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NEW SPECIES OF TERTIARY MOLLUSCA FROM  
VICTORIA.

*By the Rev. E. H. Chapple.*

Plate XIV.

The type specimens of the Tertiary mollusca described below are in the National Museum, Melbourne. All were collected by the present author.

I have to thank Mr. C. W. Brazenor for the excellent photographs used in Plate XIV.

Family **FISSURELLIDAE**

Genus **TUGALIA** Gray (e.m.).

*Tugalia elata*, sp. nov.

Plate XIV, Fig. 8, 8a.

Shell narrowly elongate, convex, back elevated, sides parallel. Protoconch somewhat worn, submarginal, less than one-fifth of length from posterior end; from which a steep descent is made to the margin; the anterior slope from the protoconch is very gradual for two-thirds of the length; radial ribs numerous, rather coarse, with finer ones in the interstices; the radials are crossed by coarse concentric cords passing obliquely around the shell, somewhat nodular at the points of intersection, and enclosing deep irregularly-shaped pits; sides parallel, regularly rounded behind, more narrowly so in front. Base slightly arched, margin weakly denticulated; anal sinus broad and shallow. Owing to the shell being somewhat worn, the sculptural features are not so pronounced as they otherwise would be.

Dimensions.—Holotype. Length, 22 mm.; breadth, 12 mm.; height, 8 mm.

Observations.—This fossil has distinctive features different from any other Australian described species, either recent or fossil. The nearest approach is the New Zealand fossil *Tugali navicula* described by Finlay, but our form differs from it in its greater altitude relatively to the size of the shell. Finlay's species is "rather depressed," whereas ours is elevated.

Locality.—Cement Works, Railway Tunnel, Lower Moorabool River.

Geological Horizon.—Barwonian.

Holotype.—No. 14092.

Family **CYMATIIDAE**

Genus **AUSTROTRITON** Cossmann.

*Austrotriton balcombensis*, sp. nov.

Plate XIV, Fig. 5.

Shell ovate, body whorl ventricose, a short conical spire. Apex of protoconch eroded in all examples of this species examined by the author, but

anterior portion spirally lirata. Spire whorls three, exclusive of the protoconch, protuberant and slightly angled a little above the anterior suture; whorls spirally finely lirata, about ten on the penultimate, and rendered granulate by the intercrossing of numerous fine axial threads; a small spiral in the interspaces. Body whorl similarly sculptured. Varices four; no intervariceal nodulations, but the space is occupied by about six feeble axial costae, more pronounced in some examples than in others. Body whorl abruptly descending to the base. Aperture ovate; columella strongly arched, furnished with tooth-like ridges, varying in size, for its whole length; outer lip with about fifteen strong, close-set denticulations within. Canal very short, bent, and reverted.

Dimensions.—Holotype. Length, 15 mm.; breadth, 9 mm.; length of aperture and canal, 9 mm.

Observations.—This species bears considerable resemblance in outline to *Lampusia ovoidea* Tate, of the younger beds at Muddy Creek, but differs in the absence of intervariceal nodulations, the sculpture is less coarse, and the denticulations within the outer lip and the tooth-like ridges on the columella are both coarser and more numerous. This species may be the ancestor of the younger fossil. The absence of the apex in the several examples examined is suggestive in the light of Finlay's remarks relative to *Austrotriton* (Transactions of N.Z. Institute, vol. 62, p. 8), wherein he speaks of the "initial whorl as quite irregular in shape, roughened and markedly differentiated in texture from the polished succeeding whorl . . . the whole appearance is that of a scar left by the loss of some integral part."

Locality.—Grice's Creek, near Mornington.

Geological Horizon.—Balcombian.

Holotype.—No. 14093.

## Family TURRIDAE

### Genus ETREMA Hedley.

#### *Etrema turrita*, sp. nov.

#### Plate XIV, Fig. 3.

Shell small, fusiform, turreted, solid; protoconch of two smooth convex whorls; adult whorls five, sharply angulate; anterior two-thirds of spire whorls vertical whilst the posterior is flattened, almost at right angles to each other; the posterior is not lirata; the anterior is crossed by numerous fine, oblique, axial riblets. The posterior whorls show one distinct spiral on the front, the antepenultimate two, and the penultimate whorl a suspicion of a third on some examples; the spirals cross the riblets and are rather acute; they are situated on the lower half of the whorl near the anterior suture; where they cross the axial riblets they are somewhat granulate. On the periphery of the body whorl there are four or five spirals; they are continued on the base and the canal but are finer and closer. The shell is sharply contracted at the base, the outer lip strongly inflected, and swollen behind; sinus deeply incised, U-shaped, and effuse exteriorly; aperture narrowly ovate; columella nearly straight, smooth; canal short, a little effuse anteriorly.

Dimensions.—Holotype. Length, 6.5 mm.; breadth, 2.25 mm.

Observations.—This species bears some resemblance to *Etrema pseudo-*

*elegans* Chapman, but the whorls are not rounded anteriorly as in that species, the riblets are much finer, more oblique, and the spirals less numerous.

Locality.—Spoil heap at brown coal mine, Altona; several examples.

Geological Horizon.—Balcombian.

Holotype.—No. 14094. Paratype.—No. 14095.

## Genus FILODRILLIA Hedley.

### *Filodrillia turrita*, sp. nov.

#### Plate XIV, Fig. 4.

Shell fusiform, turreted. Protoconch with two small, smooth, convex whorls, the initial portion oblique, the anterior half of second whorl costated. Adult whorls seven, of regular increase; earlier whorls acutely angular with a series of coarse, blunt tubercles on the angulation; later whorls angulated, almost right-angled at the periphery; the keel consists of two close-set granulate lirae; the anterior half of the whorl, which is a little contracted at the suture, carries three granulate lirae on the penultimate, with a very fine line in the interspaces; the posterior half is flattened, and bears two or three fine spiral lines; the suture is marginate. The body whorl is acutely angled, and similarly ornamented in front with coarse and fine lirae alternating which extend to the extremity of the canal. The whole shell is crossed axially by close-set, regular growth lines, oblique on the anterior portion of the whorls, and crescentic on the fasciole, thus outlining the shape of the sinus. The intersection of transverse and spiral lines gives the shell a granulate, network appearance. Aperture oval, slightly angled at the periphery of the whorl, and contracted at the anterior; outer lip thin, lirate within; sinus wide and moderately deep; columella excavated; canal short and open, a little bent.

Dimensions.—Holotype. Length, 15 mm.; breadth, 5 mm.; length of aperture and canal, 6 mm.

Observations.—This fossil is classed as *Drillia* sp. in the Dennant Collection at the National Museum, and is fairly common at Balcombe Bay, Grice's Creek, Muddy Creek, and Lower Moorabool, in addition to Altona. It appears to have no close affinity with any other described species, recent or fossil. It has some features in common with the recent *F. stadialis* Hedley, and *F. steira* Hedley, but they are not sufficiently close to cause confusion with those species.

Locality.—Spoil heap at brown coal mine, Altona, near Williamstown.

Geological Horizon.—Balcombian.

Holotype.—No. 14096.

## Genus MITRITHARA Hedley.

### *Mitrithara megale*, sp. nov.

#### Plate XIV, Fig. 2.

Shell large for the genus, thin, cylindro-fusiform. Protoconch of two small, smooth, convex whorls, the earlier one the larger and slightly projecting. Adult whorls six, a little convex and slightly shouldered at the posterior suture, the latter well impressed. The whorls are spirally lirate throughout, about ten rounded spirals on the penultimate whorl, and about twenty-six

on the body whorl, the interspaces somewhat wider. The lirae are smaller and more crowded on the periphery, but descending to the base and the canal they are stouter and more widely spaced. The whorls are crossed obliquely by delicate and close-set riblets which produce granules at the points of intersection with the spirals. The riblets fade out at the base of the body whorl. Aperture narrow; sinus a slight flexure; outer lip thin (slightly damaged), a little incurved posteriorly; columella with two small, rounded plications about midway between the mouth and the posterior angle; canal short and well open.

Dimensions.—Holotype. Length, 14 mm.; breadth, 6 mm.; length of aperture and canal, 8 mm.

Observations.—This species bears some resemblance to the recent *Mitrihara columnaria* Hedley, but the fossil does not possess the strong cord and sulcus at the summit of the whorls such as found in the recent species. It also differs in possessing radial riblets which are absent in *M. columnaria*. In this respect the fossil approaches the recent *Mitrihara proles* Hedley, but in the latter case the radials are not so continuous, and they are curved rather than oblique. The spacing of the spiral lirae is also different. *M. megale* approximates closely to *Mitromorpha daphnelloides* T. Woods, but the former is a much larger species, and it does not possess the "broad, wide, groove-like space below the suture which is margined." The outer lip of *M. daphnelloides* is lirate within, whereas in our species it is smooth.

Locality.—Beach Cliffs, 2½ miles west of the Gellibrand River. Collected by the author.

Geological Horizon.—Barwonian.

Holotype.—No. 14097. Paratype.—No. 14098.

## Family MURICIDAE

### Genus TROPHON MONTFORT.

#### Subgenus ENATIMENE Iredale.

#### *Trophon (Enatimene) makros*, sp. nov.

#### Plate XIV, Fig. 6.

Shell narrowly fusiform; whorls convex, a little shouldered in the posterior-third. Protoconch with one-and-a-half convex whorls, the apex flattened, the anterior half transversely costate. Adult whorls five and a half, the posterior ones crossed by axial costae producing nodulations on the periphery. On the penultimate and body whorl the axials are faint and narrow, about eleven on the penultimate, with the interspaces striate. The whorls are spirally lirate, the lirae rounded, and slightly nodulate at the intersection with the costae; about six principal lirae on the penultimate, with finer ones in the interspaces. The body whorl is similarly sculptured, about twelve main spirals, narrower than the shallow interspaces; sutures well impressed, undulating. Aperture oval, acutely angulated at the posterior, and abruptly contracted at the anterior; outer lip swollen a little distance from the margin externally, and lirate within, margin thin; columella excavated; inner lip continuous with the outer; canal of medium length, narrow, oblique, and reverted.



Dimensions.—Holotype. Length, 13.5 mm.; breadth, 5.5 mm.; length of aperture and canal, 7 mm.

Observations.—This species differs from *T. crassiliratus* (described below) in being narrower and more elongate in shape, the sculpture is very much finer, having numerous axial striae, and fine spirals in the interspaces, and the canal is longer. A near ally in general appearance is *T. molorthus* Hedley, but the protoconch is less acute than in the recent species, the radial ribs not so bold, and the spirals less numerous. It is also longer in proportion to its breadth.

Locality.—Princetown; same locality as *T. (E.) crassiliratus* q.v.

Geological Horizon.—Balcombian.

Holotype.—No. 14099.

*Trophon (Enatimene) crassiliratus*, sp. nov.

Plate XIV, Fig. 7.

Shell narrowly ovate, thick, solid. Protoconch of one-and-a-half smooth, convex whorls. The spire consists of four convex whorls with an impressed suture which is a little channelled; spiral lirae bold, acutely rounded, six on the penultimate whorl, narrower than the interspaces; spiral striae absent. Body whorl convex, with about twelve well spaced, rounded lirae. Axially, the whorls are ornamented with narrow, not very conspicuous costae, narrower than the interspaces, and tuberculate where they are crossed by the spirals, axial lines in the interspaces; there are about fifteen costae on the penultimate whorl; they fade away towards the base of the body whorl. Aperture narrowly ovate, oblique, posterior acutely angled; peristome continuous; outer lip thickened, faintly variced, and lirate within, a small callus at the anterior end; columella arched; canal short, oblique, a little reverted.

Dimensions.—Holotype. Length, 11 mm.; breadth, 5.5 mm.; length of aperture and canal, 6 mm.

Observations.—The author has not been able to discover any described species, either recent or fossil, that bears any close affinity to the one under consideration.

Locality.—Land-slide, about three-quarters of a mile west of the Gellibrand River, and about the same distance from the beach. Princetown district. A number of examples collected.

Geological Horizon.—Barwonian.

Holotype.—No. 14100. Paratype.—No. 14101.

Family ARCHITECTONICIDAE

Genus ARCHITECTONICA Roeding.

Subgenus DISCOTECTONICA Marwick.

*Architectonica (Discotectonica) squamogranosa*, sp. nov.

Plate XIV, Fig. 1, 1a.

Shell discoidal. Protoconch of one turn, smooth, well defined. Adult whorls four, slightly convex; suture incised; periphery acutely keeled. The upper surface of each whorl is divided by four spiral lines, the central two

rather weak; the whorls are crossed obliquely by numerous close-set radial grooves, the result of the intersection of spiral lines and radial grooves being a series of elongate, flattish, bead-like granules. On the last whorl the spiral lines become very faint whereas the radial grooves persist to the periphery; a shallow spiral groove occurs on the last whorl just below the suture, and another close to the keel. The base is slightly convex, a conspicuous rounded cord encircles the base near the keel, with a faint thread in the intervening space. A deeply incised spiral groove limits the umbilical border. The latter is crossed by strong radial grooves giving rise to a series of rhomb-like structures which extend within the umbilicus. The outer edge of the incised spiral is also divided by radial grooves rather weaker, not corresponding to the inner ones, and extending well across the base. The umbilicus is wide and deep.

Dimensions.—Holotype. Height, 8 mm.; breadth, 19 mm.

Observations.—This species resembles *Solarium acutum* T. Woods, in many of its features, but its spiral lineations are less granulose, also the character of the sculpture on the base is different. Instead of seven rows of spiral granulations as in *S. acutum*, our species has only one, that immediately surrounding the umbilicus, the remainder of the base being comparatively smooth. Its nearest ally is the New Zealand fossil *Architectonica* (*Discotectonica*) *seniscula* Marwick. In addition to that collected by the author, examples of the same species are contained in the Dennant Collection in the National Museum bearing Tate's MS. name, *Architectonica squamogranosa*, but undescribed. The author has adopted Tate's specific name.

Locality.—Muddy Creek, lower beds.

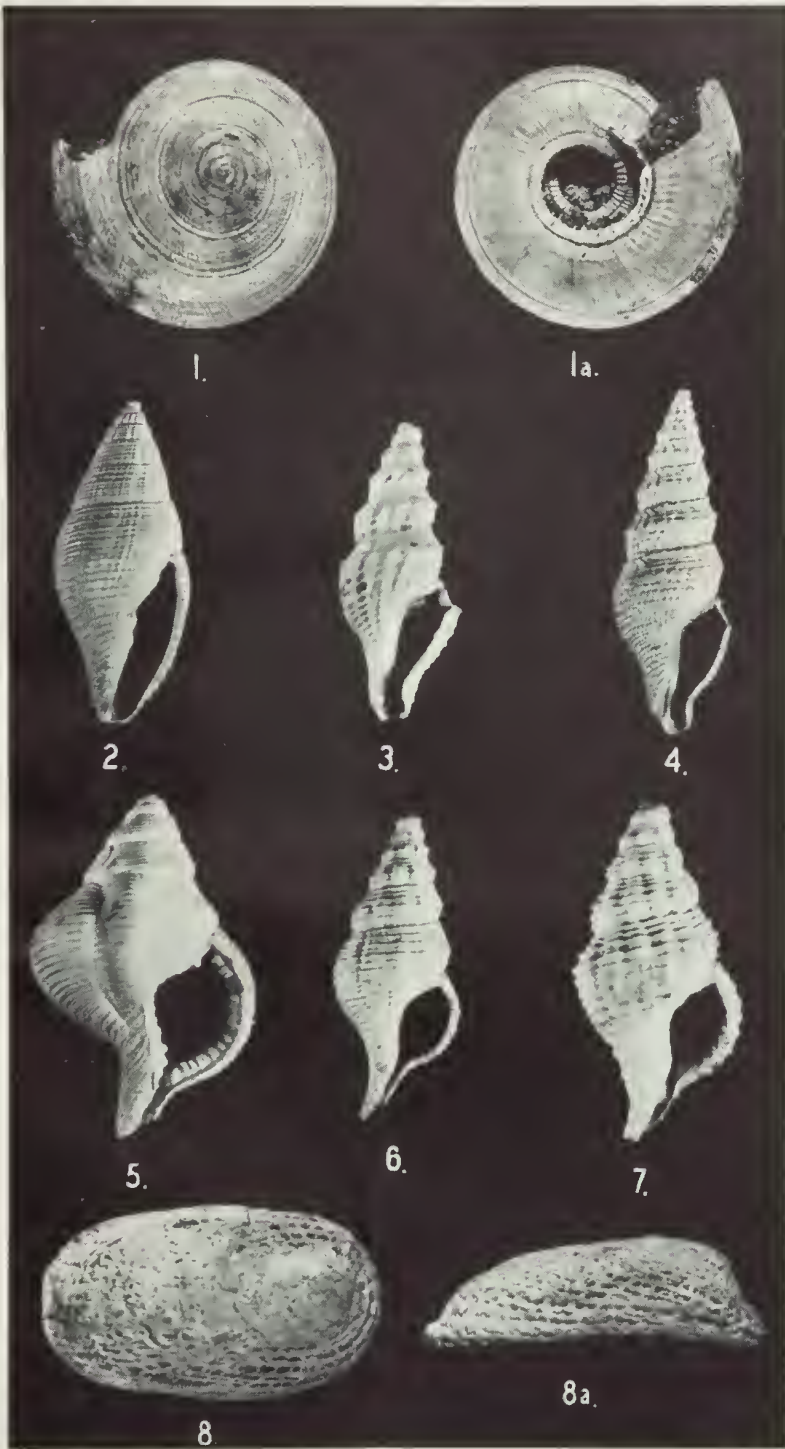
Geological Horizon.—Balcombian.

Holotype.—No. 14102.

#### PLATE XIV.

##### Photographs of Holotypes.

- Fig. 1. *Architectonica* (*Discotectonica*) *squamogranosa*, sp. nov.,  $\times 2$  diam.
- Fig. 2. *Mitrithara megale*, sp. nov.,  $\times 3$  diam.
- Fig. 3. *Etrema turrita*, sp. nov.,  $\times 6$  diam.
- Fig. 4. *Filodrillia turrita*, sp. nov.,  $\times 3$  diam.
- Fig. 5. *Austrotriton balcombensis*, sp. nov.,  $\times 3$  diam.
- Fig. 6. *Trophon* (*Enatimene*) *makros*, sp. nov.,  $\times 3$  diam.
- Fig. 7. *Trophon* (*Enatimene*) *crassiliratus*, sp. nov.,  $\times 4$  diam.
- Fig. 8. *Tugalia elata*, sp. nov.,  $\times 2$  diam.



Tertiary Mollusca; new species