *Eugyrina*, proposed a new name *Gyrinella* for the small species *pusilla*.

Of the three species classed under *Bursa* by Hedley, the last-named *mammata* Bolten will retain that name, the first-named *bufo* will be transferred to *Tutufa*, and the other one, *granifera* Lamarck, apparently equivalent to *granularis* Bolten and *jabick* Bolten, the latter having priority, is here made the type of a new genus *Dulcerana*. Of these four *mammata* Bolten has not yet been met with, but specimens of the other three have been found, and yet another, a beautiful little specimen of the "*crumena*" series. Lamarck appears to have intended *Ranella crumena* as a new name for *Murex rana* Linné to avoid tautonymy. According to Reeve's citations, the Philippine species known as *crumena* will bear the name

[35] Dall.—Smithson Miscell. Coll., Qtly. Issue, xlvii, 1904, pp. 114-144.
[36] Rovereto.—Atti Soc. Ligustica, x, 1899 (ext. p. 6).
[37] Link.—Beschr. Rostock Samml., 1807, p. 123.
[38] Montfort.—Conch. Syst., ii, 1810, p. 571.
[39] Dall.—Proc. Biol. Soc. Wash., xxxvii, p. 89, Feb. 21, 1924.

cavitensis,[40] a MS. name of Beck cited by Reeve in connection with the figure. Reeve gives a good figure[41] resembling our species, which is here called *Gyrineum pacator* sp. nov.

Gyrineum pacator sp. nov.

(Pl. xxiii, fig. 3.)

Shell small, fusiform, biconical, varicose, varices evenly set up each side.

Adult whorls five and a half, with a three and a half whorled smooth protoconch. The protoconch is followed by an adult whorl, five cingulate, the cingular almost beaded and very finely striate between, the middle thread strongest; this develops into a keel, which later becomes nodulous, the nodules flattened sideways. The last whorl shows three nodules in front, four at back, one nearest preceding varix largest and decreasing towards aperture; below a less marked keel also occurs, the nodules small and variable in size. The primary keel ends in a point at the varix, which is thickened and rolled and succeeded by a thin lip edge from which the posterior canal is produced. The interior of the outer lip is beautifully denticulate, the canal short, open, but narrow, the columella curved and closely wrinkled, the wrinkling persisting across the inner lip and reaching to the outer lip at the posterior canal; an umbilical depression is present and there the shell is expanded a little, forming a pseudo-funicular rib. Colour of the dead shell a beautiful fawn. Length 39 mm., breadth 26 mm.

Collected by Mr. E. F. Nash from Sydney Harbour dredgings.

The name of the form for which Hedley suggested *Bursa bufo* Bolton is difficult to determine at present, but the best selection seems to be *Tutufa lissostoma* Smith[42] (Pl. xxiii, fig. 5).

It may be here recorded that a shell belonging to a different group of Frog Shells shows a very similar nodule development, *viz.*, *Ranella thersites* Redfield,[43] which was erroneously referred to *californica* by Tryon. It was supposed to come from the Pacific Ocean and a very similar shell is in the Australian Museum from New Britain; it is referable to the genus *Bursa*.

Sydney Cassids.

Very recently I reviewed the Helmet Shells of Australia[44] and listed a number of species from northern New South Wales. It is possible that all will yet turn up in Sydney Harbour, as *Semicassis diuturna* Ired. (Pl. xxiii, fig. 21), is fairly common. *Xenogalea angasi* Ired. occurs mostly broken, as does the very rare *X. sophia* Brazier; a dwarf form of *X. thomsoni* Brazier hereafter named is not uncommon, while a beautiful new species is named *Xenogalea nashi* after the finder, Mr. E. F. Nash, who has displayed so much energy and keensightedness in picking out novelties (Pl. xxiii, fig. 18).

X. nashi is of medium size, oval, spire short, whorls convex, sutures impressed.

Coloration: Upon the white background of the last whorl appear five concentric rows of separate rhomboidal patches of colour, the first row below the shoulder passing along the middle of the penultimate whorl, the lowest a short row just

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[40] Reeve.—Conch. Icon., ii, July, 1844, pl. iv, fig. 17, var. *β*, fig. *a*.
[41] Reeve.—Conch. Icon., ii, July, 1844, pl. iii, fig. 15.
[42] Smith.—Journ. Conch. (Leeds), xiv, Oct., 1914, p. 230, pl. 4, fig. 3.
[43] Redfield.—Ann. Lyc. New York, iv, Feb., 1846.
[44] Iredale.—Rec. Austr. Mus., xv, 1927, pp. 321-354.

above the funicular canal. Colour pale orange. Sculpture (apical whorls missing) begins as five or six distinct spiral liræ overrun by minute radial threads. After a couple of whorls the radials become obsolete and the spirals become wider spaced and less defined but continue to the last whorl, where they run along the shoulder as weak threads; the body whorl is thus smooth medially but shows a curious malleation, while basally half a dozen faint grooves reappear.

Aperture reverse ear-shaped, the outer edge rolled back and denticulate within, the teeth showing only on the inner edge.

Columella sinuate, strongly lirate, about nine distinct liræ being counted running well inside the aperture but fading externally where the columella finishes as a sinuate thick edge. Canal short, recurved, with a deep gutter behind, a narrow false umbilicus, and the canal itself is slightly perforate, the tongue smooth. Length 59 mm., breadth 43 mm.

Xenogalea thomsoni palinodia subsp. nov. (Pl. xxiii, fig. 20) is provided for the small stout shells which are much more solid, more strongly sculptured, especially longitudinally, and with the columella strongly wrinkled. The type is rather like this form but is thin in texture, and develops into a large obsoletely sculptured form commonly trawled off the coast of New South Wales. Length 44 mm., breadth 35 mm.

Family TONNIDÆ.

This family has continued to provide surprises, for when Hedley[45] comparatively recently revised the Australian species, only two species were on the New South Wales list. Hedley rejected one, but added two others, thus allowing a total of three. I reinstated the rejected one and added another.[46] It must be here mentioned that at the foot of page 345 a description follows the references to *Dolium rufum* and *Buccinum pomum*. This has nothing to do with these species, but belongs to *Vicimitra prosphora* of page 343; the sheets were disarranged after the pages were passed for press.

More specimens of *Quimalea pomum* have been secured by Captain Comtesse and Mr. E. F. Nash, and these are all stunted with the mouth more open and developing an extraordinary varix. This form is here designated as *Quimalea pomum macgregori* subsp. n. (Pl. xxiii, fig. 22) in order to record the environmental variation of the tropical forms well emphasized in this case.

Three more species have been collected and reference to Hedley's Revision shows his names to read *Tonna costata* Menke, *Tonna parvula* Tapp-Canefri (Pl. xxiii, fig. 24) and *Tonna canaliculata* Linné. The first named was represented from Australia by four records from Queensland and one from West Australia, the second by a dubious record by Shirley from north Queensland, and the third by one record from Queensland and one from West Australia. The occurrence of all three in Sydney Harbour is remarkable and suggests their wide range in suitable localities. I recorded a dwarf of *T. tetracotula* Hedley (Pl. xxiii, fig. 26), but more specimens suggest its distinction subspecifically as a degenerate form.

For the shell named *costata* Menke there is an earlier name *allium* of Dillwyn[47] (Pl. xxiii, fig. 23), who introduced this from Solander's MS. for his variety β of Linné's *B. dolium*, citing Martini iv, p. 396, t. 117, f. 1072, and t. 118, f. 1082, from

[45] Hedley.—Rec. Austr. Mus., xii, Oct. 2, 1919, pp. 329-336.
[46] Iredale.—Austr. Zool., v, 1929, p. 345.
[47] Dillwyn.—Descr. Cat. Rec. Shells, 1817, p. 585.

Tranquebar. The small species Hedley recorded as *T. cumingii* is never so globose as that species and is nearer *D. testardi* Montrouzier, which Hedley synonymized. It is narrower and stouter, with the ribs 20–22 on last whorl, strong inner lip glaze, and is here named *Parvitonna perselecta* gen. et sp. nov. (Pl. xxiii, fig. 17), the small Tun-shels obviously needing separation from the large typical ones.

Ficus margaretæ sp. nov.

(Pl. xxiii, fig. 4.)

Sycotypus reticulatus was recorded by Angas[48] from the mouth of the Macleay River, collected by Brazier. Hedley[49] emended the name to *Ficus communis* Bolten, practically the same form as Angas listed, the name being selected on account of priority. Broken specimens from the Richmond River beaches suggested differentiation, and broken pieces collected by Captain Comtesse confirmed this. A complete shell secured by Mr. E. F. Nash allows the description of the southern species, which is more like the West Australian species known as *tessellata* Kobelt but which many years before Kobelt's time had been called *Pyrula eospila* by Peron[50] from Ile Depuch, West Australia.

It is just as delicately sculptured with similar coloration to, but much narrower than, the common "Fig" called *reticulata*, a little broader than *eospila*.

Sinum spp.

Many specimens of the shells listed by Hedley under the genus *Sinum* as *coarctatum* Reeve, *nitidum* Reeve, and *planulatum* Rechz, occurred in the Harbour dredgings. Obviously the first and last were not congeneric, and, as previously noted, every worker seems to have arrived at the same conclusion without rectifying the error.

Before dealing with these I may record that the next genus and species are altogether out of place. The shell named *Amauropsis morchi* by A. Adams and Angas is there classed under *Pellilitorina* in the family Naticidæ. I collected a specimen depositing eggs on a boulder at Long Reef and it is obviously not Naticoid but had better be placed in the family Littorinidæ under the new generic name *Problitora*.

I showed that the name *Sinum planulatum* Recluz could not be maintained,[51] so that the local shell is here named *Ectosinum pauloconvexum* sp. nov. (Pl. xxiii, fig. 16).

The other species is globose, openly umbilicate, and disagrees altogether with the preceding, and is here named *Pervisinum dingeldeii* n. sp. (Pl. xxiii, fig. 15). It was determined as *S. nitidum* Reeve and also appears in our list as *S. coarctatum* Reeve, but these records appear to refer to the same shells on account of the variation seen. In all Naticoids, on account of the great development of the animal, an appreciable amount of variation is observed, and consequently Tryon lumped many distinct species through lack of specimens and confusion of localities. This species is more globose than any other described species and thus shows a larger umbilicus. It may be related to *Eunaticina* Fischer, but he figures an acuminate

[48] Angas.—Proc. Zool. Soc. (Lond.), 1877, p. 182.
[49] Hedley.—Proc. Linn. Soc. N.S.W., xxxiii, Nov. 20, 1908, p. 461.
[50] Peron.—Voy. Terre Austral., i, 1807, p. 132.
[51] Iredale.—Proc. Linn. Soc. N.S.W., xlix, 1924, p. 254.

shell with a small umbilicus and a sinuate columella. In the present case the umbilicus is large, the columella straight, and the operculum unknown.

Shell globose, thin, widely umbilicate, whorls four, rapidly increasing. Colour dead white. Sculpture of about twelve flat topped liræ with very narrow interstices on the penultimate whorl; these spread out so that on the last whorl they are separated by interstices wider than the ribs, upon which fine threads develop. Fine radial threads override this and alone persist into the umbilical cavity, where the spirals become obsolete. The mouth is very broad, the outer edge forming almost a complete semicircle. The columella is straight, and, were it not for its connecting with the body whorl and thence linking up with the posterior edge of the outer lip by means of a callus, it would almost make a diameter. Length 20 mm., breadth 19 mm.

The type is a beautiful specimen collected by Mr. W. Dingeldei from the Harbour dredgings, and is named in appreciation of his enthusiasm. *Ectosinum pauloconvexum* is small, flattened, impervious, much broader than high, whorls two, succeeding a flattened, glassy, two-whorled protoconch. This smooth protoconch appears quite different from the minute nucleus of *Pervisinum*, which is not definitely separated, while this shows up at sight. The succeeding sculpture consists of fine spirals crossed by fine growth lines, which do not cancellate the surface.

The mouth is strongly patulous, the spire very short, while the columella forms a long sweeping arc, reflected posteriorly and joining the outer lip with a small callus. Height 10 mm., breadth 14 mm.

Not uncommon among the dredgings in Sydney Harbour.

Gennæosinum intercisum sp. nov.

(Pl. xxiii, figs. 13, 14.)

I introduced the genus *Gennæosinum*[52] for a strange Naticoid from Michaelmas Cay, north Queensland, and to my surprise Captain Comtesse brought in an allied species from Sydney Harbour. I later found a second specimen which differed slightly.

Shell small, globose, spire a little elevated though still small, sculpture of flattened threads closely packed with an overriding series of slight growth lines. Colour dead white. Umbilical funicle less pronounced than in the type. Height 13 mm., breadth 13 mm.

The sculpture is much finer and the shell is smaller than the typical species. The second specimen is smaller still, almost smooth, the spirals showing only on the whorls below the sutures, which are a little more canaliculate. This may represent still another species or be merely an aberration.

Hab.—Sydney Harbour, New South Wales.

Family CYPRÆIDÆ.

Under this family name Hedley included the Cowries, Egg Shells and others, but Schilder has separated many families which are here recognized. Many genera were also listed and I have given a brief account in connection with the Queensland forms[53] last year. The New South Wales forms are

[52] Iredale.—Mem. Q'land Mus., ix, June 29, 1929, p. 279, pl. xxxi, fig. 12.
[53] Iredale.—Mem. Q'land Mus., x, Aug. 28, 1930, pp. 80-86.

here revised as much material is now available through the energy of Messrs. Comtesse and Nash, to whom these beautiful shells appealed. Their collections from the dredged material have revealed an extensive Cowry fauna with a facies quite distinct from the present series living on the rocks adjacent to the area dredged. Schilder omitted to take into consideration Jousseaume's first essay,[54] so I cite the names here: *Bernaya* (type not stated), *Gisortia* (no type selected), *Mandolina* ex Bayle MS. (haplotype, *gibbosa* Born), *Zoila* (no type named), *Maurina* (haplotype, *mauritiana* L.), *Etrona* (no type selected), *Umbilia* (haplotype, *umbilicata* Sow.), *Vulgusella* (no type given), *Arabica* (tautotype, *arabica* L.), *Cypræa* (for the *cervus* group), *Porcellana* ex Klein (for the *argus* series), *Luria* (no type named), *Zonatia* (tautotype, *zonata* Chemn.), *Adusta* (tautotype, *adusta* Chem.), *Stolida* (tautotype, *stolida* Lin.), *Criraria* (tautotype, *criraria* L.), *Bastorotia* ex Bayle MS. (no type selected), *Ponda* (no type given), *Staphylæa*, p. 415 (tautotype, *staphylæa* L.), *Tesselata* (tautotype, *tesselata* Sow.), *Ipsa* (haplotype, *childreni* Gray), *Nuclearia* (no type named), *Jenneria*, *Pusula*, *Triviella*, *Niveria*, *Trivirostra* (no types named, but haplotype of *Niveria*, *nivea* Gray). In the later essay in the Rev. Zool., quoted by Schilder, types were designated, but the spelling of some names altered, thus *Maurina* became *Mauxiena*, *Etrona* was written *Trona*, *Zonatia* was spelt *Zonaria*, *Criraria*, an obvious typographical error, was corrected to *Cribraria*, and *Bastorotia* to *Basterotia*, *Tesselata* to *Tessellata*. The arrangement of Hedley's *Cypreæ* under the revised nomenclature would read thus:

No. 706.	*C. angustata comptoni*	undetermined.
No. 706*a*.	*C. angustata piperata*	should be *Notocypræa piperita* Gray.
No. 707.	*C. annulus*	„ „ *Monetaria annulus* Linné.
No. 708.	*C. arabica*	„ „ *Arabica arabica* Linné.
No. 709.	*C. armenaiaca*	„ „ *Umbilia hesitata* Iredale.
No. 710.	*C. asellus*	„ „ *Evenaria asellus* Linné.
No. 711.	*C. caputserpentis*	„ „ *Ravitrona caputserpentis* Linné.
No. 711*a*.	*C. caputserpentis caputanguis*	„ „ rejected.
No. 712.	*C. carneola*	„ „ *Lyncina carneola* Linné.
No. 713.	*C. caurica*	„ „ *Erronea caurica* Linné.
No. 714.	*C. clandestina*	„ „ *Palmadusta clandestina* Linné.
No. 715.	*C. erosa*	„ „ *Erosaria erosa* Linné.
No. 716.	*C. errones*	„ „ *Erronea errones* Linné.
No. 716*a*.	*C. errones cruenta*	„ „ *Erronea chinensis* Gmelin.
No. 717.	*C. felina*	„ „ *Melicerona listeri* Gray.
No. 718.	*C. fimbriata*	„ „ *Paulonaria fimbriata* Gmelin.
No. 718*a*.	*C. fimbriata notata*	„ „ *Paulonaria macula* Angas.
No. 719.	*C. flaveola*	„ „ *Erosaria nashi* Iredale.
No. 720.	*C. helvola*	„ „ *Ravitrona helvola* Linné.
No. 721.	*C. hirundo*	„ „ *Evenaria hirundo* Linné.
No. 722.	*C. isabella*	„ „ *Basilitrona isabella* Linné.
No. 723.	*C. limacina*	„ „ *Staphylæa limacina* Lam.
No. 724.	*C. lutea*	„ „ *Palmadusta humphreysii* Gray.
No. 725.	*C. lynx*	„ „ *Lyncina vanelli* Linné.
No. 726.	*C. miliaris*	„ „ *Erosaria miliaris* Linné.

[54] Jousseaume.—"Le Naturaliste," 6, An, Feb. 15, 1884, pp. 414-5.

No. 727.	*C. moneta*	should be	*Monetaria moneta* Linné.
No. 728.	*C. poraria*	„	„ *Ravitrona poraria* Linné.
No. 729.	*C. punctata*	„	„ *Evenaria punctata* Linné.
No. 730.	*C. tabescens*	„	„ *Talostolida teres* Gmelin.
No. 731.	*C. scurra*	„	„ *Arabica scurra* Gmelin.
No. 732.	*C. subviridis*	„	„ *Gratiadusta vaticina* Iredale.
No. 733.	*C. vitellus*	„	„ *Mystaponda vitellus* Linné.
No. 734.	*C. xanthodon*	„	„ *Gratiadusta xanthodon* Sow.

To these must now be added *Palmadusta ziczac* Linné 1758.

The following notes explain some of the above alterations. Hedley allowed as a subspecies *C. errones cruenta*, but Schilder has shown that the best name for "*cruenta*" is *chinensis* Gmelin (Pl. xxiv, figs. 19, 20), and it is a distinct species. In my opinion it is scarcely referable to *Erronea* sensu lato and is at present subgenerically named *Ovatipsa*, the heavy armature of the mouth clearly distinguishing it from typical *Erronea*. In the case of *fimbriata* Schilder has also classed this under *Erronea*, but I can see little close relationship, and have transferred it to *Paulonaria*, while the shell Hedley includes as *C. fimbriata notata* is certainly not *notata* Gill, and has an Australian name *macula* Angas, which is here used specifically, as it is certainly distinct from *fimbriata*.

Erosaria nashi (Pl. xxiv, figs. 5, 6) is introduced for the species Hedley included as *flaveola*; in my Queensland notes I observed that Schilder used *helenæ* Roberts, while Hedley had noted that it might be *labiolineata* Sowerby. Both these are very small shells, the former with coarse, the latter with finer teeth. The large number of specimens collected by Captain Comtesse, and especially Mr. Nash, who has taken a great interest in these shells, shows that the local shell grows fairly large for this series, has medium teeth, small lateral spotting and constitutes a well marked form. The posterior teeth of the inner lip develop first and are strong and well marked before the remainder show up. A normal specimen measures 27 mm. × 15 mm.

Amongst the number collected by Mr. Nash a few, apparently different, were picked out by him; these are broader, the base more convex, the inner teeth much more pronounced, and the lateral spotting obsolete. Similar shells from New Caledonia are named "*spurca*," which they certainly are not, and in some ways recall *rashleighana* Melvill. The different teeth induce me to separate them as *Erosaria percomis* n. sp. (Pl. xxiv, figs. 15, 16).

Gratiadusta vaticina (Pl. xxiv, figs. 11, 12) occurred in numbers and is apparently related to *subviridis*, under which name poor specimens have been recorded. It is a much larger, more solid shell and recalls *anceyi*, but is not so boldly marked and is nearly as large. It is comparatively broader and the dead shells have the base of a beautiful pale cream colour, while the back is blotched with purplish brown, the sides pale cream. A normal shell measures 35 × 24 mm.

With these were specimens of *G. xanthodon*, of large size, and a few shells which appeared referable to *tabescens* Dillwyn, which now should be *teres* Gmelin. They do not agree in general characters with "*Stolida*," and I separate this group as *Talostolida*.

Probably the most interesting species is the form of "*vitellus*," found in the dredgings. This is very solid and comparatively much broader than the "*vitellus*" of Queensland; the white spotting is obsolete and the banding is very noticeable.

The hair lines on the sides run up further, and altogether the shell is distinctive. As more or less normal "*vitellus*" can be found alive in New South Wales, this dead species is here named *Mystaponda orcina* sp. nov. (Pl. xxiv, figs. 9, 10). A medium sized specimen measures 43 × 32 mm., while a small Queensland shell goes 50 × 30 mm.

Notocypræa spp.

Some beautiful shells brought in by Captain K. Möller from off the coast of New South Wales indicate that a very distinct faunula of cowries inhabits the continental shelf, apparently closely related to the well-known littoral species. Beddome[55] described an albinistic phase, but the deep-water forms are curiously albinistic in their surface coloration, while retaining deeply coloured spotting on their sides. So far only odd shells have been secured, as the trawl does not bring up quantities of small shells, but the ones already seen are related to the three recognized shore species. These three species may be called *piperita* Gray, *bicolor* Gaskoin, and *comptonii* Gray.

Messrs. Melbourne Ward and W. Boardman brought in a beautiful shell from off the Cape Everard Bank, 70–90 fathoms, which is bluish white above, the edges spotted with orange brown; it is roundly ovate and has the mouth open, the teeth small. It is therefore referable to the "*angustata*" series as arranged by Beddome and for which I use *bicolor* Gaskoin. This deep-water form may be called *Notocypræa* (*bicolor*) *emblema* sp. nov. (Pl. xxiv, figs. 3, 4). From 45 fathoms off Twofold Bay, Captain Möller brought in a little shell agreeing with Beddome's *piperata*, fig. 18, but more pallid, the lateral spots bolder, the mouth narrow, the teeth fine; this may be called *Notocypræa* (*piperita*) *dissecta* sp. nov. (Pl. xxiv, figs. 7, 8).

Capt. Möller's other specimen from the same place is one of the loveliest little cowries yet seen; it has the upper surface a shining cream, with the sides boldly but profusely spotted with rich brown, the under surface showing the spotting but medially unspotted, the mouth fairly narrow, the teeth fine. It agrees in shape with Beddome's *comptoni*, fig. 16, but not with the typical drawing of *comptonii*. It differs from the two preceding in having an elevated spire, indicating a different genus, and is therefore called *Thelxinovum molleri* gen. et sp. nov. (Pl. xxiv, figs. 17, 18). It may be noted that, while the three littoral species above named occur in southern New South Wales, the shell appearing in Hedley's New South Wales list under the name *C. angustata comptoni* from Sydney is not the same, and is under consideration.

Umbilia (hesitata) howelli nov.

(Pl. xxiv, figs. 1, 2.)

The wonderful cowry originally named *Cypræa umbilicata* has quite an extensive literature but deserves still more. I renamed the normal form *C. hesitata* as the well-known name proved invalid. It is now agreed that Verco's *C. armeniaca* is specifically distinct and Schilder has named the small form from northern New South Wales. A pure white aberration was named *alba* by Cox,[56] but this is very rare and is undoubtedly an albino. Although hundreds of the

[55] Beddome.—Proc. Linn. Soc. N.S.W., xxii, 1897, pp. 564-576.
[56] Cox.—Proc. Linn. Soc. N.S.W., iv, December 1, 1879, p. 387.

normal form have been trawled off the coast of southern New South Wales, not half a dozen white ones were found. The original name was given to a shallow-water shell found washed up on the beach in Bass Strait. The common trawled shells are slightly larger and less solid but can scarcely be admitted as separable.

In trawling in deeper water, 90–150 fathoms, south of Cape Everard, many larger shells much paler and mixed with many albinisms have been secured. In this case the tendency to albinism is very marked and constitutes a subspecific quality, being accompanied by variation in size and shape. As the name *alba* cannot be maintained, I am calling this magnificent shell after Captain Howell, to whom I am indebted for many examples.

Schilder has given measurements of the normal form when he named *Umbilia hesitata beddomei*,[57] citing the latter as 65–86 against the normal 91–106. The Cape Everard shells all go larger when good specimens are secured, the typical pure white *howelli* measuring 114 mm., another pale shell 119 mm., and the largest I have, though not the largest known, reaching 121 mm. Large specimens of the normal trawled shell measure 101, 101, and 103 mm. The larger *howelli* is undoubtedly more elevated and has more teeth. Among these pale shells a dark form suffused with purple may sometimes be found; in these the base is marked with brown much darker than in the normal form.

Trivellona excelsa gen. et sp. nov.

(Pl. xxiv, figs. 13, 14.)

Shell of medium size for the family, globose, mouth fairly wide, open. Colour of dead shell dirty white.

The aperture is longer than the body whorl, the outer lip descending to meet the inner in front of the somewhat flattened spire. The dorsal view is of a well elevated shell, the liræ running right acros the shell from outer lip to inside the columellar lip. The aperture has the sides fairly parallel. The liræ form loops at the posterior and anterior ends, about six forming the loop, between which are about twelve and twenty-one may be counted on the outer lip, sixteen on the inner lip. Length 18 mm., breadth 13 mm., height 10 mm.

Trawled off Montague Island, New South Wales, in 50–70 fathoms.

The large size of this species separates it at once from all our Triviids, especially as in this depth a form of the littoral *merces* is found which is smaller, more strongly sculptured, the sculpture crossing the back and thus definitely distinguishing it, though the blotches of colour on the dorsal surface are sometimes retained. As no generic name exists for the *merces* series I propose *Ellatrivia*, and name the deep-water form *Ellatrivia* (*merces*) *addenda* nov.

The New South Wales forms would then read:

Trivia australis Lamarck	should be	*Ellatrivia merces* Iredale.
cælatura Hedley	„	„	*Fossatrivia cælatura* Hedley.
globosa Sowerby	„	„	*Cleotrivia pilula* Kiener.
insecta Mighels	„	„	*Dolichupis insecta* Mighels.
oryza Lamarck	„	„	*Trivirostra scabriuscula* Gray.
staphylæa Linné	„	„	*Staphylæa staphylæa* Linné.

[57] Schilder.—Zool. Anz., xcii, 1930, p. 77.

The last species belongs to the Cypræidæ, not to the Triviidæ, while the fossil relations of *cælatura* demand the proposition of *Fossatrivia*. To these must be added, as above, *Trivellona excelsa* and *Ellatrivia* (*merces*) *addenda*.

Two or three species from the Harbour dredgings have been sorted out which are those named *globosa*, *insecta*, *oryza* above, but whose names may need emendation later.

Family AMPHIPERATIDÆ.

This name is introduced, following Schilder, for the species classed by Hedley under *Ovula* and *Radius* in the New South Wales list. No fewer than ten species were included, as follows: *Ovula brevis* Sow., *O. bulla* A. Adams and Reeve, *O. dentata* A. Adams and Reeve, *A. ovum* Linné, *O. punctata* Duclos, *O. pyriformis* Sowerby, *O. volva* Linné, *Radius angasi* Reeve, *R. hordaceus* Lamarck, and *R. philippinarum* Sowerby.

These species are all very uncommon and most of the above records are based on few or single specimens. Hedley, dubious of these identifications, took shells to England, and comparisons were made with the types in the British Museum, with the result that most of the determinations were negatived. Captain Comtesse has brought some of the species in, and consequently these are now described as new. First, however, the generic names to be used had to be determined and some facts were cleared up in connection with Queensland forms.[58] Thus the species *ovum* L. is referred to the earlier *Amphiperas* Meuschen, and *Radius* is eliminated in favour of the earlier *Volva* Bolten, the sole New South Wales species being *volva* Linné. It may be, however, that the southern shell should be specifically separated, as it differs in proportions, but is here named *Volva volva cumulata* subsp. nov.

As far as can be judged, there are only two species of the form classed under *Radius* by Hedley, the records *hordaceus* Lamarck and *philippinarum* Sowerby both referring to the species I have named *Phenacovolva nectarea*. When I introduced this name I allowed the typical small *angasi* to be classed under *Prosimnia*, but here rectify this error by proposing *Pellasimnia*, naming *angasi* as type.

I have proposed *Diminovula* with *D. verepunctata* Iredale as type, and this name will replace *O. punctata* in the New South Wales list. I also introduced *Prionovolva* for *O. brevis* Sow., and the record of *O. dentata* A. Adams and Reeve appears to be based upon examples of this species. *O. pyriformis* Sowerby was described from New South Wales, but at that time this name covered Queensland, and while it is a not uncommon shell on the Queensland mainland beaches, there are no specimens available from New South Wales proper. The shell hitherto known as *O. bulla* A. Adams and Reeve is not that species and is here named

Diminovula cavanaghi sp. nov.

(Pl. xxii, figs. 13, 14.)

Shell small, subglobose, pale pink above, white below. The dorsal surface is smooth save for very fine radial growth lines, while very subdued concentric distant keeling can be detected with a lens. Ventrally the outer lip is well curved, advancing over the depressed spire in a sweep and opposed by a raised ridge on the body whorl, a minute posterior canal being formed. Anteriorly the

[58] Iredale.—Mem. Q'land Mus., x, Aug. 28, 1930, pp. 84-86.

narrow canal is succeeded by a notable tooth, a depression following, the inner lip being a little sinuate. The outer lip is internally roundly obsoletely ridged. Length 18 mm., breadth 11 mm. Rare in Sydney Harbour, New South Wales.

Lachryma bisinventa sp. nov.

(Pl. xxii, fig. 16.)

This is a most interesting discovery, as Hedley concluded "Angas erroneously reported *E(rato) angistoma* from Sydney Heads."[59] Angas' record reads: "Outside Port Jackson Heads (Brazier). An elegantly shaped species, with the outer lip angulated and produced at the upper part."

I sorted out a specimen from the smaller dredgings of a specimen which immediately recalled this record, but comparison with Torres Strait shells determined as *angistoma* showed the local shell to be more elegantly formed, of a different coloration, and with finer teeth. Smith records[60] the labral teeth as numbering twenty-three, while over thirty can be discerned in our shell.

Cymbiolista hunteri sp. nov.

When I introduced *Cymbiolista* it was regarded as a subgenus only,[61] but more recent study proves that it merits generic rank, and that in the choice of the specific *marmorata* Swainson had been anticipated by Shaw and Nodder,[62] so that the local shell is here renamed *Cymbiolista hunteri* sp. nov.

It is interesting to find the species among the dredgings inside the Harbour, accompanied by *Amorena undulata* Lamarck and *Cymbiolena magnifica* Shaw and Nodder.

This species is named after Captain J. Hunter, who was apparently interested in our shells, as in his account of the settlement at Port Jackson he included three plates figuring the fine "Whelks" now known as *Charonia rubicunda* Perry and *Cymatium spengleri* Perry.

Family TEREBRIDÆ.

Many large Terebrids had been sorted out belonging superficially to *Perirhöe melamans* Iredale, but the keen eye of Mr. E. F. Nash divided them into three and his discrimination is correct. A very different form was that recorded by Hedley in the New South Wales list as *Terebra triseriata* Gray, a rare shell on the North Coast. Comparison of the southern specimens with Gray's figure, his species coming from China, shows that our shell tapers much more slowly and is consequently of different proportions. There is a good name available as Deshayes had described *Terebra prælonga*[63] from Port Curtis, Queensland, and Reeve's figures[64] show agreement with ours and their distinction from the Chinese species. *Triplostephanus* was introduced by Dall for this form of shell, so that the New South Wales species will become known as *Triplostephanus prælongus* (Deshayes). The three forms referable to *Perirhöe* all have the lines punctate, and therefore belong to my subgenus *Dimidacus*; one of them agrees well with

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[59] Angas.—Proc. Zool. Soc., 1877, p. 182.
[60] Smith.—Proc. Mal. Soc. (Lond.), ix, 1910, p. 21.
[61] Iredale.—Rec. Aust. Mus., xvii, Sept. 4, 1929, p. 181.
[62] Shaw and Nodder.—Nat. Miscell., xx, 1808, pl. 836.
[63] Deshayes.—Proc. Zool. Soc. (Lond.), Oct., 1859, p. 315.
[64] Reeve.—Conch. Icon., xii, March, 1860, pl. viii, sp. 28.

Terebra albomarginata Deshayes,[65] described from Australia, and not since recognized. Reeve's figure shows a young shell, but Hedley's MS. notes on the type in the British Museum (Natural History) agree with these specimens. The other one is easily separated by its rounded whorls and is like the figure of *Terebra pallida* Deshayes,[66] which was, however, from the Marquesas group, a long way from Sydney Harbour. The Australian shell has longer whorls with post-sutural roll more marked, about sixteen whorls in the same length as the Marquesas shell, whose whorls numbered twenty-seven or twenty-eight. *T. pallida* has been sunk as a synonym of *T. cingulifera* Lamarck, so it is best to name our species and thus keep the form under notice. I therefore introduce the name *Perirhöe exulta* sp. nov. (Pl. xxv, fig. 3).

Darioconus textilis osullivani subsp. nov.

(Pl. xxv, fig. 13.)

Mr. A. W. O'Sullivan collected some mollusca at Black Rock, Richmond River, New South Wales, and indicated two cones which he said he had not collected before. He had collected these alive and they constitute the first record of textile cones from New South Wales. The discrimination of the forms classed around *textilis* is a matter of difficulty without access to large series and museum types. It must be here urged, however, that museum material must be augmented by large acquisitions of correctly localized specimens and worked out by someone who has studied the group in the field before useful conclusions can be achieved. A few recent monographic accounts fail in the latter point and errors are included which field knowledge would have obviated. Thus many textile cones have been collected at various times and at various points on the Great Barrier Reef and they all agree in coloration with the figure of *Conus telatus* Reeve described from unknown locality,[67] and that name might have been accepted were it not that Jickeli had used it for a Red Sea form.[68]

Other specimens, however, have much bolder painting, agreeing better with that shown by Reeve as *Conus vicarius*, and it is to this series that the New South Wales specimens belong. The status of these varieties will need much field study, and it is possible that they may prove to be distinct species. In the meanwhile the local shell may be recorded as *Darioconus textilis osullivani* n. subsp. in order to keep the form found so far south under notice.

A large fine cone was found among the Harbour dredgings by Mr. E. F. Nash, which apparently has passed as *Conus anemone*. Broken pieces have been met with on the beaches and a large similar shell was brought from southern Tasmania by Mr. Melbourne Ward, and it appears to be the form illustrated by May in his "Illustrated Index" as *C. anemone*. It differs altogether from the Kangaroo Island topotypes and is probably referable to a different genus.

The Sydney shell is here illustrated and named *Floraconus peronianus* sp. nov. (Pl. xxv, fig. 12). Shell large, spire very short, mouth a little open, coloration clouds of purple on a creamy ground.

Nine whorls can be counted on the spire, the papillate protoconch worn but recognizable; the spire is concentrically striate, with six to nine lines. The body

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[65] Deshayes.—Proc. Zool. Soc. (Lond.), October, 1859, p. 314. Reeve.—Conch. Icon., xii, pl. xv, sp. 65, May, 1860.
[66] Deshayes.—Journ. de Conch., vi, July, 1857, p. 87, pl. iv, fig. 3.
[67] Reeve.—Conch. Icon., i, February, 1848, Conus suppl., pl. i., sp. and fig. 270.
[68] Jickeli.—Jahrb. deutsch. Malak. Gesell., ii, 1875, p. 65, pl. 1, fig. 2.

whorl smooth, basally weakly lirate, columella slightly twisted, canal short. Length 62 mm., breadth 35 mm.

Apparently ranges along the Peronian region.

For the cone I introduced as *Conus howelli*[69] I propose the new generic name *Endemoconus*, as the erect spire with the concave shouldering of the whorls, and the elongate shape with the narrow aperture easily separate it from any recent Australian shells, and with its fossil relations its strictly endemic nature is emphasized.

Epidirona hedleyi sp. nov.

Hedley figured a Port Jackson shell under the name *Epideira striata* Gray,[70] and apparently neither the generic name nor the specific can be maintained. Hedley introduced *Epideira*, naming as type *Clavatula striata* Gray and citing as illustration *Pleurotoma owenii* Reeve. Gray's species was described without definite locality, but apparently from Western Australia, and the location of the type specimen is unknown. The description, however, shows that it cannot be used for the Sydney shell, disagreement in sculpture and mouth characters being apparent. Reeve described his species from the east coast of Africa, taking the name from Gray's MS. Watson used *owenii* for the Sydney shell,[71] citing Gray's MS. name in the British Museum and questionably adding *P. owenii* Reeve with the comment, "Reeve's figure and description of this species and the locality assigned to it suggest something quite different from the type preserved in the British Museum." This refers to *Gray's* type, not Reeve's, at present untraceable, which was in the Museum Stainforth, now dispersed. Watson adds as locality, "Tonga Islands (Brit. Museum)," which indicates the confusion even in his case, as the Sydney shell does not occur in that group. Consequently *Epideira* Hedley must be relegated to its type *striata* Gray, apparently a West Australian form.

The new genus *Epidirona* is therefore introduced for the species figured by Hedley as *Epideira striata* as above cited, and the specific name is emended to *hedleyi*.

Under the genus *Epideira* Hedley ranged *gabensis* Hedley, *philipineri* Ten.-Woods, *quoyi* Des Moulins, and *torquata* Hedley, a series of closely related species. Collected by Roy Bell in 50–60 fathoms off Green Cape were specimens of *gabensis*, and these seem very close to *torquata* and are scarcely distinguishable. Captain Möller, of the trawlers, picked specimens off the trawl-lines as far north as Montague Island, well in New South Wales waters. In 15 fathoms in Disaster Bay, New South Wales, Roy Bell collected specimens which agree just as well with *philipineri* Ten.-Woods as with *quoyi* Des Moulins as determined by Hedley. These two seem to run very close, but the Disaster Bay shells may be called *philipineri*. These are additions to the New South Wales list and may be classed under *Epidirona*, but may later constitute a recognizable group.

At the same time, in the deep-water dredging Roy Bell collected specimens which I determine as *tasmanica* May, and which Hedley has sunk as a synonym of *xanthophaës* Watson, but Watson's description[72] and figure do not agree, and I

[69] Iredale.—Rec. Austr. Mus., xvii, September 4, 1929, p. 182, pl. xl, figs. 1, 8.
[70] Hedley.—Rec. Austr. Mus., xiii, September, 1922, p. 230, pl. xliii, figs. 18, 19, 20.
[71] Watson.—Rept. Chall. Zool., xv, 1886, p. 312.
[72] Watson.—Rept. Chall. Zool., xv, 1886, p. 282, pl. xxvi, fig. 1.

will allow May's species[73] at present. This has also been collected from the trawl lines by Captain Möller. I cannot see, however, that this species is congeneric, having a different apex, a much longer canal, and different sculpture, and therefore propose for May's *tasmanica* the new genus *Epidirella*.

Eugemmula hawleyi gen. et sp. nov.

(Pl. xxv, figs. 11, 14.)

A very beautiful Turrid attracted attention, and recognition of it as a member of the genus "*Gemmula*" showed that hitherto few specimens had been collected in north Queensland and none in New South Wales. Hedley's Revision[74] allowed three species, *græffei* Weinkauff, *hombroni* Hedley and *monilifera* Pease, all from north Queensland. The first named had been described from the Fiji Islands, the second from Torres Strait, and the third from the Hawaiian Islands. Our specimens do not agree with Weinkauff's figures, nor with Hombron and Jacquinot's figures of the Torres Strait species. As Pease's name is preoccupied it is unnecessary to investigate the standing of that species in connection with Australian shells. Hedley has pointed out that Cossmann selected *gemmata* Reeve as type of *Gemmula*, but as that is a West American shell with a longer canal and different apex our species cannot be maintained in that group. I have also a recollection, which I cannot verify here, that *Gemmula* is invalid. I therefore propose *Eugemmula* with *hawleyi* here described as type for the Australian species.

Shell elegantly fusiform with long tapering spire and fairly long canal, the apertural sinus well marked, deep, just above the periphery.

Colour of dead shells, bright fawn, sometimes worn pink on periphery. The apical whorl and a half is smooth, succeeding whorl longitudinally ribbed and the next half similar, ending in a varix as if a *Sinusigera* protoconch. Adult sculpture consists of a thread below the suture, succeeded by a depression, which is followed by an elevated row of gemmules, which constitute the family sinus; below on the penultimate whorl two cingula can be seen, and on the last four prominent ones above the long canal. Between these cingula appear threads, and faint growth line radials can be discerned. Columella straight, smooth, inner lip slight, outer lip thin and sharp. In the dozen specimens already collected great variation in form is seen; some are broad, others narrow but more material is needed to determine whether two species are being confused.

The type measures 35 mm. in length and 12 mm. in breadth.

A broad shell measures 33 mm. by 13 mm. and a narrow one 31 mm. by 9 mm.

A curious large Turrid picked out by Mr. E. F. Nash agrees with no known group of Australian range, and is here introduced as *Clamturris incredula* gen. et sp. nov. (Pl. xxv, fig. 21). It suggests *Xenuroturris*, but is of different texture, being stout and hard. Though the apex is missing nine whorls remain, and the spire is very long and the canal short. Colour of dead shell uniform rich reddish brown. The sculpture consists of spiral liræ, alternately stronger and weaker, ten to twelve being counted on the penultimate whorl. The fasciole provides a raised belt, making the whorls semi-angulate medially. The columella is nearly straight, the inner lip developed as a thick glaze crossing the body whorl to join the outer lip. Outer lip broken but showing a deep narrow sinus of the Turrid type. Length 60 mm., breadth 21 mm.

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[73] May.—Proc. Roy. Soc. Tasm., 1910, p. 391, pl. xiii, fig. 16.
[74] Hedley.—Rec. Aust. Mus., xiii, September 30, 1922, p. 217.

Fusus pricei Smith.

A very abnormal "Fusus" was described by Smith[75] under the name *Fusus corpulentus* from unknown locality, and five years later, receiving from Mr. Charles Price two specimens which had been collected either at Cleveland Bay, north Queensland, or in New Guinea, which he determined as conspecific, he emended the name to *Fusus pricei*,[76] his first choice having been anticipated. Two or three suggestions as to its generic location have been offered, and Hedley took refuge in *Galeodes*, but that generic name is invalid. A small specimen picked out by Mr. E. F. Nash agrees with the Queensland shells, but does not show the subgranular sculpture of the type, neither is the shouldering of the whorls concave and the liræ are more pronounced, so that it should be separated subspecifically as *Saginafusus pricei perficus* subsp. nov. (Pl. xxiii, fig. 1).

Phos senticosus (Linné).

The generic name *Phos* has appeared more than once in the records of extratropical Australian Mollusca, but each time has later been rejected. This time, however, it may be correctly retained, as the type of *Phos* Montfort, *P. senticosus*[77] is the species under consideration, a beautiful specimen being picked out by Mr. E. F. Nash (Pl. xxiii, fig. 9).

Linné's *Murex senticosus*[78] was ascribed to no locality but tradition refers this species to his introduction.

Pinaxia coronata auct.

The genus *Pinaxia* was introduced by A. Adams before the Zoological Society of London in 1853,[79] but the description and figure did not appear in print until eighteen months later. This reference was cited by Dall[80] when he lumped this remarkable generic form under *Thais* and changed the name to *Thais adamsi* on account of the prior *Purpura coronata* Lamarck 1822. Lamarck's name even dated back to 1816,[81] but obviously the species was not congeneric.

It is curious that Dall's action was based on Smith's report[82] that the animal of *Pinaxia* was "purpuroid" because he overlooked the fact that Smith had recorded that *Pyrula versicolor* Gray[83] was the same species and had priority. Smith did not use Gray's name because the specimen was immature and since then it has been neglected. Reversion must now be made, and very little appears to be known of the distribution of this peculiar little form, as, while A. Adams' shells came from the Philippines, Smith's came from Ceylon, and Gray's had no definite locality, simply Pacific Ocean.

Mr. E. F. Nash has picked out two specimens, thus adding a very interesting record to the Australian fauna. Both are immature, and, as there is no series for comparison, only the general name *Pinaxia versicolor* Gray can be used at present.

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[75] Smith.—Ann. Mag. Nat. Hist., (5), ix, May, 1882, p. 344, fig. in text.
[76] Smith.—Journ. Conch. (Leeds), v, November 12, 1887, p. 237.
[77] Montfort.—Conch. Syst., ii, 1810, pp. 494-5.
[78] Linné.—Syst. Nat., 10th ed., p. 751.
[79] A. Adams.—Proc. Zool. Soc. (Lond.), 1853 (May 16, 1855), p. 185.
[80] Dall.—U.S. Geol. Survey, Prof. Papers, No. 59, 1909, p. 50, footnote.
[81] Lamarck.—Ency. Meth. Liste to pls. Moll., p. 2, for pl. 397, f. 4.
[82] Smith.—Ann. Mag. Nat. Hist., (4), xv, April, 1875, p. 300.
[83] Gray.—Zool. Beechey. Voyage of the "Blossom," 1839 (pref. July), p. 114.

Family ARCHITECTONICIDÆ.

Hedley has included under *Architectonica* six species, as follows: *atkinsoni* Smith, *layardi* Adams, *lutea* Lamarck, *maxima* Philippi, *perspectiva* Linné, and *reevei* Hanley. In the family also appears the genus *Heliacus* with three species, *crenellus* Linné, *foveolatus* Tate, and *stamineus* (recte *stramineus*) Gmelin, and the genus *Discohelix* with the species *meridionalis* Hedley. Two families are here confused, as the animal of *Heliacus* is very distinct from that of *Architectonica*, and the so-called *Discohelix* must be associated with the Heliacoid species. To deal with the species of *Architectonica* first, the type is *perspectiva* Linné, so that generic name may be retained, but the New South Wales shells do not agree with Queensland specimens superficially referable to the Linnean species. Hedley identified them as *maxima* Philippi, but that species disagrees in size and markings, to that the Sydney species is here described as new. Smith's *atkinsoni* was described from the ill-fated "Challenger" Station 164 B, said to be 410 fathoms off Sydney, and the young smooth shell has to be contrasted with shells from around the supposed type locality before it can be definitely recognized.

In the Museum collection two distinct species from deep-water have been determined as Smith's species, but neither agrees with the description. *Philippia layardi* was described by A. Adams from Ceylon, and Hanley wrote: "The type of *Layardi* is only a young and hence depressed form of this variable species." Angas added it to the New South Wales list at the same time as he added *hybrida*, both collected by Brazier at Lake Macquarie beach, differentiating them thus, placing both in the genus *Philippia*:—"*P. hybrida*: White, ornamented with broad pale brown flames. *P. layardi*: Flatter and more keeled than the preceding species, with the ground-colour rich brown, ornamented with white on the keel and round the umbilicus." Unfortunately Angas' determinations cannot now be checked, but it is obvious that *layardi* must be rejected.

Solarium reevei was described by Hanley from unknown locality and was based on an abnormal shell. This was figured by Sowerby, with the locality Sydney added, and Angas included it in the New South Wales list on that basis, but the figure does not agree with the Sydney species in the strength of the sculpture, general shape, and especially the width of the umbilicus. Hanley especially stressed the fact that its conical shape was due to abnormality, whereas the Sydney shell is normally even more elevated.

Architectonica grandiosa sp. nov.

(Pl. xxv, figs. 19, 20.)

Shell large, conical, whorls slightly convex, periphery sharply angulate, whorls eight, umbilicus large and perspective. Coloration: each whorl is bounded by a raised cingulum of cream, regularly blotched with reddish brown, the intervening space varying from deep pink to deep cream. The base shows an unspotted wrinkled rib surrounding the umbilicus, followed by a spotted one, then an intervening space, which is also spotted, and two spotted ribs at the edge. The sculpture consists of oblique evenly spaced cuts, overriding the earlier whorls, where a couple of concentric grooves are seen, but with growth both cuts and grooves decrease in strength and become obsolete on the last whorl, a fine striation only appearing there. The base is similarly striate. Columella straight, perpendicular, basally terminating in a notched projection. Mouth subquadrate.

Breadth 45 mm., height 20 mm.

Architectonica offlexa sp. nov.
(Pl. xxv, figs. 15, 16.)

Shell small, like an elevated miniature of the preceding, the whorls straighter, umbilicus narrower but still perspective. Whorls seven, plus anastrophic protoconch. Coloration above similar but much paler, the dark blotching weaker, but the base is unspotted.

In the minor details of sculpture the central grooving of the whorls is missing and there is an additional thread along the suture; the sculpture is more persistent and is present, though less marked, on the last whorl. Columellar and apertural features as in the preceding.

Breadth 20 mm., height 12 mm.

Philippia manifesta sp. nov.
(Pl. xxv, figs. 19, 20.)

Shell small, larger than the type of *Philippia*, whorls convex though angled sharply at the periphery, smooth, perspectively umbilicate. Whorls five.

Coloration: ground colour cream, almost hidden by brownish yellow blotching. Sculpture none, except growth lines and peripheral and sutural keels and threads. Above the suture are two threads which persist on the last whorl as the peripheral keel and a thread above, while another thread is seen below; a wrinkled rib surrounds the umbilicus, and in front of it is another less wrinkled one.

Columellar and apertural characters as in *Architectonica*.

Breadth 15 mm., height 10 mm.

Philippia stipator sp. nov.
(Pl. xxv, figs. 17, 18.)

Shell superficially like the preceding but coloration different and the base more convex, the umbilicus narrow but deep. Whorls five.

Coloration: White, a yellow band below the suture radiating rays to the periphery; this colour scheme is well known as that of *cingulum* Kiener = *radiata* Bolton.

Sculpture: The whorls are smooth save for two equal liræ which bound the lower edge and constitute the peripheral keel with its antecedent ridge; a similar ridge succeeds the keel and is seen on the last whorl only. Base convex, smooth, umbilicus narrow, bounded by a wrinkled rib, with a very much smaller one adjacent.

Breadth 13 mm., height 9 mm.

Solatisonax injussa gen. et sp. nov.
(Pl. xxv, figs. 7, 8.)

Smith described *Solarium atkinsoni*[84] from the "Challenger" Station 164 B, 410 fathoms off Sydney, and a very fine shell secured by the trawlers has been hitherto regarded as conspecific.

This shell seems a deep-water relative of *Architectonica* with finer sculpture, and Smith's shell seems a dweller of still deeper water, as it is apparently smoother and was described from a very immature specimen.

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[84] Smith.—Proc. Zool. Soc. (Lond.), 1891, p. 441, pl. 35, fig. 19.

Shell medium, conical, whorls very slightly convex, texture thin, umbilicus wide, deep and perspective. Whorls seven, plus anastrophic protoconch. Coloration uniform fawn in dead shell.

Protoconch anastrophic succeeded by planate whorl showing a median ridge succeeded by a depression; the strength of this ridge depends upon the tilting of the anastrophe. The ridge is finely nodulous, the nodules decreasing with age and soon becoming obsolete; with their degeneracy the succeeding depression becomes less marked, so that it is not noticeable on the last whorl. Fine spiral threads run concentrically in the groove, while still finer lines run along the remainder of the whorl, where, however, fine radial growth lines show up rather strongly. The acute keel of the whorl is simple, there remaining only indications of the series seen in shallow water species of Architectonicids. The base is a little convex, sculptured with revolving spiral lines, about twenty in number, never very strong and becoming weaker towards the mouth, where the growth lines become more pronounced. Around the deep crater-like umbilicus a weakly beaded edge persists, succeeded by a couple of weaker liræ a little beaded; there is no radial umbilical sculpture. The columella is a little sinuate, the anterior canal scarcely marked, the aperture subquadrate and the outer lip thin.

Breadth 25 mm., height 14 mm.

The type comes from about 100 fathoms between Gabo and Flinders Island, Bass Strait.

Palamharpa gen. nov.

(Pl. xxii, fig. 8.)

This generic name is introduced with the new species *P. exquisita* as type. Over thirty years ago Verco described *Harpa punctata*[85] dredged in 20-22 fathoms in South Australian waters, observing: "The discovery of a new species (of *Harpa*) is, therefore, of peculiar interest." Nearly twenty years afterward Verco added that only three more examples had been found, and that the species should be transferred to *Eocithara* proposed by Fischer for Eocene Parisian fossils.[86] Verco then referred to nine species of fossils described under *Harpa*, and regarded all as referable to the one genus *Eocithara*.

It was necessary to study these in order to ascertain the relationship of a beautiful shell trawled, and discrepancies were at once noted. Tate[87] had described eight of these at the one time, four from the "Lower Beds at Muddy Creek," *viz.*, *Harpa lamellifera*, *H. sulcosa*, *H. abbreviata* and *H. tenuis*, two from "blue" clays at Schnapper Point, *H. spirata* and *H. pulligera*, one from a well-sinking in the Murray Desert, *H. cassinoides*, and the eighth from calciferous sandstones, River Murray Cliffs, *H. clathrata*. Of these, *H. lamellifera* and *H. sulcosa* may be classed together under the generic name *Refluharpa*, while *H. spirata* is separable with the new generic name *Trameharpa*. The other five may be grouped for the present under the name *Deniharpa*.

The later described *Harpa pachycheila* Tate[88] can be compared with *abbreviata*. With none of these does the present recent species coincide.

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[85] Verco.—Trans. Roy. Soc. South Austr., xx, 1896, p. 218, pl. vi, fig. 3.
[86] Verco.—Trans. Roy. Soc. South Austr., xxxvii, 1913, p. 446.
[87] Tate.—Trans. Roy. Soc. South Austr., xi, 1888 (April, 1889), p. 149.
[88] Tate.—Journ. Proc. Roy. Soc. N.S.W., xxvii, March, 1894, p. 173, pl. xi, fig. 5.

Shell small, harpiform, spire short, whorls a little shouldered. Colour pale brown. Whorls four, with a two-whorled bulbous protoconch. Sculpture consists of somewhat distant, flattened, concentric ridges, overriden by fine erect ridges, whose interstices are finely threaded; there are about twenty-five major ridges on the last whorl, with four to six threads between. About thirteen concentric ridges occur on the last whorl. Inner lip as a thick glaze, outer lip thickened. Height 24 mm., breadth 14 mm.

Scæofax gen. nov.

(Pl. xxiii, fig. 8.)

This generic name is provided for a very interesting new species brought in from the Cape Everard Bank by Captain Möller, after whom I name the type species *S. molleri.* This shell is very like *Fax* but is of stouter build and more complex sculpture and recalls *Zephos otagoënsis* Finlay from off Otago Heads, New Zealand, in 50 fathoms.[89] A more slender form otherwise very similar had been secured in the same waters by the "Endeavour," and had been identified by Hedley as *Arcularia grandior* Verco.[90] Verco's species had been dredged in 110 fathoms off Beachport, South Australia, and is still more slender than my shell, which is more solid with more pronounced sculpture.

Hedley included under *Xymene, Buccinum contractum* Reeve, having previously suggested that this species intergraded with *X. hanleyi.* The species referred to is here named *Ergalatax recurrens* gen. et sp. nov., the figured specimen coming from the Sydney Harbour dredgings (Pl. xxiii, fig. 10). It is regularly short fusiform, the canal short, the spire being equal in length to the aperture. Colour white. The apical whorls are missing but seven adult whorls remain; these are longitudinally ribbed with elevated rounded ribs, eight to a whorl, overrun by spiral liræ adorned with overlapping scales. Columella smooth, nearly straight, outer lip thickened inside, outer edge thin, nine teeth in interior. Length 25 mm., breadth 13 mm.

This genus occurs northward to Torres Strait, and there is variation throughout the range, but it is not related to *Xymene.* On Pl. xxiii, fig. 7, is figured a shell I have determined as an aberration of *Sydaphera renovata* Iredale, but there is no apparent reason for the deformity, and it is curious that we have elongated species in this family.

The new names proposed are here tabulated:

Solemya velesiana sp. nov.
Solemyarina gen. nov.: type *Solemya velesiana* Iredale.
Ennucula gen. nov.: type *Nucula obliqua* Lamarck.
Ennucula astricta sp. nov.
Ennucula duritas sp. nov.
Deminucula gen. nov.: type *Nucula prætenta* Iredale.
Grandaxinæa gen. nov.: type *Glycymeris magnificens* Iredale.
Tucetona gen. nov.: type *Pectunculus flabellatus* Ten.-Woods.
Veletuceta gen. nov.: type *Glycymeris flammeus* Reeve.
Veletuceta fossa sp. nov.
Veletuceta thackwayi sp. nov.

[89] Finlay.—Trans. New Zeal. Inst., Vol. lvii, 1926, p. 417, fig. 81.
[90] Verco.—Trans. Roy. Soc. South Aust., xxxii, 1908, p. 344, pl. xv, figs. 16, 17.

Melaxinæa litoralis sp. nov.
Versipella gen. nov.: type *Versipella soboles* Iredale.
Versipella soboles sp. nov.
Senectidens gen. nov.: type *Senectidens dannevigi* Iredale.
Senectidens dannevigi sp. nov.
Aspalima solator sp. nov.
Glycilima gen. nov.: type *Glycilima paradoxa* Iredale.
Glycilima paradoxa sp. nov.
Cosa sagana sp. nov.
Cosa pharetra sp. nov.
Malleus novelesianus sp. nov.
Parimalleus gen. nov.: type *Parimalleus cursator* Iredale.
Parimalleus cursator sp. nov.
Austropteria gen. nov.: type *Austropteria saltata* Iredale.
Austropteria saltata sp. nov.
Spondylus prionifer sp. nov.
Plicatula essingtonensis elusa subsp. nov.
Varotoga gen. nov.: type *Solecardia cryptozoica* Hedley.
Lactemiles gen. nov.: type *Scintilla strangei* Deshayes.
Velargilla gen. nov.: type *Naranio rubiginosa* A. Adams and Angas.
Quadrans parvitas sp. nov.
Thalotia comtessei sp. nov.
Fautor excultus sp. nov.
Carswellena gen. nov.: type *Turbo exquisitus* Angas.
Laciniorbis morti sp. nov.
Laciniorbis hedleyi sp. nov.
Opposirius gen. nov.: type *Opposirius idoneus* Iredale.
Opposirius idoneus sp. nov.
Dolichosirius gen. nov.: type *Dolichosirius cupiens* Iredale.
Dolichosirius cupiens sp. nov.
Euprotomus donnellyi sp. nov.
Doxander gen. nov.: type *Strombus vittatus* Gmelin.
Dolomena gen. nov.: type *Strombus pulchellus* Reeve.
Canarium otiolum sp. nov.
Distorsio francesæ sp. nov.
Dulcerana gen. nov.: type *Ranella granifera* Lamarck.
Gyrineum pacator sp. nov.
Xenogalea nashi sp. nov.
Xenogalea thomsoni palinodia subsp. nov.
Quimalea pomum macgregori subsp. nov.
Parvitonna gen. nov.: type *Parvitonna perselecta* Iredale.
Parvitonna perselecta sp. nov.
Ficus margaretæ sp. nov.
Problitora gen. nov.: type *Amauropsis morchi* A. Adams and Angas.
Ectosinum gen. nov.: type *Ectosinum pauloconvexum* Iredale.
Ectosinum pauloconvexum sp. nov.
Pervisinum gen. nov.: type *Pervisinum dingeldeii* Iredale.
Pervisinum dingeldeii sp. nov.
Gennæosinum intercisum sp. nov.

Erosaria nashi sp. nov.
Talostolida gen. nov.: type *Cypræa teres* Gmelin.
Gratiadusta vaticina sp. nov.
Ovatipsa subgen. nov.: type *Cypræa chinensis* Gmelin.
Erosaria percomis sp. nov.
Mystaponda orcina sp. nov.
Notocypræa (*bicolor*) *emblema* sp. nov.
Notocypræa (*piperita*) *dissecta* sp. nov.
Thelxinovum gen. nov.: type *Thelxinovum molleri* Iredale.
Thelxinovum molleri sp. nov.
Umbilia (*hesitata*) *howelli* nov.
Trivellona gen. nov.: type *Trivellona excelsa* Iredale.
Trivellona excelsa sp. nov.
Ellatrivia gen. nov.: type *Trivia merces* Iredale.
Ellatrivia (*merces*) *addenda* sp. nov.
Fossatrivia gen. nov.: type *Trivia cœlatura* Hedley.
Volva volva cumulata subsp. nov.
Pellasimnia gen. nov.: type *Ovulum angasi* Reeve.
Diminovula cavanaghi sp. nov.
Lachryma bisinventa sp. nov.
Cymbiolista hunteri sp. nov.
Perirhoe exulta sp. nov.
Darioconus textilis osullivani subp. nov.
Floraconus peronianus sp. nov.
Endemoconus gen. nov.: type *Conus howelli* Iredale.
Epidirona gen. nov.: type *Epidirona hedleyi* Iredale.
Epidirona hedleyi sp. nov.
Epidirella gen. nov.: type *Hemipleurotoma tasmanica* May.
Eugemmula gen. nov.: type *Eugemmula hawleyi* Iredale.
Eugemmula hawleyi sp. nov.
Clamturris gen. nov.: type *Clamturris incredula* Iredale.
Clamturris incredula sp. nov.
Saginafusus gen. nov.: type *Fusus pricei* Smith.
Saginafusus pricei perficus subsp. nov.
Architectonica grandiosa sp. nov.
Architectonica offlexa sp. nov.
Philippia manifesta sp. nov.
Philippia stipator sp. nov.
Solatisonax gen. nov.: type *Solatisonax injussa* Iredale.
Solatisonax injussa sp. nov.
Palamharpa gen. nov.: type *Palamharpa exquisita* Iredale.
Palamharpa exquisita sp. nov.
Refluharpa gen. nov.: type *Harpa lamellifera* Tate.
Trameharpa gen. nov.: type *Harpa spirata* Tate.
Deniharpa gen. nov.: type *Harpa clathrata* Tate.
Scœofax gen. nov.: type *Scœofax molleri* Iredale.
Scœofax molleri sp. nov.
Ergalatax gen. nov.: type *Ergalatax recurrens* Iredale.
Ergalatax recurrens sp. nov.

EXPLANATION OF PLATES.

PLATE XXII.

Fig. 1.—*Laciniorbis hedleyi* Iredale, upper view.
Fig. 2.—*Laciniorbis hedleyi* Iredale, under view.
Fig. 3.—*Laciniorbis hedleyi* Iredale, side view.
Fig. 4.—*Laciniorbis morti* Iredale, upper view.
Fig. 5.—*Laciniorbis morti* Iredale, side view.
Fig. 6.—*Laciniorbis morti* Iredale, under view.
Fig. 7.—*Opposirius idoneus* Iredale.
Fig. 8.—*Palamharpa exquisita* Iredale.
Fig. 9.—*Dolichosirius cupiens* Iredale.
Fig. 10.—*Quadrans parvitas* Iredale.
Fig. 11.—*Quadrans parvitas* Iredale, hinge.
Fig. 12.—*Quadrans parvitas* Iredale, hinge.
Fig. 13.—*Diminovula cavanaghi* Iredale, upper view.
Fig. 14.—*Diminovula cavanaghi* Iredale, under view.
Fig. 15.—*Fautor excultus* Iredale.
Fig. 16.—*Lachryma bisinventa* Iredale.

PLATE XXIII.

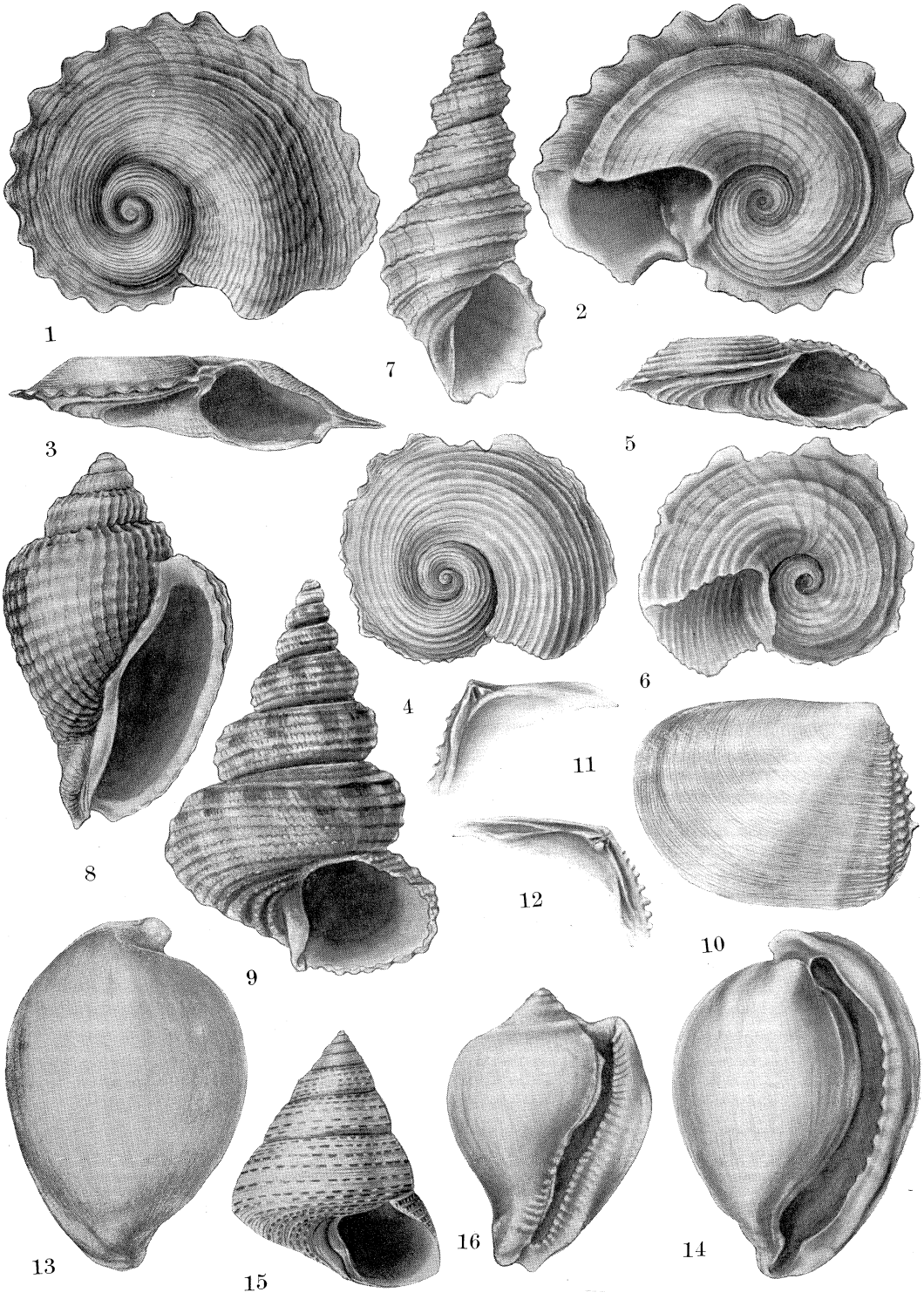
Fig. 1.—*Saginafusus pricei perficus* Iredale.
Fig. 2.—*Distorsio francesæ* Iredale.
Fig. 3.—*Gyrineum pacator* Iredale.
Fig. 4.—*Ficus margaretæ* Iredale.
Fig. 5.—*Tutufa lissostoma* Smith.
Fig. 6.—*Canarium otiolum* Iredale.
Fig. 7.—*Sydaphera renovata* Iredale, aberration.
Fig. 8.—*Scæofax molleri* Iredale.
Fig. 9.—*Phos senticosus* Linné.
Fig. 10.—*Ergalatax recurrens* Iredale.
Fig. 11.—*Thalotia comtessei* Iredale.
Fig. 12.—*Dolomena pulchella* Reeve.
Fig. 13.—*Genniæosinum intercisum* Iredale.
Fig. 14.—*Gennæosinum intercisum* Iredale, type.
Fig. 15.—*Pervisinum dingeldeii* Iredale.
Fig. 16.—*Ectosinum pauloconvexum* Iredale.
Fig. 17.—*Parvitonna perselecta* Iredale.
Fig. 18.—*Xenogalea nashi* Iredale.
Fig. 19.—*Euprotomus donnellyi* Iredale.
Fig. 20.—*Xenogalea thomsoni palinodia* Iredale.
Fig. 21.—*Semicassis diuturna* Iredale.
Fig. 22.—*Quimalea pomum macgregori* Iredale.
Fig. 23.—*Tonna allium* Dillwyn.
Fig. 24.—*Tonna parvula* Tapp-Canefri.
Fig. 25.—*Tonna canaliculata* Linné.
Fig. 26.—*Tonna tetracotula* Hedley.

PLATE XXIV.

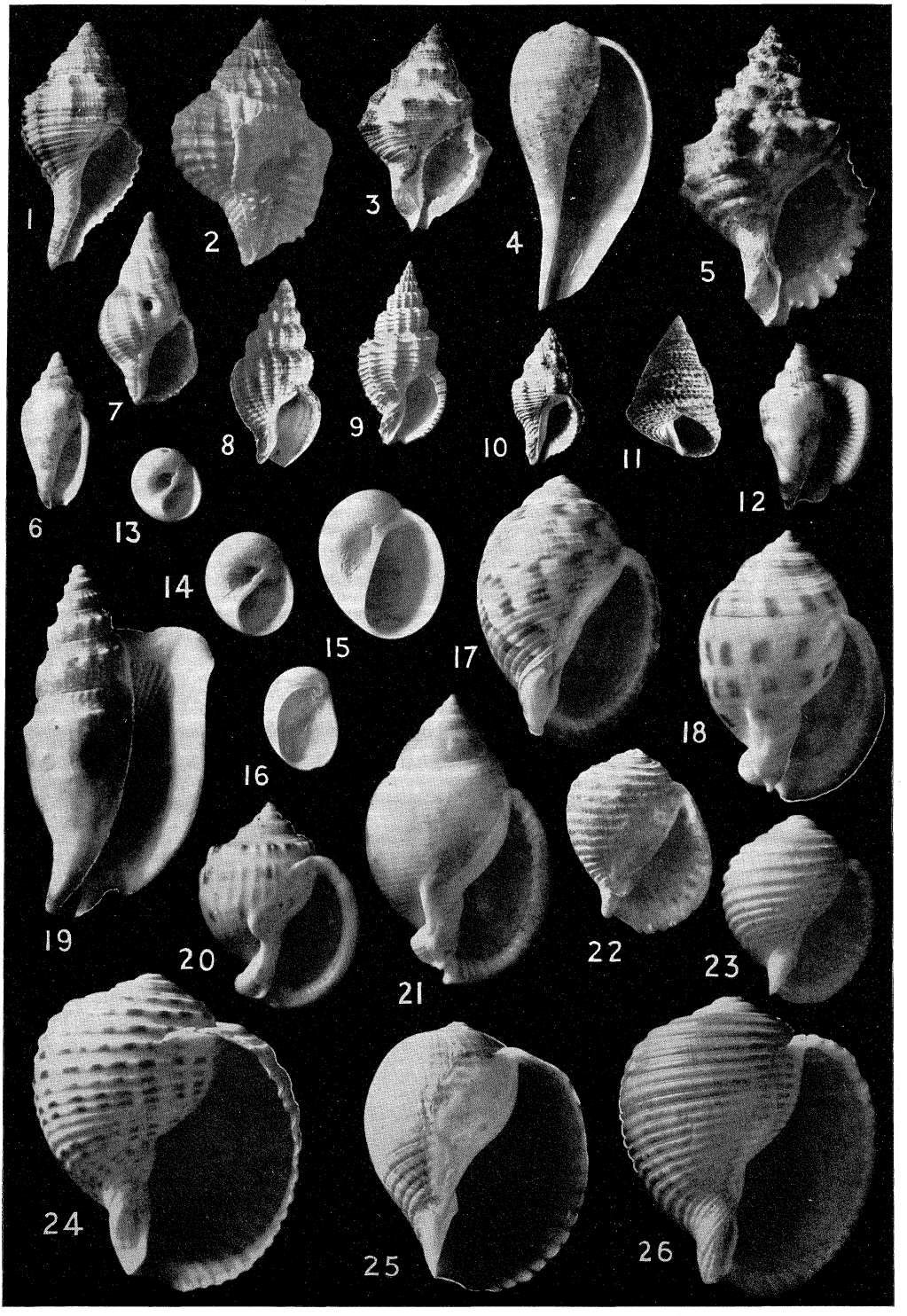
Figs. 1, 2.—*Umbilia (hesitata) howelli* Iredale, side and under views.
Figs. 3, 4.—*Notocyprœa (bicolor) emblema* Iredale.
Figs. 5, 6.—*Erosaria nashi* Iredale.
Figs. 7, 8.—*Notocyprœa (piperita) dissecta* Iredale.
Figs. 9, 10.—*Mystaponda orcina* Iredale.
Figs. 11, 12.—*Gratiadusta vaticina* Iredale.
Figs. 13, 14.—*Trivellona excelsa* Iredale.
Figs. 15, 16.—*Erosaria percomis* Iredale.
Figs. 17, 18.—*Thelxinovum molleri* Iredale.
Figs. 19, 20.—*Erronea (Ovatipsa) chinensis* Gmelin.

PLATE XXV.

Fig. 1.—*Spondylus prionifer* Iredale.
Fig. 2.—*Perirhöe melamans* Iredale.
Fig. 3.—*Perirhoë exulta* Iredale.
Fig. 4.—*Perirhoë albomarginata* Deshayes.
Figs. 5, 6.—*Plicatula essingtonensis elusa* Iredale.
Figs. 7, 8.—*Solatisonax injussa* Iredale.
Figs. 9, 10.—*Philippia manifesta* Iredale.
Fig. 11.—*Eugemmula hawleyi* Iredale.
Fig. 12.—*Floraconus peronianus* Iredale.
Fig. 13.—*Darioconus textilis osullivani* Iredale.
Fig. 14.—*Eugemmula hawleyi* Iredale.
Figs. 15, 16.—*Architectonica offlexa* Iredale.
Figs. 17, 18.—*Philippia stipator* Iredale.
Figs. 19, 20.—*Architectonica grandiosa* Iredale.
Fig. 21.—*Clamturris incredula* Iredale.



JOYCE K. ALLAN, del.



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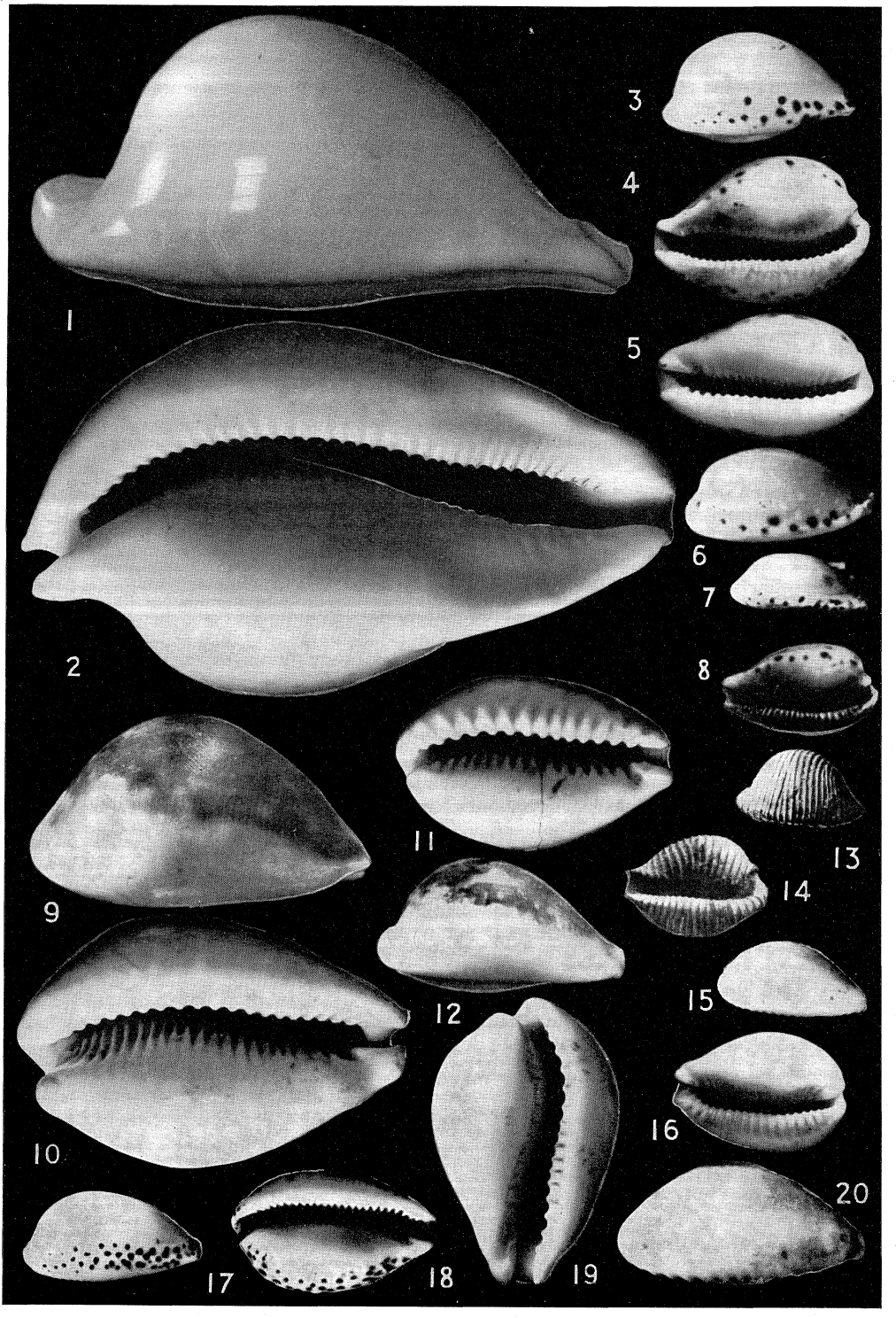

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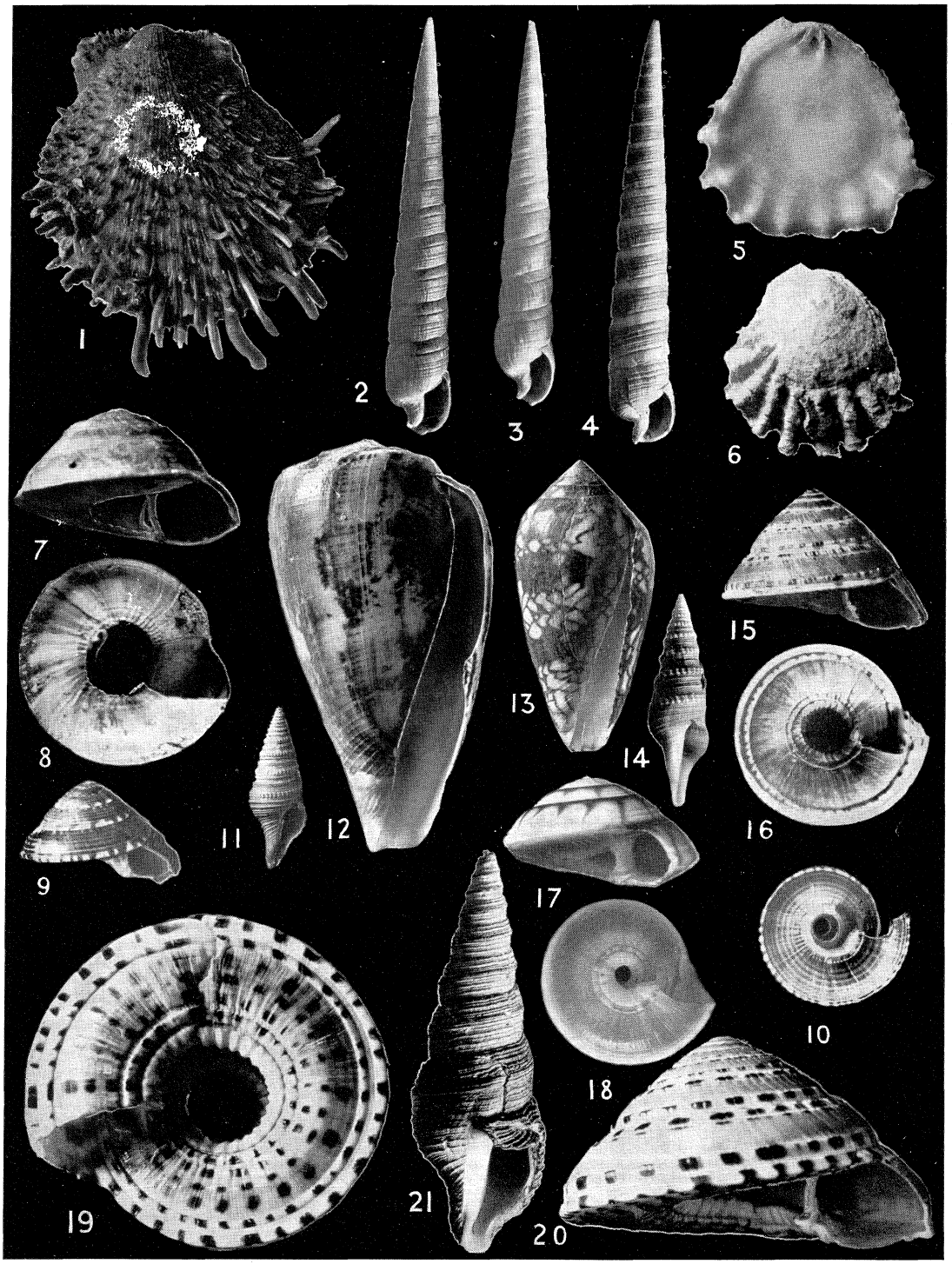

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