

ON SOME NEW TASMANIAN MARINE SHELLS.

BY REV. J. E. TENISON-WOODS, F.L.S., F.G.S., Corresponding Member Royal Societies, Tasmania, Victoria, N.S.W.; Linn. Society, N.S.W., etc.

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The following new and very interesting species were, for the most part, collected by the Rev. H. D. Atkinson, and, with few exceptions, at Circular Head. An accurate knowledge of that fauna has long been a desideratum, and science may be congratulated on having such an industrious and painstaking collector as Mr. Atkinson settled there. A few other species are from different collectors, as noted at the end of each diagnosis. The list shows the spread of the eastern Australian coast fauna into N. Tasmania; while in the new species the recognised Tasmanian molluscan facies is not materially departed from.

NEW GENUS, IOSEPHA.

Shell bucciniform, variegated, covered with a periostraca, spire short, acute, last whorl large, ventricose, with a posterior depressed groove at the suture producing a contraction at the lip, columella with one conspicuous plait.

This shell is a *Cominella* with a plait. It is very rare, small, and has its station on shallow rocks about Bass' Straits and North Tasmania. I only know of one species.

IOSEPHA. *nov. gen. Testa Cominellæ simillima, sed plicana conspicua supra columellam insignita.*

IOSEPHA TASMANICA. *n. s. I. t. ovato fusiformi, parva, solida, opaca, carnea et albida; anfr, nucleo incluso, 7 convexis, angulatis, regulariter costatis et coronatis, regulariter, concinne striatis, striis distantibus, sup. cost. transeunt.; costis elevatis rotundatis, superne sulco conspicuo interruptis; nucleo (2 anfr.) lævi. inflato; apertura ovata, postice attenuata, labro tenui, acuto; columella conspicue uniplicata, retro canaliculata; basi concava, spiraliter lirata. Long. 10, lat. $4\frac{1}{2}$, long. apert 5, lat. $2\frac{1}{2}$ mil. Hab. N. Tasmania. W. Petterd, Loutit Bay, W. Kershaw, King's Island, T. D. Smith, Kent's Group, ditto.*

Shell ovately fusiform, small, solid, opaque, flesh color and white, whorls, including the nucleus, 7, convex, angular, regularly ribbed and coronate, regularly and neatly striate, striæ distant, and passing over the ribs, which are raised, rounded, and interrupted above by a conspicuous groove; nucleus of two whorls, smooth, inflated; aperture ovate, attenuate posteriorly; labrum thin, acute, columella conspi-

cuously uniplicate, canaliculate behind; base concave, spirally lirata.

TROPHON SQUAMOSISSIMA. n. s. T. t. fusiformi, scabra, sordide lutea, oblique plicata (ult. anfr. plicis, 8) conspicue spirally lirata; undique squamosa, squamis supra costas crebris, foliatis, aliter distantibus supra liris in lineis longitudinalibus transeuntibus; anfr. 5, superne angulatis, et carinatis; sutura profunde impressa; nucleo 2 anfr. striato; apertura anguste ovata, labro tenui, canali prælongo, aperto, declivo, columella planata, alba, lævi. Long. 15, lat. 7, canali $3\frac{1}{2}$, spira $7\frac{1}{2}$ mil. Hab. N. Tasmania. Rev. H. D. Atkinson.

Shell fusiform, rough, dirty yellow, obliquely plicate (plaits in last whorl 8), conspicuously spirally lirata, scaly or squamose all over, scales very close and foliate upon the ribs or plaits, but distant elsewhere, passing over the liræ in longitudinal lines, whorls 5, angular above and keeled, suture deeply impressed, nucleus of two whorls striate, aperture narrowly ovate, labrum thin, canal rather long, open, and sloping, columella flattened, white, smooth.

Very distinct from any known form. The foliation on the plaits are very like varices, and connect the genus closely with *Murex* proper.

COMINELLA ALBO-LIRATA. n. s. C. t. ovato fusiformi, solidiuscula, apice acuta, lamellose scabra, olivacea, liris albis, rotundatis, distantibus, eleganter spiraliter zonata; anfr. $6\frac{1}{2}$, superne angulatis, crebre longitud. lamellose striatis et indistincte costatis, lamellæ supra liras transeuntibus, ad suturam elevatis tortuosis, sutura linea alba lata conspicua; apertura late ovata, fulvo-purpurea; labro crassiusculo, intus albo maculato, ad suturam, angustato sed vix canaliculato; columella concava, planata, exacte definita, encausta, subtus, subumbilicata; canali brevi, subrecurvo. Long. 20, lat. 10, spira. 10 mil. Flinders' Island. Aug. Simson and Edward D. Atkinson.

Shell ovately fusiform, rather solid, apex acute, lamellosely scabrous, olive, and elegantly spirally zoned with distant rounded white liræ (5 to 6 in last whorl, one on each whorl of the spire exclusive of the white band on the suture), whorls $6\frac{1}{2}$, angular above, thickly lamellosely striate lengthwise, and indistinctly ribbed; lamellæ passing over the liræ, more raised and twisted over the suture, suture conspicuously marked with a broad white line; aperture broadly ovate, deep brown purple; labrum rather thick, spotted white within under the liræ, narrowed but scarcely canaliculate at the suture, columella concave, flattened, exactly defined, enamelled, subumbilicate; canal short, subrecurved.

This is certainly one of the most beautiful of our smaller coast shells. The brilliant white raised liræ on an olive

ground give it a very elegant appearance. It is quite distinguished from every other Australian species by the close raised lamellæ which overlap and are curiously twisted at the suture.

TRIFORIS FASCIATA. *n. s.* *T. t. parva, anguste pyramidata, polita, nitente, alba, una fascia fulva ad suturas late spiraliter cincta; anfr. 11, 3—5 carinis granulatis conspicue cinctis; carinis supra et infra majoribus, moniliformis, reliquis angustis vix granulatis; sutura lira conspicua insignita, apice lævi, decollato; apertura subquadrata; labro tenui; labio reflexo, canali producto et everso; ultimo anfr. carinis valde diversis et maculatis.* Long. 6, lat. $1\frac{1}{2}$ mil.

Shell small, narrowly pyramidal, polished, shining, white, but with one chestnut band which occupies about half of each whorl; whorls 11, conspicuously zoned with from 3 to 5 granular keels; keels larger above and below, making a kind of beaded margin to the whorls, the rest narrow and varying in thickness, with obsolete granules; suture marked with a raised line; apex smooth, decollate, aperture subquadrata, labrum thin, lip reflexed, canal produced and everted, last whorl with the keels of very different shape and spotted, the upper and lower ones thickened and nongranular, leaving a broad central area which is ribbed.

This shell differs from *Triforis tasmanica* nobis, in its color, shape, and curious granular keels. *T. tasmanica* is saturated reddish brown with three granular uniform keels.

MITRA LEGRANDI nobis. (Vide Proc. Roy. Soc. Tas. 1875.) I find since I wrote the description of this shell that it is often found of a larger size than the dimensions originally given, commonly about 4 to 5 mil. long. The coloring is also different. The last whorl is a rich golden reddish brown, with a broad white band in the centre, in the middle of which there is a fine but very distinct brown line. In the spire the whorls show but little of the color except at the sutures, but there is in the whole of the shell a kind of semi-transparency which is like fire stone or opal. It has been found at Circular Head by the Rev. H. D. Atkinson.

MITRA TERESIE nobis (*loc. cit.*). This shell has also been found at Circular Head by the Rev. H. D. Atkinson. It was double the size of the type specimens described by me. I believe that this shell will be found very close to an undescribed *Mitra* which was erroneously identified with Sowerby's *Mitra vineta*.

COLUMBELLA DICTUA. *n. s.* *C. i. parva, anguste ovata, spira acuta, nitente, fulva, lineolis pallide luteis acute angulosis confertissime reticulata; anfr. nucleo excluso, 7, planatis vel*

vix convexis, sutura inconspicua; nucleo, 1½ anfr. globoso, lævi, apertura ovata, antice lata, labro haud acuto, labio reflexo. Long. 9, lat. 4, spira 5 mil. N. Tasmania. Rev. H. D. Atkinson.

This species may be readily distinguished by its peculiar close reticulation of brown and pale yellow sharply angular lines. They form very fine acute zigzag markings of equal width, and extremely close together. In form it is like a very small *C. semiconvexa*. The color is very constant, and there are no cloudings or spots of any kind.

ERATO PELLUCIDA. n. s. E. t. lævigata, nitens, pellucida, sublactea, elongato elliptica, utrimque obtusa, spira depressa, inconspicua; anfr. 3½, ultim. omnino superanti, labro crassiusculo, submarginato, cum anfractu ultimo partim juncto, medio autem producto et incurvo, intus minute, distanterque denticulato, apertura vix angusta, antice latiora; columella conspicue triplicata, plicis postice decrescentibus, ad basim eversa, et aperta, marginata et contorta, plica simulanti. Long. 6½, lat. 3 mil. Hab. Table Cape. Rev. H. D. Atkinson.

This beautiful little *Erato* is the only one known from Tasmania. It is highly polished and shining, and almost perfectly pellucid, with a slight milky clouding. The color, however, looks darker within, almost livid, but this, I am convinced, arises from the remains of the animal. There are three plaits on the columella which decrease posteriorly, and the base of the columella is twisted round so as to look like a fourth; the spire is only very slightly exsert, showing about 2½ whorls; the teeth on the outer lip are numerous, but very faint and inconspicuous.

RISSEA (CERATIA) PUNCTATO-STRIATA. n. s. R. t. parva, elongato turbinata, alba, subpellucida, nitente, ubique regulariter, æquidistanter, profunde striata, striis minute concinne punctatis, punctis creberrimis; anfr. 6½, declivis, rotundatis, ultimo spira longe superanti (ut. 5½—3), apice obtuso; apertura late pyriformi; labro tenui, antice parum everso, columella contorta et marginata. Long. 8½, lat. 3½; long. apert. 3½, lat. 2 mil. Table Cape. Rev. H. D. Atkinson.

This beautiful little species is mainly distinguished by its distinct and equal spiral grooves, which are very neatly dotted with close round pits like an extremely fine chain. The color is white but almost pellucid, and the shape is elongately turbinate. The mouth is quite entire and anteriorly exserted.

BITTIUM MINIMUM. n. s. B. t. minuta, tumide pyramidata, nitente, pallide badia; anfr. 6—7; planatis, regulariter crebre plicatis, (13—15 ult. anfr.) et spiraliter 3 liratis, liris supra

plicas nodosis, sutura vix impressa, apice obtuso; nucleo partim lævi et partim semper decollato; apertura semilunari, canali brevi, recurvo, basi concava angustata, lævi. Long. $2\frac{1}{2}$, lat. 1 mil. N. Tasmania. Rev. H. D. Atkinson.

Shell minute, tumidly pyramidal, shining, pale brown; whorls 6 to 7, flattened, regularly and closely plicate (13 to 15 plaits on last whorl) and spirally 3-lirate, liræ very nodose on the plaits, suture scarcely impressed but visible, apex obtuse, nucleus smooth partly and always partly broken, aperture semilunar, canal short, recurved, base concave, narrowed, smooth; columella twisted.

In color and ornament like *Bittium granarium*, but more tumid, and completely distinguished by its very minute size.

DRILLIA TÆNIATA. *n. s. D. t. elongato fusiformi, turrita, spira quam apertura longiori, fasciis latis, fulvis vel castaneis, zonata; fasciis eleganter lineis angustis albis marginatis; anfr. 7, superne angulatis et costulis coronatis, undique spiraliter striatis, lineis albis sæpe liratis, super angulum sublævis, sed lineis curvatis (ab increm. sinus provenientius) insignitis; apertura lata, sinu lato et profundo; labro tenui, labio exacte definito et encausto, canali brevissimo, aperto.* Long. 13, lat. 5; long. apert. 5 mil. Flinders' Island. Aug. Simson and E. D. Atkinson.

Shell elongately fusiform turreted, spire longer than the aperture, zoned with broad bands of brown or chestnut which are elegantly margined with narrow white lines, whorls 7, angular above and crowned with small ribs, spirally striate throughout, and with the white lines often lirate, nearly smooth above the angle, but marked with the curved lines of growth of the sinus; aperture broad, sinus broad and deep; labrum thin, lip exactly defined and enamelled, canal very short and open.

This *Drillia* is distinguished from the many described Australian species by its bands of color, and short coronate ribs. The color bands are not very conspicuous, even though narrowly margined with white.

DRILLIA AGNEWI. *n. s. D. t. elongato fusiforme, turrita, spira quam apertura longiore (10—16) crassa, sordide lutea, haud nitente (erosa?); anfr. $7\frac{1}{2}$, oblique costatis (ult. anfr. 12), et spiraliter liratis; costis, latis, conspicuis, a sinu depressis et evanidis; liris conspicuis, distantibus elevatis, supra cost. transeuntibus, in spira 4, ult. anfr. 9—10; apice decollato, apertura anguste ovato, sinu lato, profundo, labro acuto, producto, labio crasso, reflexo, canali recto, brevi.* Long. 26, lat 9; long aperture 10, lat $3\frac{1}{2}$. Hab. Table Cape. Rev. H. D. Atkinson.

This species differs from *D. Weldiana nobis* in its dull

yellow uniform color, and in the absence of any callus on the posterior part of the columella. The ribs are fewer, larger, and more distant, and the same differences apply to the liræ, and the outer lip is not thickened. The size is about the same.

MANGELIA DELICATULA. n. s. M. t. parva, anguste fusiformi, turrita, sub diaphana, parum nitente, pallide lutea, lineis rufis, tenue et irregulariter zonata; anfr. (nucl. incl.) 8, declivis, superne obtuse angulatis, crebre concinne, declivo costatis, et conspicue spiraliter striatis; costis elevatis, ad suturam persistentibus, in ultimo anfr. 14; striis subdistantibus, supra costas transeuntibus, sutura bene impressa; nucleo (3 anfr.) lævi, fulvo, polito; apice minute obtuso; apertura anguste ovata, sinu lato, labro tenui acuto, labio exacte definito, canali lato brevi. Long. 9, lat. $2\frac{1}{2}$; long. apert. 4. spiræ 5. Long Bay, Hobart. W. Legrand.

Shell small, narrowly fusiform, turreted, subdiaphanous, shining, pale yellow, slenderly and irregularly zoned with red lines; whorls, including 3 nucleolar ones, 8, sloping, obtusely angular above, closely and neatly ribbed, and conspicuously spirally striate; ribs elevated continuous to the suture, sloping, 14 in last whorl; striæ subdistant, passing over the ribs, suture well impressed; nucleus smooth, fulvous, polished, apex minutely obtuse, aperture narrowly ovate, sinus wide, labrum thin, acute, lip exactly defined, canal wide and short.

This may be distinguished from our many described *Mangelia* by the smallness and closeness of the ribs, by the distinct and distant spiral striæ, and by the lines of color. Its smaller size permit its being mistaken for *M. Meredithiæ* nobis; that shell is pure white, or the bands of color are not often seen. The ribs are also distant and fewer. *M. delicatula* is somewhat like *Bela mitralis* (Adams), which, however, is a larger and stouter shell.

CLATHURELLA GRANULOSISSIMA. n. s. C. t. anguste fusiformi, turrita, spira quam apertura longiore, solida, badia saturata, haud nitente; anfr. 7, 2 apicalibus sub lævibus, reliquis, conspicue costatis, et undique liratis; costis crassis, rotundatis, elevatis, ultimo anfr. 8; liris creberrime subtillissimeque granulatis, in spira 3—4 majoribus, æquadistantibus, sup. cost. transeuntibus, reliquis minutis, sutura bene impressa; apertura late ovata, sinu lato, inconspicuo; labro tenui, extus varice insignito, intus concavo; labio encausto; canali lato, tenuiter recurvo. Long. $6\frac{1}{2}$, lat. $2\frac{1}{2}$. N. Tasmania. Rev. H. D. Atkinson.

This pretty species is somewhat like *C. sculptilis* Angas, but it differs from all other forms in having the fine spiral liræ

conspicuously granular, about every fourth one is larger than the others. The color is a uniform dull brown, and the longitudinal ribs are very conspicuous. The outer lip has a varix, but is hollow within. The sinus is very faint, and the canal a little produced and recurved.

CLATHURELLA SCULPTILIOR. *n. s.* *C. t. subminuta, alba, ovato fusiformi, conspic. clathrata, hard nitente, opaca; anfr. (nucleo incluso) 4½—6½, rotundatis, crebre costatis, et creberrime liratis, costis angustis, sub elevatis, ultimo anfr. 16; liris conspicuis, parvis et magnis alternantibus, supra costas transeuntibus et ibi subnodosis, sutura impressa, lineis ab increm. sinus vix visibilibus; nucleo (1½ anfr.) concinne sedtenuissime striato; apertura late ovata; labro incrassato, intus dentato, sinu lato; columella lævi, exacte definita, canali brevi, parum recurvo. Long. 5½, lat. 2; long. spiræ 3. Long Bay. Rev. H. D. Atkinson. Four fathoms.*

This shell comes so close to *Clathurella sculptilis* Angas that I shall best define it by describing the differences. The ribs in our species are double the number; the sinus is not so deep, and consequently the lines that it leaves by growth near the suture are nearly straight, and they are not very visible. There is no smooth space below the sutures, and the liræ are very close and alternating. (In *C. sculptilis* they are all of one size and distant.) The lines of growth are not very visible. The nucleus in both species is white and finely grooved of 1½ whorls to where the normal sculpture of the shell abruptly commences; but in this species the grooves are finer, and there is no trace of transverse sculpture. In Mr. Angas's shell it is coarse, and there are signs of sculpture. Neither shells appear to be very uncommon.

I must add to the Tasmanian fauna:—

CLATHURELLA BICOLOR. Angas.

CLATHURELLA SCULPTILIS. Angas.

Both of these shells have been hitherto found only in or near Port Jackson. The Rev. Mr. Atkinson has found the former at Circular Head and the latter at Long Bay, so we may conclude that they both have a wide range, and probably extend through Bass' Straits. They do not appear to be at all uncommon.

VENUS (CHIONE) MACLEAYANA. *V. t. ovata, crassa, pallide fulva, radiatim regulariter costata; costis rotundatis, lævibus, nitentibus, numerosis (30 circiter), antice latis, postice parvioribus et indistinctis; concentrice lamellosa, lamellis tenuibus, distantibus, parum elevatis, versus marginem crebris, crassis, irregularibus; natibus purpureis; ligamento conspicuo, elongato, fossa lata, sat profunda, rugosa; intus alba et purpurea con-*

spicue nebulosa, marginibus postice late dentatis, antice crenulatis. Long. 29, lat. 32, alt. 16. Bass' Straits. W. F. Petterd. King's Island, Flinders' Island. R. Gunn.

Shell ovate thick, pale fulvous, radiately regularly ribbed, ribs rounded, smooth, shining, numerous (about 30), broad in front, smaller behind and indistinct; concentric lamellar, lamellæ thin, distant, slightly raised, close towards the margin, thick and irregular; umbones purple; ligament conspicuous, elongate; fossa broad, rather deep, rugose; shell conspicuously clouded white and purple within; margins broadly toothed posteriorly and crenulate behind.

This shell somewhat resembles some New Zealand forms, but it is distinct from any of them. The broad ribs and concentric lamellæ are very different from *V. australis* and *V. striatissima*, of Bass' Straits. The ribs are broad and the lamellæ very thin and distant, and the shell is much larger. It appears to be rare.

BITTIUM TURBONILOIDES. n. s. *B. t. minuta, turrata, acicularis, clathrata, sordide albida, subnitente; anfr. 9—12, nucleo incluso, eleganter tricarinatis et crebre longitud. costatis; costis ult. anfr. 20—24, conspicuis, carinis superantibus, supra eas transeuntibus et ibi nodosis; sutura sat impressa; nucleo 3 anfract. lævibus rotundatis; apertura semilunaris, basi lævis, conspicue concava.* Long. 5, lat 1 mil,

Shell minute, turreted, acicular, latticed, dull whitish, somewhat shining, whorls 9 to 12 including the nucleus, elegantly tricarinate, and thickly ribbed lengthwise; ribs in the last whorl 20 to 24, conspicuous, wider than the carinæ, passing over them and nodose at the junction, suture well impressed; nucleus of three rounded whorls; aperture semilunar, base smooth and conspicuously concave.

But for the *Bittium* aperture and columella this beautiful little species is very like a *Turbonilla*. It is very elegantly sculptured, the ornamentation being exceedingly close and fine, even proportionately for so small a shell. It was found at Circular Head by the Rev. H. D. Atkinson.

MANGELIA ALTERNATA. n. s. *M. t. parva, fusiformi, subnitente, alba, et (in ult. anfr. tant.) maculis fulvis pallide lineata; anfr. 6, declivibus, superne angulatis, regulariter costatis, spiritaliter crebre liratis, liris supra costas transeuntibus, haud nodosis, parvis et magnis alternantibus; sutura bene impressa, apice obtuso, nucleo lævi, 1½ anfr., haud inflato, apertura spira paulo superanti, anguste elliptica, labro tenui, columella inconspicua via encausta, sinu leviter curvato, per flexionem costulorum supra angulum anfractuum tantum insignito.* Long. 11, lat. 4; long. apert 6 mil.

Shell small, fusiform, somewhat shining, white, and in the

last whorl only marked with pale brown spots or lines, whorls 6, sloping, angular above, regularly ribbed, thickly spirally lirate; liræ passing over the ribs, but not nodose, and alternating large and small, suture well impressed, apex obtuse, nucleus smooth, of $1\frac{1}{2}$ whorls, but not inflated; aperture slightly longer than the spire, narrowly elliptical, labrum thin, columella inconspicuous, scarcely enamelled; sinus shallow and broad, distinguished only by a bending of the little ribs at the angles of the whorls. Common. Circular Head. Rev. H. D. Atkinson.

EULIMA MARGINATA. n. s. E. t. parva, tumide pyramidata, nitente, omnino lævi, subpellucida, lactea; anfr. $8\frac{1}{2}$, parum convexis, superne conspicue marginatis, sutura haud impressa; apertura anguste pyriformi; labro tenui, acuto, antice producto; labio exacte definito; columella contorta, postice recta et reflexa; apice sub obtuso. Long. 9, lat. 4, long. apert. $3\frac{1}{3}$, lat. $\frac{1}{2}$ millim. Circular Head. Rev. H. D. Atkinson.

Shell small, tumidly pyramidal, shining, completely smooth, subpellucid, milky white, whorls $8\frac{1}{2}$, slightly convex, conspicuously margined above, suture not impressed, aperture narrowly pyriform, labrum thin, acute, produced anteriorly, lip exactly defined but not reflected, columella twisted, straight at the base, and a little reflected at the margin, apex sub-obtuse.

EULIMA APHELES. n. s. E. t. elongata, pyramidata, lævi, nitente, opaca, alba, solida; anfr. 10, omnino planatis, politissimis, lineis incrementi tantum tenuissime rugosis; sutura angusta, haud impressa; apertura pyriformi, labro acuto, antice producto; labio reflexo, angusto, encausto, conspicuo; apice acuto, basi lineis tenuibus æquidistantibus spiraliter insignita. Long. 14, lat. $4\frac{1}{2}$; long. apert 4, lat, 2 millim. Circular Head. Rev. H. D. Atkinson.

Shell elongate, pyramidal, smooth, shining, opaque, white, solid; whorls 10, quite flat, highly polished, only slightly uneven from the lines of growth; suture narrow, not impressed, aperture pyriform, labrum acute, produced anteriorly, lip reflexed, narrow, enamelled conspicuous; apex very sharp. base marked with three or four equidistant spiral lines.



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