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# A REVISION OF THE AUSTRALIAN *TRIDACNA*.

BY

CHARLES HEDLEY.

(Plates xxvii.-xxxiv., and Figure 1).

From the earliest times the *Tridacna* shells, on account of their huge size, have attracted the notice of naturalists, so that the pioneers of conchology more than a hundred years ago already had collected a large body of information about them. But modern zoologists have not found much more to add, perhaps because the subject was considered to be exhausted: Yet the history of the habits, affinities and nomenclature of this curious genus is still far from complete.

A *Tridacna* occurring abundantly in the Gulf of Suez was examined by Dr. Leon Vaillant. He determined it, probably erroneously, as *Tridacna elongata*, Lamarck, and described it<sup>1</sup> as buried in sand so that the serrate margin of the valves alone projected and as moored by a profuse byssus hawser to the stone beneath; he adds that the bivalve may change its position and even move to a distance. Vaillant concluded that all other members of the genus *Tridacna* have similar habits and disparages those writers and travellers whose observations differ from his own. Thus he doubted the accuracy of the account of the large, fleshy foot given independently by Quoy and Gaimard<sup>2</sup> and by Woodward.<sup>3</sup> In reference to the statement that *T. crocea* lives buried in coral, Vaillant supposes that it could not actually excavate the stone and must therefore have been enveloped by an over growth of the living coral polyps. These views, advanced with so much authority, seemed to have gained general acceptance.

In Anstralia, *Tridacnidae* do not behave as Vaillant describes. Certain Pacific species do carve holes in stone just as actively as *Pholas* does on European coasts. Other species remain on the surface, either unfastened or clinging to the rock by the foot.

So *Tridacna* are divisible into the smaller species that burrow and the larger ones that lie on the surface. Australian burrowing species are *T. maxima*, *T. elongata* and *T. crocea*, the great size of the pedal aperture at once distinguishing any borer from any perching species; the non-boring

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<sup>1</sup> Vaillant—Ann. Sci. Nat. 5 Ser. Zool., iv., 1865, p. 71.

<sup>2</sup> Quoy & Gaimard—Voy. Astrolabe, Zool., iii., 1835, p. 490, Moll., Pl. lxxx., fig. 3.

<sup>3</sup> Woodward—Ann. Mag. Nat. Hist. (2), xv., 1855, p. 100.

kinds, *T. derasa*, *T. gigas*, *T. nuntica* and *T. squamosa* together with *Hippopus* may lie loose and quite unattached to the surface either by foot or byssus. In my experience *Tridacna* are never found on sand or mud, but only on coral.

The first glimpse that a traveller has of a living, boring *Tridacna* is usually an apparition of a brilliantly coloured, round serpentine worm, six or eight inches long, lying in dead coral. If he attempts its capture, the worm vanishes with a click, and the locked teeth of the valve margin grin at him in its place.

A lump of Astrean coral is here shown (Pl. xxxii., fig. 10) in which a specimen of *T. crocea*, about three inches long has sunk so deeply that the upturned edges of the valves are level with the surface of the rock. It was collected at Dunk Island, Queensland by Mr. E. J. Banfield who figured it in "My Tropic Isle," 1911, p. 126. The summit of the block appears to have been dead when the *Tridacna* settled there. Since then the coral colony grew up from the base again, the polyps intruded on the anterior end of the cell and were abraded by the foot of the mollusc. Boring *Tridacna* are always, as far as my memory serves me, found in dead, not in living, coral and that a sedentary *Tridacna* might become imprisoned by being enclosed in living coral would, I think, be a rare accident. The burrow is smooth inside and is large enough to allow considerable movement to and fro and of opening the valves from side to side. But the entrance is narrower than the chamber both in length and breadth, so that even a single valve cannot be withdrawn through the opening without breaking it.

An early stage in burrowing is represented by Plate xxxiv., fig. 13. Here a young *T. crocea*, 35 mm. long has begun to operate on a pebble of dead and much worn coral. I gathered this specimen on the beach at Green Island, Queensland. It well illustrates the fact that the cell of a buried *Tridacna* is formed not by the envelopment of growing coral but by the penetration of the mollusc into dead coral. In this case the burrow is driven obliquely, the left valve being deeper sunk than the right and the dorsal deeper than the ventral end, about one third of the left and a sixth of the right valve are submerged. The dorsal posterior angle is lifted clear and the anterior ventral angle is just covered. At this stage the bivalve could probably withdraw and commence another hole, but further excavation would entail imprisonment for life. Under denudation the dead coral melts away rapidly, so that whether the mollusc descended into the rock perpendicularly or obliquely the entrance to the cell would be removed by weathering of the rock surface and the route lost.

A young specimen of *T. crocea*, 18 mm. in length (Pl. xxxiv., fig. 14), has a pedal opening of 3 x 8 mm. But in a specimen 31 mm. long this aperture has increased disproportionately, being 15 x 7 mm. (Pl. xxxiv., fig. 15). Probably this indicates that the larger shell had reached a time of life in which burrowing became of greater importance.

Among dredgings from the Great Barrier Reef, about the latitude of Cairns, I was so fortunate as to find three minute valves of a *Tridacna* too young to name specifically. The smallest is 1.5 in height and 1.1 mm. in length; the next 2 high and 1.85 mm. long (Pl. xxxiv., fig. 18); the largest 2.7 high, 2.4 long and 0.6 mm. deep (Pl. xxxiv., fig. 16); the height and length being measured at right angles to each other. In the youngest stage, the dorsal, anterior and posterior-ventral sides are nearly equal, forming an equilateral triangle. As the shell grows it becomes more wedge-shaped, the height rapidly increases and the posterior slightly outgrows the anterior end. There is no gape, but the anterior margin is beset with denticules. The anterior side is flattened and sculptured by finer riblets. The back of the valve carries five broad crescentic ribs furnished with scales, their interstices have finer riblets. There is a small dome-shaped prodossoconch. The hinge line is straight. The shell is too transparent to show the muscle scars. In the left valve are two extended posterior teeth, in the right one and in each valve a single minute cardinal.

The orientation of this irregular shell has been a matter of such difficulty that the valve which one author, Vaillant, terms the left, is by another writer, Lacaze-Duthiers,<sup>4</sup> called the right. I would proceed by assuming that the hinge is, as usual, dorsal, and that the beaks are directed, as usual, anteriorly. Then it will follow that the pedal gape is, as Lacaze-Duthiers argued, on the anterior side and that the richly coloured mantle exposed by the animal living in the burrow, is posterior.

Systematists, following Lamarck, have arranged *Tridacna* next to *Cardium*. It is now contended that a more natural allotment would associate *Tridacna* with the mytiloid *Carditidae*. Both are rock dwellers and one species of *Cardita* was even named *tridacnoides* because of its resemblance to the big clams. Such classification better explains the direction of evolution followed by *Tridacna*. Beginning with a normal *Venericardia*, the path of distortion leads first to an elongate form, such as *V. turgida*, Lamarck (*Cardita incrassata*, Sowerby) in which the anterior side has become shorter and the anterior adductor muscle has ascended. Another step is represented by such forms as *Bequina semiorbiculata*, Linné or *Cardita crassicosta*, Lamarck. Here the anterior extremity has pushed out into a lobe, followed by an insinuation at the byssal slit, the anterior adductor muscle has made a further ascent towards the umbo. The furrow of the lunule, almost swallowed beneath the over rolling umbo, is hardly visible except as a notch in the hinge line. The final stage in elongation, compression and twisting is represented in *Tridacna*. At last, the anterior lobe of the mytiloid *Carditidae* has been squeezed out of existence, the byssal gape has been enlarged to form the pedal orifice of *Tridacna*, the anterior adductor muscle has moved on, under and past the umbo while

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<sup>4</sup> Lacaze-Duthiers—Archiv. Zool. Exper. (3), x., 1902, p. 208.

the umbo has curled over and concealed the lunule furrow. The consequent pivoting of the animal in its shell has brought the foot from the ventral to the anterior margin (Pl. xxxiii., figs. 11, 12).

The Australian species of *Tridacna* are as follows:—

TRIDACNA CROCEA, *Lamarck*.

(Plate xxx., fig. 5).

*Chama gigas* var. C., Dillwyn, Descrip. Cat., i., 1817, p. 214, for Chemnitz, Conch. Cab., vii., 1784, p. 124, pl. xlix, fig. 496.

*Tridacna crocea*, Lamarck, An. s. vert., vi., pt. i., 1819, p. 106. *Id.*, Encyclopedie Meth., pl. ccxxxv., fig. 2. *Id.*, Chenu, Illustr. Conch., 1845, p. 2, pl. iv., fig. 2. *Id.*, Woodward, Ann. Mag. Nat. Hist. (2), xv., 1855, p. 100. *Id.*, Reeve, Conch. Icon., xiv., 1862, pl. viii., fig. 9. *Id.*, Kuster, Conch. Cab., 2 Ed., viii., 4, 1868, p. 6, pl. i., fig. 6. *Id.*, Tapparone Canefri, Bull. Soc. Zool. France, iii., 1878, p. 276. *Id.*, Martens in Mobius Meersfaun. Mauritius, 1880, p. 323. *Id.*, Sowerby, Thes. Conch., v., 1884, p. 181, pl. ccclxxxvi., fig. 6, pl. ccclxxxvii., figs. 9-10. *Id.*, Smith, Chall. Exped. Zool., xiii., 1885, p. 170. *Id.*, Hidalgo, Mem. R. Acad. Cienc. Madrid, xxi., 1903, p. 397. *Id.*, Lynge, D. Kgl. Danske Vidensk. Selsk. Skrifter, 7, t. v., 1909, p. 263. *Id.*, Hedley, Report Austr. Assoc. Adv. Sci., xii., 1910, p. 348. *Id.*, Hirase, Illustr. Thousand Shells, Pt. 3, 1915, pl. xxix., fig. 143.

*Chamaetrachaea crocea*, Frauenfeld, Verhandl. K. K. Zool. Bot. Ges. Wien, xix., 1869, p. 884.

*Tridacna nutica*, Quoy & Gaimard, Zool. Astrolabe, iii., 1835, p. 490, pl. lxxx., figs. 1-3 (not of Lamarck).

*Chamaetrachaea scapha*, H. & A. Adams, Gen. Rec. Mollusca, ii., 1857, p. 465, pl. cxiii., fig. 2. *Id.*, Schmeltz, Cat. Mus. Godeffroy, v., 1874, p. 172.

*Tridacna ferruginea*, Reeve, Conch. Icon., xiv., 1862, pl. viii., fig. 8.

*Tridacna cumingii*, Reeve, Conch. Icon., xiv., 1862, pl. vii., fig. 7.

*Pa-ou-a*, Lesson, Dict. Class. d'hist. nat., xiii., 1862, p. 29.

*Hab.*—Cape York, 8 fath. (Challenger Expedition). Hope Islands (Hedley). Dunk Island (Banfield), Queensland.

TRIDACNA DERASA, *Bolten*.

(Plate xxviii., fig. 4).

*Tridacna derasa*, Bolten, Mus. Bolt., 1798, p. 172, for Chemnitz, Conch. Cab., vii., 1784, p. 125, pl. xlix., fig. 497.

*Chama gigas*, var. D., Dillwyn, Descrip. Cat., 1., 1817, p. 214.

*Tridacna mutica*, Chenu, Illustr. Conch., 1845, Tridacna, pl. iv., fig. 1 (not *T. mutica*, of Lamarck).

*Tridacna serrifera*, Lamarck, Anim. s. vert., vi., 1, 1819, p. 107. *Id.*, Encycloped. Meth., Pl. ccxxxv., fig. 3. *Id.*, Hanley, Cat. Rec. Bivalv. Shells, 1856, p. 232, pl. xxiv., fig. 21. *Id.*, Reeve, Conch. Icon., xiv., 1862, pl. vi., fig. 6. *Id.*, Kuster, Conch. Cab., 2 Ed., 1868, pl. i., fig. 1. *Id.*, Melvill & Standen, Journ. Linn. Soc. Zool., xxviii., 1899, p. 189. *Id.*, Hidalgo, Mem. R. Acad. Cienc. Madrid, xxi., 1903, p. 395.

*T. squamosa* var. *serrifera*, Sowerby, Thes. Conch., v., 1884, p. 180, pl. cccclxxxix., fig. 17.

*Tridacna obesa*, Sowerby, Proc. Malac. Soc., iii., 1899, p. 210-211, text figs.

There is a specimen in the Australian Museum collection 15 inches long. Probably the type of *T. derasa*, is contained in the Copenhagen Museum.

*Hab.*—Murray Island, Torres Strait (Haddon and Hedley).

TRIDACNA ELONGATA, *Lamarck*.

(Plate xxx., fig. 8).

*Tridacna elongata*, Lamarck, Anim. s. vert., vi. (1), 1819, p. 106. *Id.*, Chenu, Illustr. Conch., Tridacna, 1845, p. 1, pl. i., fig. 2, pl. ii., figs. 1, 2, 3. *Id.*, Menke, Moll. Nov. Holl., 1843, p. 39. *Id.*, Iredale, Proc. Zool. Soc., 1914, p. 666. *Id.*, Hedley, Proc. Geogr. Soc. S. Australia, viii., 1918, p. 267 (not *T. elongata* of Reeve, Kuster or Sowerby).

*Tridacna lanceolata*, Sowerby, Thes. Conch., v., 1884, p. 181, pl. cccclxxxix., fig. 19.

*Tridacna reevei*, Hidalgo, Mem. R. Acad. Cienc. Madrid, xxi., 1903, p. 389, for Reeve, Conch. Icon., xiv., pl. ii., fig. 2b.

The identity of this form has been enveloped in confusion. Lamarck originally included under the head of *T. elongata*, three varieties, "a," "b" and "c"; the shell of "a" being particularly distinguished as being 15 centimetres long. Chenu, who then had custody of Lamarck's shells, published drawings of *T. elongata* (Pl. ii., figs. 1, 1a, 1b). of exactly this length and it therefore seems reasonable to regard these figures as representing the type. Because Lamarck did not clearly differentiate *T. elongata* from such species as *T. maxima*, Bolten (Encyclop. Meth., Pl. ccxxxv., fig. 1), *T. imbricata*, Bolten (Savigny, Egypte, Pl. x., fig. 1) or *T. elongatissima*, Bianconi (Reeve, Pl. x., fig. 5), subsequent authors were led by such loose arrangement to take various views of *T. elongata*, transferring that name to other species and effacing the species itself under the name of *Tridacna lanceolata*.

According to current determinations, *T. elongata* reaches north, south, east and west to the utmost limits of the genus, viz.—to the Jima Islands, Japan (Pilsbry, Cat. Marine Moll. Japan, 1895, p. 182), Lord Howe Island, South Pacific (Brazier, Mem. Austr. Mus., ii., 1889, p. 28), Mangareva, Gambier Islands (Lamy, Bull. Mus. d'hist. nat., xii., 1906, p. 215) and to Suez, Red Sea (Issel, Malacologia Mar Rosso, 1869, p. 79).

*Hab.*—Monte Bello Island (Iredale), and Sunday Island, Kings Sound (Basedow), Western Australia.

TRIDACNA GIGAS, Linné.

(Plate xxvii., figs. 1-2).

*Chama gigas*, Linné, Syst. Nat., x., 1758, p. 691. *Id.*, Hanley, Ips. Linn. Conch., 1855, p. 85.

*Tridachnes novæ*, Bolten, Mus. Bolt., 1798, p. 171, for *Chama gigas*, Chemnitz, Conch. Cab., vii., 1784, pl. xlix., fig. 494.

*Tridacna gigantea*, Perry, Conchology, 1811, p. 2. *Id.*, Hedley, Proc. Linn. Soc. N.S.Wales, xli., 1917, p. 686.

*Tridacna rubis*, Reeve, Conch. Icon., xiv., 1862, pl. v., fig. 4. *Id.*, Sowerby, Thes. Conch., v., 1884, p. 182, pl. ccclxxxviii., figs. 13, 14. *Id.*, von Martens, Zool. Forsch. Semon, 1894, p. 94.

*Tridacna gigas*, Kent, Great Barrier Reef, 1893, p. 44, pl. xxix (Giant Clam alive in situ on the Reef). *Id.*, Hedley, The Nautilus, xv., 1902, p. 98. *Id.*, General Guide to American Museum, 1916, p. 97.

*Aganon*, Ferussac, Dict. class. d'hist. nat., i., 1822., p. 136.

*Kima*, Blainville, Dict. Sci. Nat., xxiv., 1822, p. 430.

*Meescor*, Jukes, Voy. Fly, ii., 1847, p. 286.

The Giant Clam is a conspicuous figure on the outlying reefs of the Great Barrier. Even yet there is some uncertainty about its synonymy and development. It is possible that two or more species distinct in youth may converge in age till they are alike Giant Clams.

In aged individuals,<sup>5</sup> the cardinal teeth increase disproportionately, the laterals tend to atrophy, the pedal orifice closes and the external sculpture of the valve becomes obliterated. When the characters which distinguish smaller shells from each other, thus disappear in senility, recognition of the earlier stages of the Giant Clam depends on tracing the species backwards through a series of young and younger individuals. On analysis the first point is that the Giant Clam is a perching and not a boring form, secondly, the ribs at the margin have the scales more crowded than in *T. squamosa*, thirdly, the Giant Clam is more inequilateral than are *T. mutica* or *T. squamosa*. From these, I conclude that the Giant Clam is the adult of what is generally known as *T. rudis*, Reeve, but which was earlier named *T. noae* by Bolten. In his original introduction of the name, Linné cited a figure of *T. noae* from Argenville (Conchyliologie, 2 ed., 1757, pl. xxiii., fig. e).

Of what is now the genus *Tridacna*, Linné perceived only a single species, his *Chama gigas*. The accepted usage of the name *Tridacna gigas* was unchallenged until Hanley reported that one of two specimens in the Linnean private collection was *T. squamosa*, and the subsequent redescription of the Museum Ulricae best suited the same species. But, on the contrary, the Linnean specimen of *T. squamosa* cannot be considered a type; whereas the shell in the Royal Museum noted in the original description as weighing 532 pounds, has every claim to be the Linnean type, which is perhaps still extant at Uppsala. Granting this, Lamarck may be endowed with the authority of the first reviser in dealing with the Linnean complex, and his separation of *T. squamosa* from *T. gigas* approved as a correct procedure.

Captain Flinders when on a voyage of discovery in Torres Straits in 1802, made the following observations:—"There being no water on the Island (Half-way Island), they (the Indians) seem to have hit upon the following expedient to obtain it: Long slips of bark are tied round the smooth stems of the pandanus, and the loose ends are led into the shells of the cockle (*Chama gigas*), placed underneath. By these slips, the rain which runs down the branches and stem of the tree, is conducted into the shells, and fills them at every considerable shower; and as each shell will contain two or three pints, forty or fifty thus placed under different trees will supply a good number of men. A pair of these cockle shells, bleached in the sun, weighed a hundred and one pounds; but still they were much inferior in size to some I have since seen."<sup>6</sup>

<sup>5</sup> It was suggested by Blainville (Dict. Sci. Nat., lv., 1828, p. 256) that with advancing age the animal ceased to adhere to the rock and the byssal gape closed.

<sup>6</sup> Flinders—Voy. Terr. Austr., ii., 1814, p. 114.

On Warrior Island, Torres Strait, Capt. Dumont D'Urville<sup>7</sup> saw in 1840, *Tridacna* shells used as water tanks, being set in pairs to catch the drip from Pandanus trees, as Flinders described. His illustration is here reproduced.

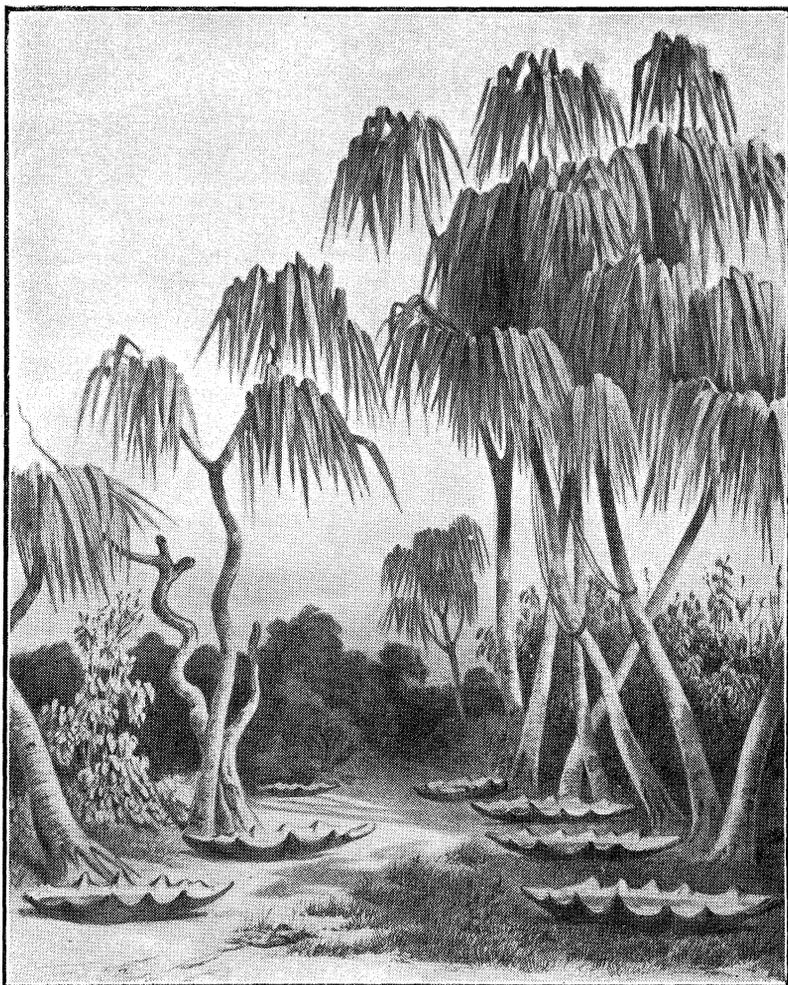


Figure 1. Giant clams set in pairs, serving as tanks, to catch the drip from Pandanus trees. Warrior Island. Torres Strait, 1840.

Specimens figured (Pl. xxvii.), were collected by myself on Green Island, off Cairns. One is 2 feet 3 inches long, the pedal gape has disappeared, and the lateral teeth, though still in existence, are comparatively slight. The other is ten inches long and has a considerable pedal gape.

<sup>7</sup> Dumont D'Urville—Voy. Pole Sud., ix., 1846, p. 235, pl. clxxxviii.

TRIDACNA MAXIMA, *Bolten*.

*Tridacna maxima*, Bolten, Mus. Bolt., 1798, p. 171 for Chemnitz, Conch. Cab., vii., 1784, p. 122, pl. xlix., fig. 495.

*Chama gigas*, var. B., Dillwyn, Descrip. Cat., i., 1817, p. 214; Encyclopedie meth., pl. ccxxxv., fig. 1.

*Tridacna elongata*, Reeve, Conch. Icon., xiv., 1862, pl. ii., fig. 2a. *Id.*, Brazier, Mem. Austr. Mus., ii., 1889, p. 28. *Id.*, Melvill & Standen, Journ. Linn. Soc. Zool., xxvii., 1899, p. 189. *Id.*, Hedley, Mem. Austr. Mus., iii., 1899, p. 505. *Id.*, Hedley, Proc. Linn. Soc. N.S. Wales, xxxi., 1906, p. 465 (not *T. elongata*, Lamarck, 1819).

*Tridacna compressa*, Saville Kent, Great Barrier Reef, 1893, pp. 12, 26, 103, pls. iv. and xv. (clams in situ), Chromo pl. xiii., fig. 10 (colours of mantle margin). *Id.*, Banfield, The Confessions of a Beachcomber, 1908, p. 132.

*Tridacna scapha*, Sowerby, Thes. Conch., v., 1884, p. 181, pl. cccclxxxix., fig. 16.

Probably the type shell figured by Chemnitz of *T. maxima* is still preserved in the Copenhagen Museum.

## TRIDACNA MAXIMA, var. FOSSOR, var. NOV.

(Plate xxix., fig. 6, and Plate xxxiii., fig. 11).

A Clam from Queensland and Lord Howe Island apparently differs from typical *T. maxima* by the shortness of the dorsal-posterior end and it is also remarkable for the large pedal gape. The resilium is considerably submerged. Indeed, when more material is available for comparison, this may stand as an independent species. The type is a young shell (C. 18727) 80 mm. long, which I collected at Mast Head Island, Capricorn Group. A large and massive individual of the same species, 195 mm. in length, which I took at Lord Howe Island, is shown on Pl. xxix., fig. 6.

This variety marks the southern limit of the genus.

On a recent visit Mr. A. R. McCulloch found this *Tridacna* plentiful on the reef at Lord Howe Island. Specimens ranged from two to eight inches in length, those in unfavourable conditions being considerably distorted. Frequently the *Tridacna* excavated in dead coral rock a hole half an inch deep round the byssal anchor. The rubbed scales of the umbral area indicate the depth attained. So variable is the colour and pattern of the mantle that no two animals seemed alike; they might be uniform dark chocolate or chocolate edged with green or have a paler ground with vivid blue or green markings.

He observed the *Tridacna* to suffer from the operations of a Sea Urchin, *Echinometra lucunter* which drives a burrow undermining and eventually dislodging the bivalve. Once loosened the *Tridacna* appeared to be unable to re-establish itself and was apt to be washed in to a sandy pool where it quickly perished.

TRIDACNA MUTICA, *Lamarck*.

*Tridacna mutica*, Lamarck, Anim. s. vert., vi., 1819, p. 106. *Id.*, Sowerby, Thes. Conch., v., 1884, p. 180, pl. cccclxxxv., fig. 1. *Id.*, Lamy, Bull. Mus. Hist. Nat., xii., 1906, p. 215 (not *T. mutica*, of Chenu, Quoy & Gaimard and other authors).

*Tridacna gigas*, Broderip, The Penny Cyclopædia, xxv., 1843, p. 207, text fig. *Id.*, Reeve, Conch. Icon., xiv., 1862, pl. i., fig. 1 (not *T. gigas*, Linné).

*Tridacna lamarcki*, Hidalgo, Mem. R. Acad. Cienc. Madrid, xxi., 1903, p. 385.

"*Benitiers*," Audran, Bull. Soc. d'Études Océaniques, No. 3, March, 1918, p. 128.

Hitherto unrecorded for Australia.

*Hab.* — Melbidir Bay, east coast Mornington Island, Gulf of Carpentaria, C. Hedley, 1903.

TRIDACNA SQUAMOSA, *Lamarck*.

(Plate xxviii., fig. 3).

*Tridacna squamosa*, Lamarck, Anim. s. ver., vi. (1), 1819, p. 106, Encycl. Meth., pl. ccxxxvi., fig. 1 (not pl. ccxxxv., fig. 4, *T. elongatissima*, Bianconi). *Id.*, Chenu, Illustr. Conch., Tridacna, 1845, p. 1, pl. iii. *Id.*, Cuvier, Regn. Anim., 3rd Ed., 1849, Moll., pl. xcvi., fig. 1. *Id.*, Reeve, Conch. Icon., xiv., 1862, pls. iii., iv. *Id.*, Hedley, Mem. Austr. Mus., iii., 1899, p. 504. *Id.*, Melvill & Standen, Journ. Linn. Soc. Zool., xxvii., 1899, p. 190. *Id.*, Hidalgo, Mem. R. Acad. Cienc. Madrid, xxi., 1903, p. 386. *Id.*, Lynge, K. D. Vidensk. Selsk. Skr., vii. (3), 1909, p. 262. *Id.*, Hirase, Illustr. Thousand Shells, i., 1914, fig. 36. *Id.*, Odhner, Kungl. Sv. Vet. Akad. Handl., 52, 1917, p. 8.

*Chamaetrachaea squamosa*, Schmeltz, Cat. Mus. Godeffr., v., 1874, p. 172.

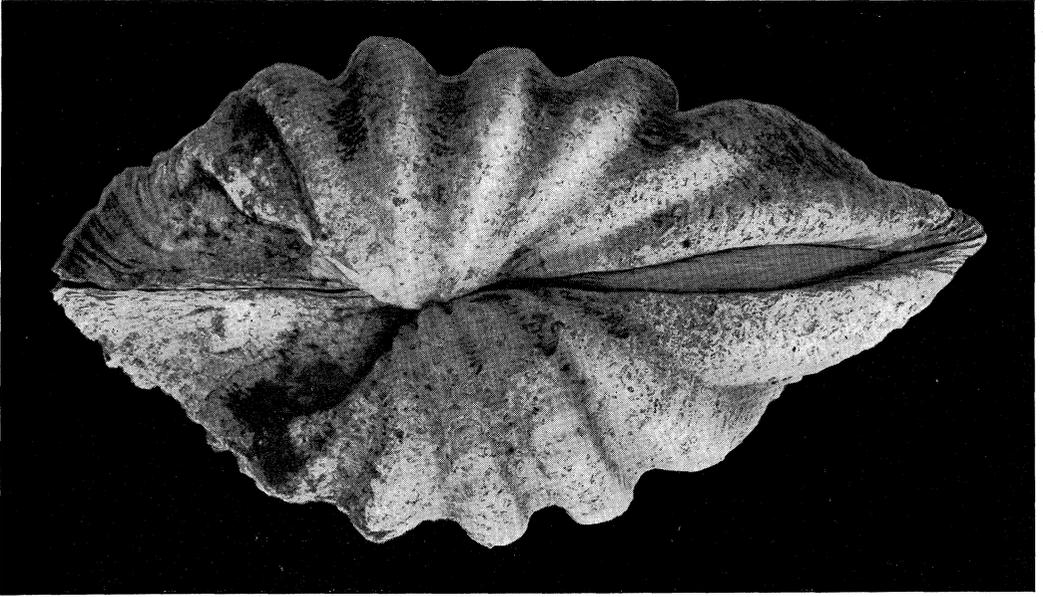
In *T. squamosa*, as shown in Cuvier's figure, the comb of the pedal orifice has more prominent teeth than in other species; this species is also more equilateral than usual. A specimen that I obtained on Murray Island, is thirteen inches long. Another specimen in the Museum Collection from the Gilbert Islands is one foot, two and a half inches long (37 centimetres), a size larger than any yet recorded.

*Hab.*—Broome, Western Australia (Mjöberg); Murray Island, Torres Straits (Haddon and Hedley).

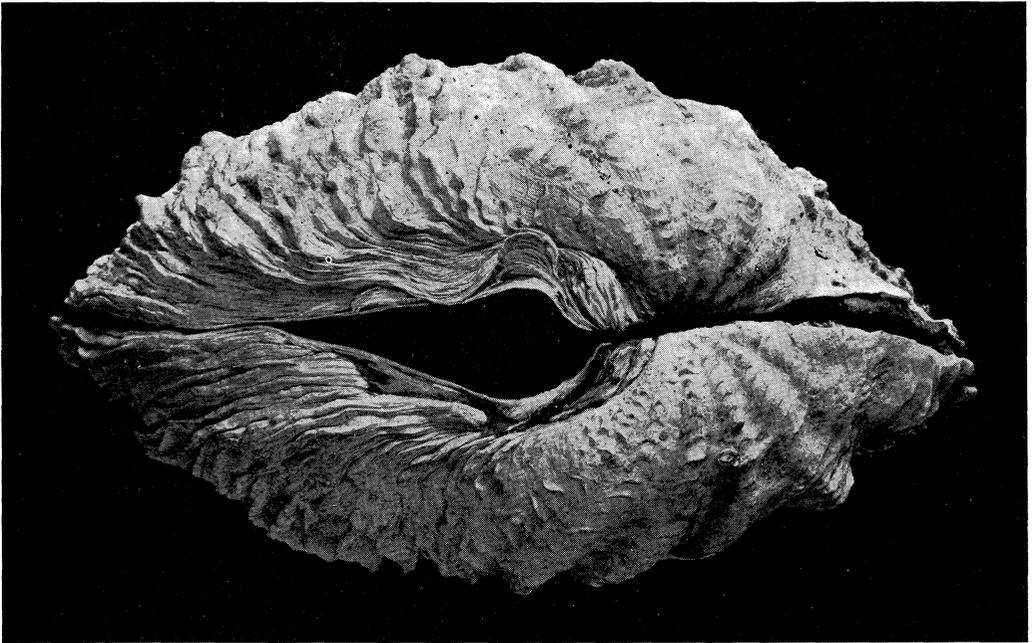
EXPLANATION OF PLATE XXVII.

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- Fig. 1. *Tridacna gigas* from a specimen 2 feet, 3 inches long, collected  
at Green Island, Queensland.
- „ 2. *T. gigas* from a specimen 10 inches long also from Green Island.



1



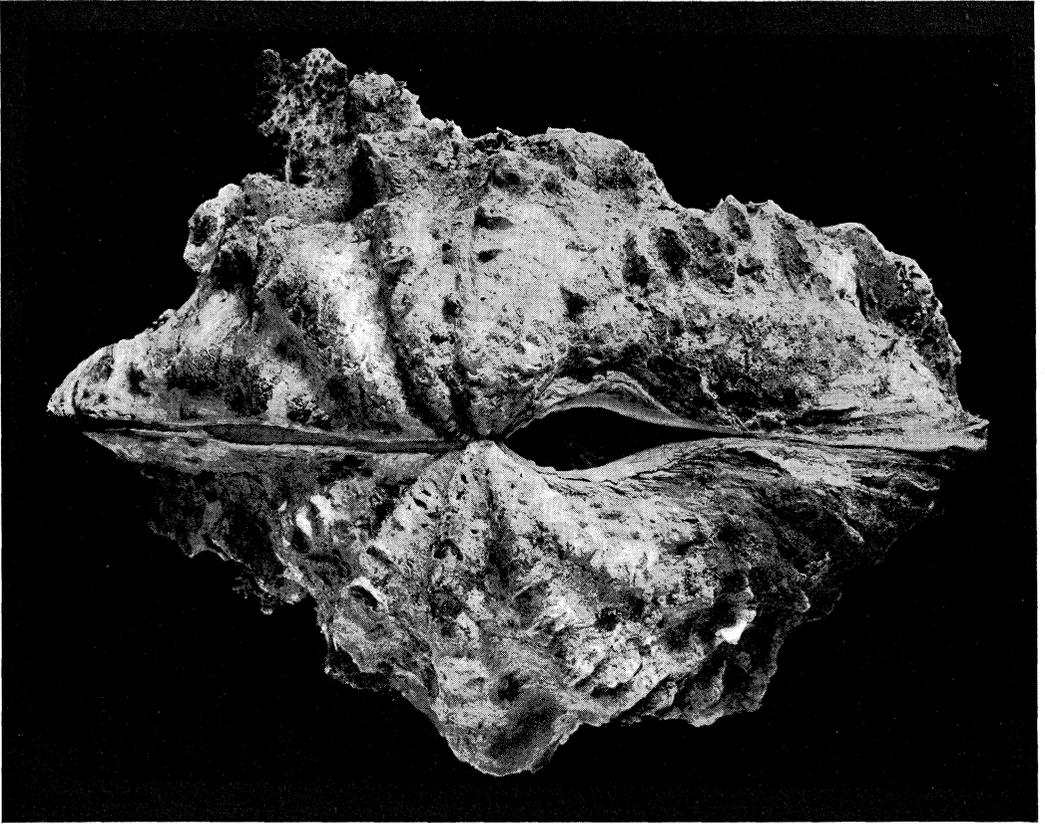
2

G. C. CLUTTON, photo.

EXPLANATION OF PLATE XXVIII.

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- Fig. 3. *T. squamosa*, Lamarek, from a specimen  $12\frac{1}{2}$  inches long, Murray Island, Torres Straits.
- „ 4. *T. derasa*, Bolten, a specimen 8 inches long, from Murray Island.



3



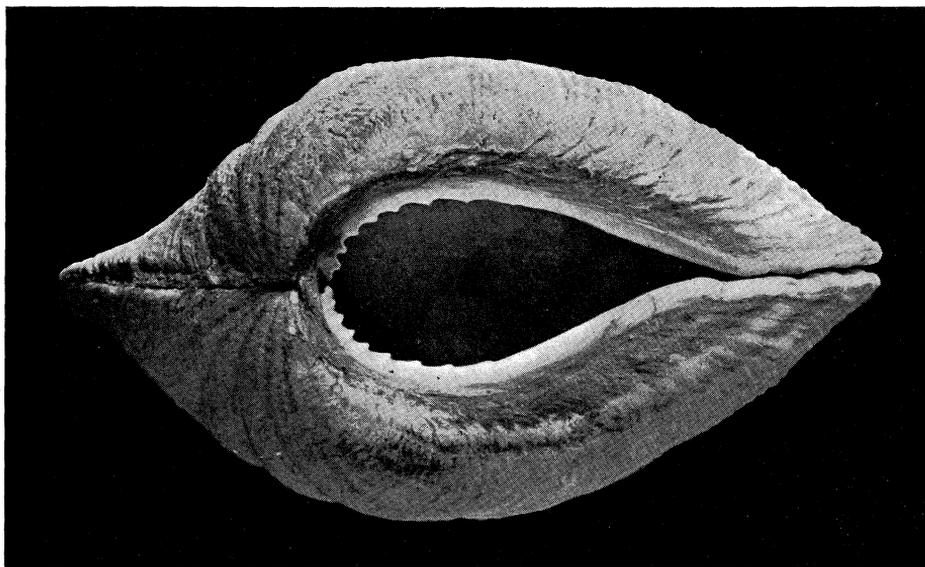
4

G. C. CLUTTON, photo.

EXPLANATION OF PLATE XXIX.

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- Fig. 5. *T. crocea*, Lamarck, 4 inches long, Hope Island, Queensland.  
,, 6. *T. maxima*, Bolten, var. *fossor*, Hedley, a specimen  $7\frac{1}{2}$  inches long, from Lord Howe Island.



5



6

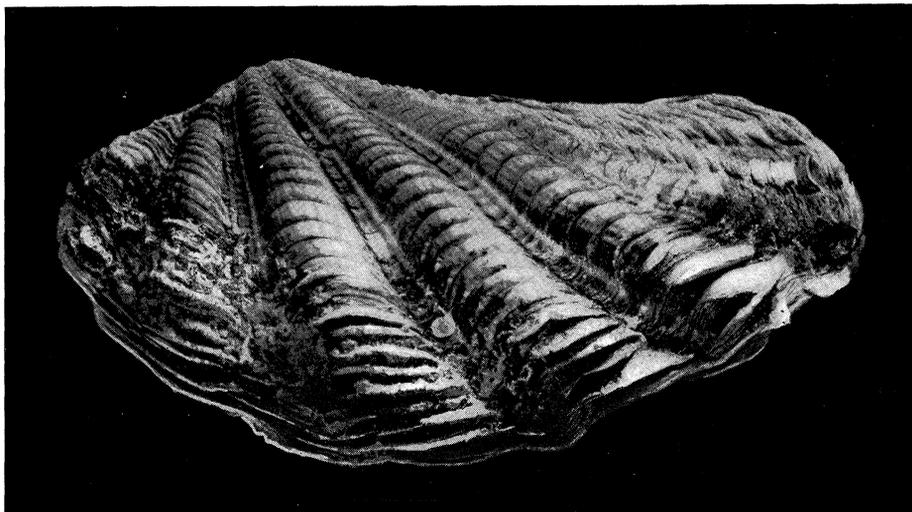
G. C. CLUTTON, photo.

EXPLANATION OF PLATE XXX.

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Fig. 7. *T. maxima* var. *fossor*, type,  $3\frac{1}{4}$  inches long, from Mast Head Island, Queensland.

„ 8. *T. elongata*, Lamarek,  $5\frac{3}{4}$  inches long, Sunday Island, W.A.



7



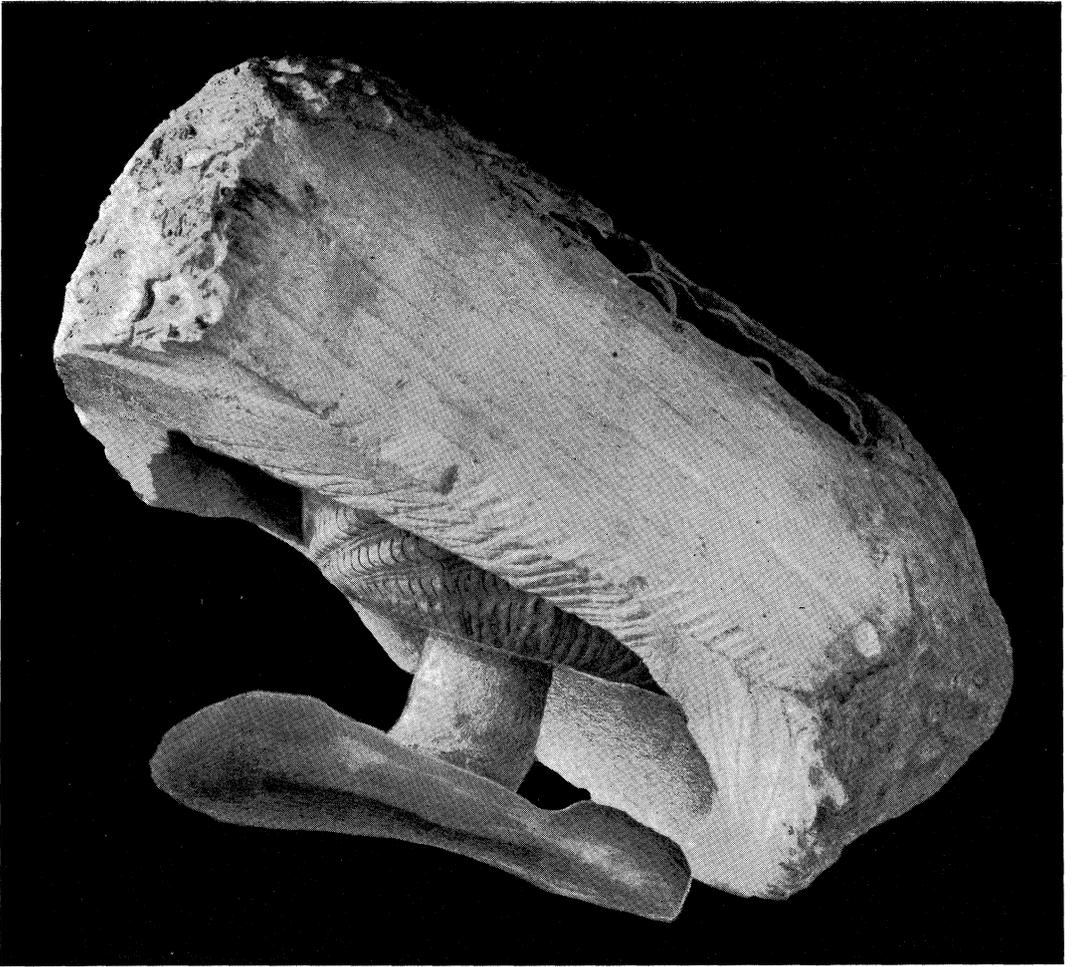
8

G. C. CLUTTON, photo.

EXPLANATION OF PLATE XXXI.

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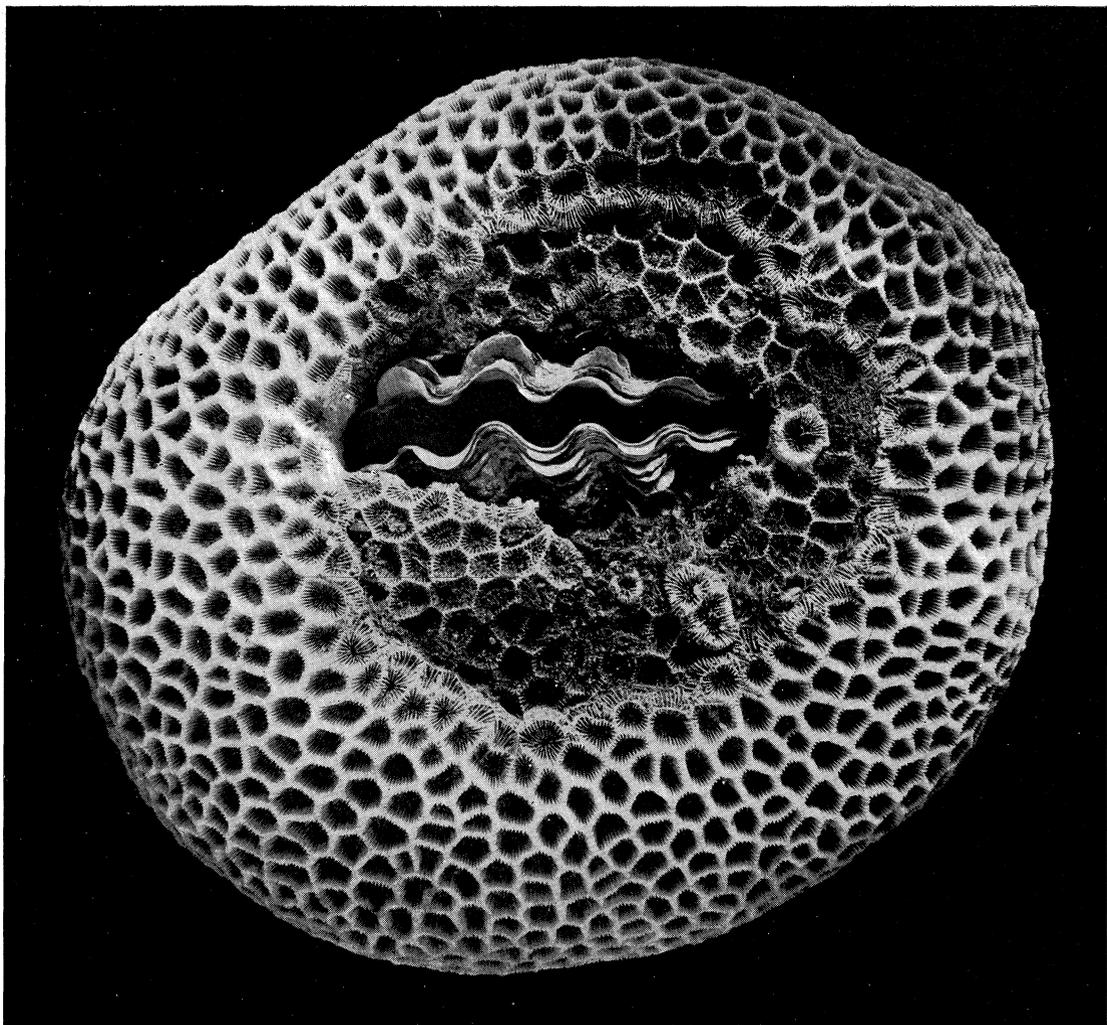
Fig. 9. Model of burrow of *T. crocea*, cut open to show the natural position of the shell and animal with extended mushroom shaped foot that excavates the cell.



EXPLANATION OF PLATE XXXII.

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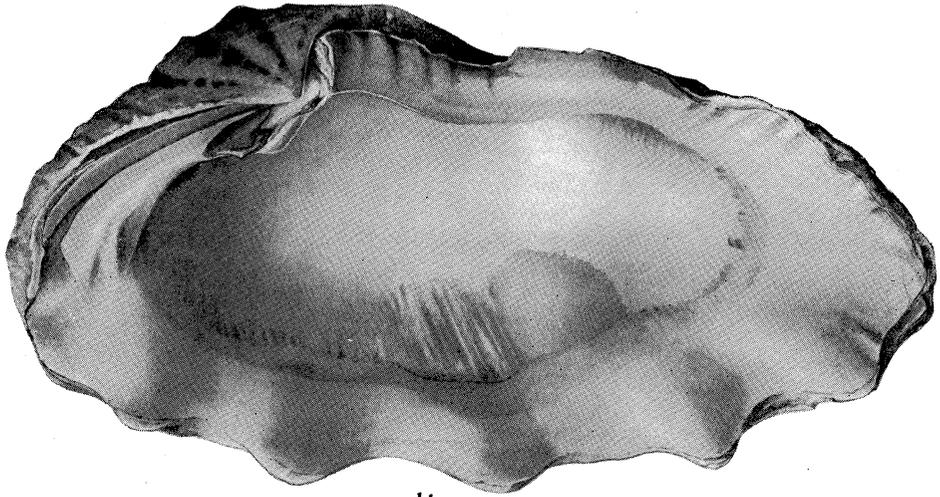
Fig. 10. Empty shell of *T. crocea* in block of Astrean coral, from Dunk Island, Queensland.



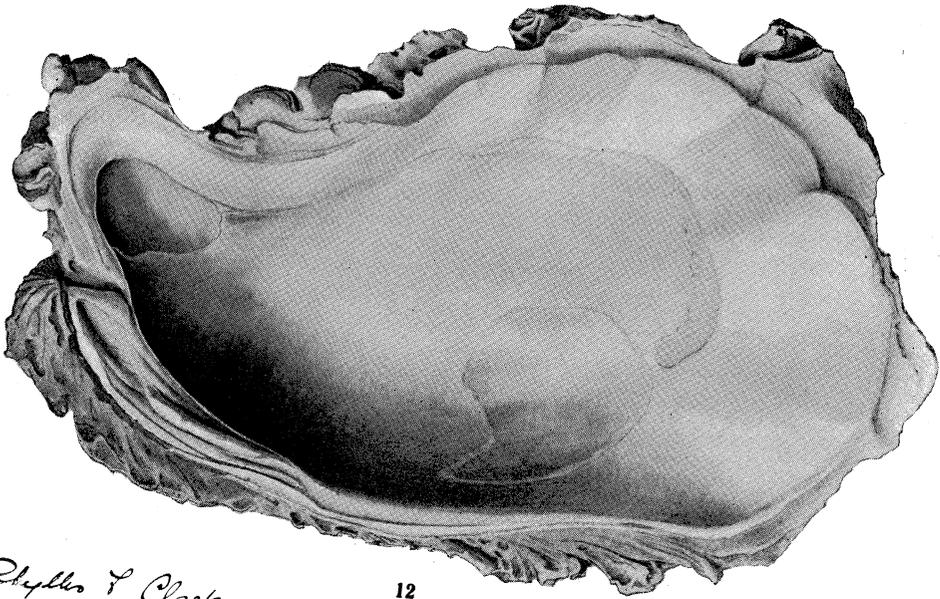
EXPLANATION OF PLATE XXXIII.

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- Fig. 11. Left valve, interior of *T. maxima* var. *fossor*, from Lord Howe Island, 195 mm. long.
- „ 12. Left valve, interior of *Cardita crassicosta*, Lamarck, from Anson Bay, Northern Territory, 75 mm. long, for comparison with Fig. 11.



11



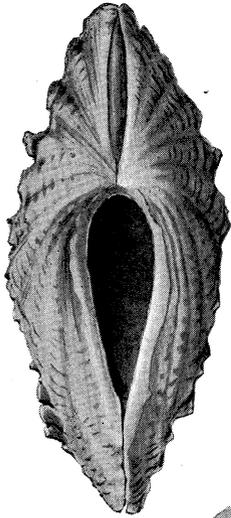
12

*Phyllis & Clarke*

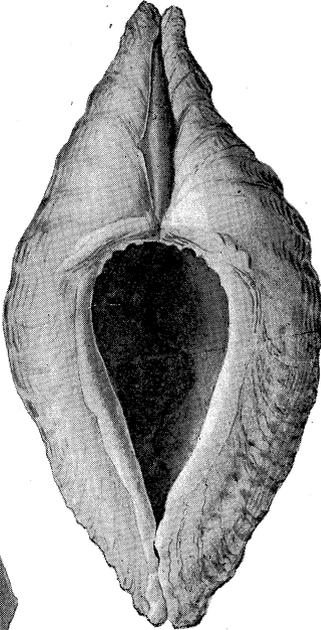
EXPLANATION OF PLATE XXXIV.

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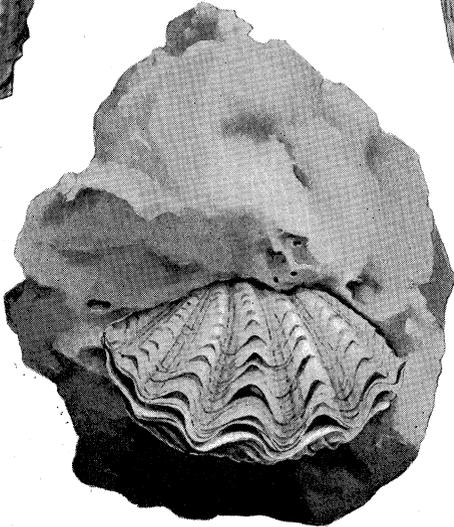
- Fig. 13. Young, *T. crocea*, Lamarck, 35 mm. long, commencing to burrow in dead coral.
- „ 14. *T. crocea*, 18 mm. long.
- „ 15. *T. crocea*, 31 mm. long, to show disproportionate increase of pedal aperture.
- „ 16. Right valve of *Tridacna*, 2·7 mm. high.
- „ 17. Hinge of ditto.
- „ 18. Left valve of *Tridacna*, 2·0 mm. high.
- „ 19. Hinge of ditto.



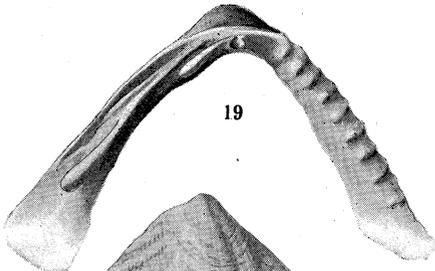
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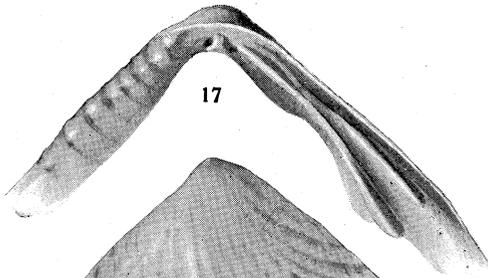
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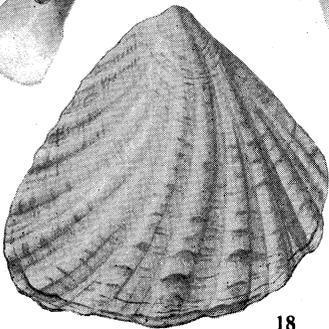
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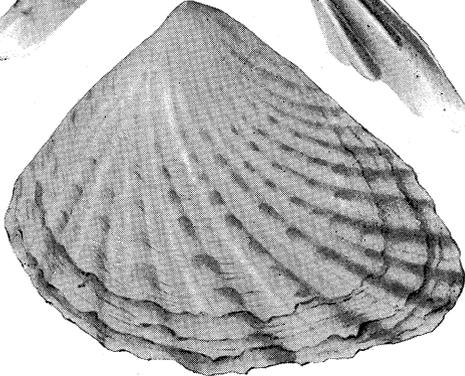
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*Phyllis T. Clarke.*