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*confluentibus; rostro compresso, rotundato, vix recurvo, a margine postico sinu lato, angulato, sejuncto, superne ab umbonibus irregulariter crebre transversim corrugato; lunula longa, angusta, lanceolata, parum impressa; umbonibus parvis, incurvatis; pagina interna lactea, nitente corrugata; impres. musc. magnis sat conspicuis; fossa ligamenti, cochleariformi, prominenti. Long, 13, Lat. 22, alt. 9, long. rost. 7, lat. (circiter) 4, mill.*

Shell fragile, oval, ventricose, anteriorly wider, rounded, obtusely angular; posterior with a long rostrum; milky white, opaque, concentrically sulcate and plicate, plaits 12 to 16, broad, flattened, angular above and subacute, becoming wider with age, prolonged upon the rostrum, deflected by a posterior sinus, then slightly curved, and often confluent; rostrum compressed, rounded, slightly re-curved, separated by a wide angular sinus, the upper part closely transversely corrugate from the umbones to the end; lunule long, narrow, lanceolate, slightly impressed; umbones small, incurved; interior dull milky white, shining, corrugate; muscular impressions large, rather conspicuous, ligamental fossa spoon-shaped and prominent.

This singular species is mainly remarkable for its broad corrugations, which show inside the valves, and for the singular sinus at the rostrum, where the plaits become straightened out, and either parallel or confluent, following the marginal side of the prolongation on whose upper side, fine striæ (which continue to the umbone) are given off at right angles to the axis. These striæ seem to agglutinate to themselves fine particles of sand, &c. The shell is somewhat like the British *N. cuspidata*, Olivi, but differs in the corrugations, the peculiar marks on the rostrum and the sinus, which in the species referred to is double. *Theora fragilis* has no proper rostrum, and is pellucid. *N. rugata* is finely striate on both rostrum and shell. There are some mesozoic fossil forms somewhat like the new species. *Necera* is a genus which has been existing from the Oolitic period, since when it has been gradually increasing in number.

On a variety of *TRIGONIA LAMARCKII*.

By REV. J. E. TENISON-WOODS, F.G.S.

I beg to call attention to an interesting variety of *Trigonia Lamarckii*, which I designate thus:—

Var. A, *Reticulata*. Testa tenui, parva, costis acutis, nodulis subspinosi, tota testa peculiariter reticulata.

This shell was dredged outside Port Jackson Heads by Mr. John Brazier, at a depth of 45 fathoms. The shell is small and thin, and the ribs are sharp, while the nodules are almost spinous. The whole surface is very finely reticulated or perhaps it would be more correct to say shagreened.

The fact of this variety having sharp ribs is of importance, as a fossil form is found in our Australian Cainozoic rocks, whose main point of distinction from the living *T. Lamarckii* is the possession of acute ribs and spinous nodules. This is McCoy's *T. acuticostata*. The present variety cannot be said to be a young shell, because young shells do not present any such peculiarities as may be seen from the specimens exhibited.

We have six described species of *Trigonia* in Australia, viz.—*T. Strangeii*, *T. Lamarckii*, *T. margaritacea*, *T. pectinata*, *T. uniophora*, and *T. Jukesii*. Probably there are only four distinct species, as *T. Lamarckii* and *T. pectinata* are the same, and *T. Jukesii*, Adams is a synonym for *T. uniophora* of Gray. See Voy. of H. M. S. "Fly."

There are two or three fossil species in our Australian Tertiary deposits, viz.—*T. semiundulata*, McCoy, *T. acuticostata*, McCoy, and *T. Howitti*, McCoy.

On a TERTIARY FORMATION at New Guinea.

By the REV. J. E. TENISON-WOODS, F.G.S., and Corr. Mem. Linn. Soc.

During the voyage of the Chevert a tertiary formation was found at Yule Island, New Guinea, and the fossils brought home on the occasion have been submitted to my examination by Mr.



W. Macleay. The rock is an extremely friable fine grained yellow limestone, very much like the limestone beds on the River Murray, in South Australia, but less consistent, as it powders by handling. Unlike the Murray limestones, or any of the Tertiary formations of Southern Australia, there seems to be a total absence of *Polyzoa*, neither could I detect any *Foraminifera* on subjecting different portions to microscopic examination. It seems to me to be rock which is derived from the detritus of a coral reef, and formed into a finely levigated limestone paste, stained yellow probably from the proximity of some ferruginous rocks. But there are no traces of coral, which is the more to be regretted, as from no organisms would the position of these beds be so easily determined, and their relation to other Australian Tertiary rocks, as from coral. Situated as the deposit is so near the tropics, the absence of any signs of corals is a matter of wonder. The shells are not numerous, and for the most parts mere casts. *Pectens* are however well preserved, and this is the case with the same genus in similar tertiary rocks at Mount Gambier. I propose to treat of the Mollusca in another paper. At present I intend to deal with the *Echini*, which are also well preserved. There were three detached specimens among the loose dust; two of one species and one of another, which I will now describe.

The first was *Peronella decagonalis*, Lesson. This species is a living form which is very wide in its distribution, being found in China, in the Indian Ocean, the Philippines, and in Australia. The Australian specimens are generally tropical, but it is not uncommon at Port Jackson and New Caledonia. The specimens, two in number, are extremely thin and concave on the actinal side, but they are both young specimens, and one scarcely above an inch in diameter.

*TEMNECHINUS MACLEAYANA*, sp. nov. I name this fossil provisionally, because it comes nearer to the genus described by Professor Duncan (*T. lineatus*) from Mordialloc, Victoria, than any other form known to me. But the abactinal area is encrusted, and cannot be made out. The test is small, depressed, circular,

and the ambitus rounded. The actinal surface is slightly rounded and depressed to the actinostome. The interambulacral areas are twice the width of the ambulacra at the ambitus, and about one-third broader at the mouth. They are *slightly depressed in the middle* by an undulating line of suture which becomes a very distinct depression on the abactinal surface, on which the lines of the plates are well marked. The pores are in a vertical row, slightly oblique, and their zones sunken. The interambulacra have two rows of primary tubercles, each row being flanked again on each side by a vertical row of secondaries, all small imperforate, both primaries and secondaries surrounded by circles of granular tubercles, which are frequently connected with the main tubercle by a ridge. Ridges which are granular also separate the pores. The primaries of the ambulacra are in two vertical rows, each close to its poriferous zone. Their secondaries are not so visible, but the rings of granules are very manifest, with an indented vertical line of suture in the centre. Actinal opening large, with conspicuous but not deep indentations. Diam. 16, alt. 6 millimetres. The specimen had been slightly crushed by pressure so that the coronal plates were often disarticulated.

This genus is very well represented in the tertiary rocks of Great Britain, but principally I believe as a Pliocene form. D'Archiac and Haime have figured from the Nummulitic formation of India, a number of species which Agassiz (*Revision of the Echini*) regards as belonging to this genus, *Temnechinus*. One is found living in the American seas at a depth varying from 30 to 100 fathoms. The nearest affinities are *T. globosus*, of the British Crag.

From the evidence afforded by these fossils, and from a cursory examination of the mollusca, I should not be inclined to regard those beds as so old as those of the Murray River, Mount Gambier, or Cape Otway. If we consider the Mount Gambier beds as middle miocene, though there are strong reasons for placing them even lower in the series, we may look upon the Yule Island formation, from which these fossils were taken, as Lower Pliocene. It is a most interesting fact to find evidence of recent



upheaval in New Guinea, especially as there has never been any similar evidence found on the east side of the Australian continent. It remains to be seen whether, in this case as in the Southern Australian tertiaries, we have the sign of volcanic activity accompanying the upheaval. Mr. Macleay showed me specimens of true amygdaloidal and vesicular dolerites, taken from the coast of Darnley Island, opposite Yule Island, a distance however of 150 miles. They were in all respects similar to the Victorian pliocene dolerites. The bathymetrical evidence of these fossils show that at least there has been upheaval to the extent of 400 or 500 feet.

Continuation of the Mollusca collected during the Chevert Expedition.

By J. BRAZIER, C.M.Z.S., Corr. Mem. Roy. Soc., Tas.

#### SUB-CLASS PULMONATA.

#### ORDER INOPERCULATA.

#### FAMILY AURICULIDÆ.

##### 1.—PYTHIA IMPERFORATA.

*Scarabus imperforatus*, A. Adams, Proc. Zool. Soc., London, 1850, p. 151.

*Pythia imperforata*, Pfr. Mon. Auriculaceorum, 1856, p. 81.

" " Paetel Catalog. 1873, p. 114.

" " Pfr. Mon. Pneum. Viven. 1876, p. 339.

Hab. Katow and Ethel River, New Guinea.

##### 2.—PYTHIA INSULARIS.

*Scarabus insularis*, Hombr. et Jacq. Voy. au Pole Sud., 5, p. 40 Atlas Moll., pl. 10, fig. 15, 16, 17.

*Pythia insularis*, Pfr. Mon. Auriculaceorum, 1856, p. 85.

" " Pfr. Mon. Pneum. Viven. 1876, p. 341.

Hab. Katow River; Hall Sound, New Guinea.

#### 3.—CASSIDULA ANGULIFERA.

*Auricula Angulifera*, Petit. Revue. Zool., 1841, p. 101.

" " (Cassidula) Menke, Moll. Nov. Holland, p. 8.

" *subrepta*, Hombr. et Jacq. Voy au Pole, Sud. 5, p. 36, Atlas Moll., pl. 9, fig. 13, 14, 15.

" *angulata*, Forbes, Appendix to Voyage Rattlesnake, p. 362.

*Cassidula angulifera*, H. and A. Adams, Proc. Zool. Soc., London, 1854, p. 31; *Rhodostoma bidentata*, Swainson, Proc. Royal Soc., Tasmania, 1854, Vol. 3, p. 45, pl. 7, fig. 5.

*Cassidula angulifera*, Pfr. Mon. Auriculaceorum, 1856, p. 119.

" " Chenu Manuel de Conch., part 1, p. 475, fig. 3512. *Melampus anguliferus*, Chenu Lec. élém., p. 244, f. 913.

*Cassidula angulifera*, Paetel Catalog. 1873, p. 114.

" " Pfr. Mon. Pneum. Viven. 1876, p. 354.

Hab. Katow, New Guinea, two specimens were found dead on the beach; Cape Sidmouth and Fitzroy Island, North-east Australia (Brazier); Cardwell, Rockingham Bay, (Mr. Beddome.)

#### 4.—CASSIDULA AURIS-FELIS.

*Bulmus auris-felis*, Brug. Encycl. méth. 1, p. 343, p. 77.

*Voluta coffea*, Chem. (not Linn.) 9, pt. 2, 45, f. 1043, 1044.

*Ellobium inflammatum*, Bolt, Mus., p. 106, n. 1352.

*Auricula coffea*, Wood Ind. Test., p. 97, pl. 19, fig. 15.

" *auris-felis*, Blainville, Dict. Soc. nat. 3 Suppl., p. 132.

" *felis* (Cassidula), Fer. Prodr., p. 105, n. 25.

" " Lam. Anim. Sans. Vert., tome 6, part 2, p. 138. Desh. Ed., Vol. 8, p. 326. Reeve, Conch. Syst., Vol. 2, pl. 187, f. 6.

*Auricula fusca*, Hombr. et Jacq. Voy. au Pol. Sud., Vol. 5, p. 34, Atlas Moll., pl. 9, f. 7, 8, 9.

*Cassidulus felis*, Beck, Ind., p. 105, no. 2.

*Cheminitzi*, Beck, Ind., p. 105, no. 1.

*Cassidula felis*, Anton. Verz., p. 48. Gray, Proc. Zool. Soc., 1847, p. 179.