

either in this lady's book. I note, however, that she had been in India and Ceylon." It seems just possible, therefore, that these specimens may have been really collected in India and wrongly ascribed to South America.

## EXPLANATION OF PLATE IV.

*Fig. 1.* Waxy tests of *C. africanus* from Cape Colony *in situ* on twig of *Acacia* (nat. size).

*Fig. 1 a.* Female insect denuded of wax. Dorsal view (enlarged).

*Fig. 1 b.* Ditto. Side view (enlarged).

*Fig. 1 c.* Ditto. Older example.

*Fig. 1 d.* Ditto. Stigmatic cleft and spines.

*Fig. 1 e.* Ditto. Antenna with eight joints.

*Fig. 1 f.* Ditto. Antenna with seven joints.

*Fig. 2.* *C. africanus*, var. *cristatus*, from Natal, denuded of wax.

*Fig. 3.* *C. ceriferus*, from Ceylon, denuded of wax. Dorsal view.

*Fig. 3 a.* Ditto. Side view.

*Fig. 3 b.* Ditto. Stigmatic spines.

*Fig. 4.* *C. australiæ* (= *C. ceriferus*, juv.).

20th July, 1899.

XVI.—*Further Contribution towards a Check-list of the non-Marine Molluscan Fauna of South Africa, with Descriptions of Fourteen new Species.* By JAMES COSMO MELVILL, M.A., F.L.S., and JOHN HENRY PONSONBY.

[Plate III.]

IN December 1898 we published a first "contribution" \*, which was shortly afterwards followed by Dr. Sturany's 'Catalog' †, thanks to which excellent work and to information from other sources we are enabled to make various additions to our original list. We have also received fresh material from several friends in South Africa, with the result that fourteen new species (many of them, as will be seen, of peculiar interest) are described in this paper.

*Addenda et Corrigenda.*

(The pages quoted are those of our above-mentioned Check-list.)

N.B.—The asterisk denotes that we have not seen those shells to the names of which it is prefixed.

Page 171. Add *Helicarion leucospira*, Pfr. (*Vitrina*) Proc. Zool. Soc. 1856, p. 326; Rve. Conch. Icon. fig. 21.—*Hab.* Natal (*cf.* Cox, Mon. Austr. pl. xiv. fig. 6).

\* Proc. Mal. Soc. vol. iii. p. 166.

† 'Catalog Südafrik. Land- und Süsswasser Moll.' (Wien, 1898).



We have lately received from Mr. Burnup undoubted specimens of this species from Pinetown and Maritzburg. Is it possible that this may prove to be identical with *Helicolimax pellicula*, Fér.?

Page 172. Add \**Urocyclus Kirkii*, Gray, Proc. Zool. Soc. 1864, p. 251.—*Hab.* Natal.

Page 174. *Trachycystis rivularis*, Krs.—*Hab.* Natal (not Cape Town).

Page 176. Add \**Bul. vitellinus*, Pfr. Proc. Zool. Soc. 1854, p. 57.—*Hab.* Natal.

Page 178. Add \**Achat. Schencki*, Mts. Sitz. Ber. Ges. naturf. Berlin, 1889, p. 164.—*Hab.* Transvaal.

Page 180. Add \**Oncidium Peroni*, Cuvier, Ann. Mus. Nat. Hist. vol. v. (1804) p. 38, pl. vi.—*Hab.* Natal.

Page 180. \**Auricula pellucens*, Mke., is mentioned by Krauss (Südafr. Moll. p. 82) as coming from Natal. Is it possible that this species may have been quoted in error? Could Krauss have had before him specimens of the shell hereinafter described as *A. durbanica*?

Page 181. \**Limnæa umlaasiana*, Küst. Dr. Sturany, in quoting this species, observes that Bourguignat considered it identical with *L. truncatula*, Drap., recorded by us on page 184. We have not seen Küster's species, but should be quite disposed under the circumstances to accept Bourguignat's verdict.

Page 181. Dr. Sturany states that on anatomical grounds some of the species included by us in the genus *Physa* should be removed to *Isidora*. It appears that *P. zanzibarica*, Cless., has priority over *P. cornea*, Morel.; *P. Forskali*, Ehrn., has priority over *P. Wahlbergi*, Krs., a species of *Pyrgophysa*, to which perhaps *P. gradata*, M. & P., should be added. *Physa Craveni*, Ancey, must be substituted for *P. lirata*, Craven (nom. præocc.). Dr. Sturany calls this species "*P. Craveni*, mihi," overlooking the fact that Ancey gave it this name in 'Le Naturaliste' of 1886.

Page 182. Add \**Paludestrina caledonensis*, Chaper, as *Hydrobia*, Bull. Soc. Zool. de France, vol. x. (1885) p. 484, pl. xi. fig. 6.—*Hab.* Cape Colony.

Add \**Paludestrina zwellendamensis*, Kr., Küst. Conch.-Cab. (*Paludina*) p. 53, pl. x. figs. 19, 20.—*Hab.* Cape Colony.

*Melania histrionica*, Rve. Conch. Icon. xii. pl. xxix. sp. 192, was described from "Cape Colony" on the authority of the Cumingian collection. The type, now in the British Museum, appears to be closely allied to, if not a variety of, *Paramelania aurita*, Müll., a West-African species, whose presence in South Africa appears to require confirmation.

*Cleopatra amæna*, Morel., would seem from the type in the Brit. Mus. to be scarcely a var. of *C. ferruginea*, Lea. We have lately received some young shells, collected by Dr. Gibbons at Prieska, which may be referable to this species.

*Cyclotus natalensis*, Pfr., has been shown by Ancey (Bull. Mus. Marseilles, vol. i. (1898) p. 136) to be the *Cyclophorus Klobukowskii*, Morlet, from Tonkin, and must therefore be removed from South-African lists.

Ancey has further proposed (*loc. cit.*) the name *Chondrocyclus* for *Cycloph. convexiusculus*, Pfr., and to this section *C. alabastris*, Craven, should no doubt be assigned. An examination of the operculum of *C. minimus*, M. & P. (now for the first time figured, Pl. III. fig. 15), shows it to possess a multispiral horny series of whorls with a small central nucleus, the whorls being slightly elevated and concave.



The term *Austrocyclus*, proposed by Ancey (*loc. cit.*) to receive *Cycloph. Wahlbergi*, can only be regarded as a synonym of *Hijabia*, Godw.-Aust., published in Jan. 1898, while Ancey's paper is dated June of the same year.

Page 183. \**Neritina crepidularia*, Lam. Hist. Nat. Anim. s. Vert. vi. 2, ed. 2, viii. p. 572.—*Hab.* Natal.

This species has been found in Ashanti, but we have not met with it at present from South Africa.

\**Neritina Knorri*, Recluz, Rev. Zool. (1841) p. 474, non Reeve, Conch. Icon. pl. ii. sp. 6, = *N. Beckii*, Recluz.

Probably a form of *N. pulligera*, L., ? found in South Africa.

*Trachycystis charybdis*, Bens.—Thanks to the kindness of the Rev. A. H. Cooke, we have been able to inspect the type of Benson's hitherto unfigured "*Helix*" *charybdis* in the Cambridge Museum. It is, unfortunately, a good deal damaged, so we have thought it best to give a figure of a specimen † from our collection, which appears to correspond in every way with the type, except that the latter is a trifle smaller. Our specimen came from the neighbourhood of Cape Town.

*Ennea microthauma* †, sp. n. (Pl. III. fig. 1.)

*E. testa* minuta, subperforata, crystallina, pellucida, nitida, dolioli-formi, apice obtusissimo; anfractibus  $5\frac{1}{2}$ , ventricosis, apud suturas impressis, undique delicate et obscure longitudinaliter arctistriatis, tribus ultimis rectis; apertura anguste ovata; peristomate continuo, auriformi, dentibus plicisve quatuor munito, videlicet, plica parietali magna, acinaciformi, intrante, dente labiali duplicato, partim interno, mamillato, basali parvo, acuto; margine columellari incrassato, columella intus valde plicata, plica perintrante, et aperturam semiclaudente.

Long. 2, lat. 1 mm.

*Hab.* Grahamstown (*Langley*).

A minute glassy species, of which we have seen four examples. Its mouth-processes consist of a large, deep-seated, sharp parietal plait, a double labial tooth, the lower projection of which is mamillate and internal, a small acute basal tooth, and below the thickened columellar margin a very deep-seated extensive plait, half closing the aperture. We should consider *E. Farquhari*, M. & P., a near ally of this species, equally minute, similarly subpellucid, and delicately longitudinally striate, and also furnished with four mouth-processes, of which the parietal and labial plaits and teeth are not very dissimilar, the labial tooth being bifid in both species; the columellar margin is, however, much more pronounced in *E. microthauma*, almost as much so as in *E. labyrinthica*, M. & P.

† Pl. III. figs. 16, 16 a, 16 b.

‡ μικρος, θαῦμα, a little wonder.



*Ennea juxtidens*, sp. n. (Pl. III. fig. 2.)

*E. testa* cylindrica, subperforata, nitente, apice obtusissimo; anfractibus 7-8, præcipue rectis, lævibus, interdum sub lente juxta suturas obscure et evanide obliquistriatulis; apertura ovata; peristomate albo, crassiusculo, dentibus plicisve quatuor munito, dente parietali brevi, recto, labiali acuto, prominulo, basali minuto; plica columellari interna, inconspicua.

Long. 4.50, lat. 2 mm.

*Hab.* Van Rienen, Drakensberg Mountains (*Mrs. Quekett*).

This shining, smooth, subpellucid species has for its near allies both *E. cionis* and *vanstaadensis*, M. & P. From the former it differs in being larger, in possessing less ventricose whorls, in the simple labial tooth, and the inconspicuous columellar plait. From the latter in the almost smooth and glossy surface, in being smaller, and likewise not possessing a bifid labial tooth; the columellar plait, too, of *E. vanstaadensis* is far more deep-seated and large.

Many examples.

*Zingis Haygarthi*, sp. n. (Pl. III. fig. 3.)

*Z. testa* crystallina, tenuissima, obscure perforata, superne depresso-conica; anfractibus quatuor, undique spiraliter sub lente delicatissime striatis, supra, juxta suturas, castaneo-unizonatis, anfractu ultimo magno, supra medium acuticarinato, infra rotundato; apertura circulari-lunata, intus pellucida, spiraliter unizonata; peristomate tenui, margine columellari circa umbilicum minutum reflexo.

Alt. 6.50, diam. 8 mm.

*Hab.* 'Nkandhla Forest, Zululand (*Haygarth*).

An unusually beautiful and delicate species, our examples being perhaps not quite adult. The last whorl is acutely keeled above the middle, thence to the base semiglobose. With the aid of a lens the surface is seen to be uniformly closely spirally striate.

Provisionally placed in *Zingis* till the anatomy is known. We have much pleasure in dedicating so interesting a form to its discoverer.

*Zingis inuncta* \*, sp. n. (Pl. III. fig. 4.)

*Z. testa* magna, paullulum umbilicata, delicata, depressa; anfractibus 5, tribus primis et basi nitentibus, lævibus, ultimo magno, effuso, haud nitente, sericato, sub lente spiraliter tenuissime

\* *Inunctus*, from the want of polish on the last whorl.



striato, zona castaneo-brunnea supra medium pulchre succincto; apertura rotundo-lunari; peristomate tenuissimo, margine columellari circa umbilicum parvum triangulatim reflexo.

Alt. 14, diam. 24 mm.

*Hab.* Umkomaas, Natal (*Burnup*); 'Nkandhla Forest, Zululand (*Haygarth*).

This fine species is at once distinguished from all its allies by the peculiar lustreless surface of the last whorl, which is encircled with numerous fine impressed revolving lines, producing a dull silky effect. It may be added that in one specimen the darker chestnut band, so conspicuous in the others, is but faintly observable.

*Zingis ampliata*, sp. n. (Pl. III. fig. 5.)

*Z.* testa nitidissima, minute perforata, perlævi, tenui, globulari, succineo-olivacea; anfractibus 4, apud suturas distincte impressis, ultimo magno, rapide accrescente, effuso; apertura late ovato-rotunda; peristomate tenui; columella alba vix incrassata, super umbilicum minutum reflexa.

Alt. 12, diam. 16 mm.

*Hab.* Durban.

A particularly glossy amber-coloured species, very thin and smooth, which might indeed have been included in *Helicarion* were it not for the slightly thickened columella, which almost conceals the minute umbilicus.

*Trachycystis calorama*\*, sp. n.  
(Pl. III. figs. 6-6 b.)

*T.* depresso-conica, obtecte perforata, tenui, pallide cinereo-olivacea; anfractibus 6, gradatulis, tumidulis, undique longitudinaliter arcte obliquiliratis, liris setigeris, setis longis, nitidis, acutis, nigrescentibus, anfractu ultimo apud peripheriam rotundo-angulato; apertura lunari; peristomate tenui, marginem apud columellarem triangulatim reflexo.

Alt. 7, diam. 9 mm.

*Hab.* Near Pinetown, Natal.

A very neat and distinct *Trachycystis*, resembling *T. Planti*, Pfr., save for the exceedingly narrow and almost concealed perforation, the umbilicus in its ally being wider and far more conspicuous. The surface is entirely covered with an ashy-olivaceous epidermis, which is furnished with bristle-bearing, close, longitudinal, oblique liræ, these bristles being shining, long, blackish, and exceedingly acuminate.

\* κάλος, ὄραμα, beautiful to behold.



*Trachycystis pycnotricha* \*, sp. n.  
(Pl. III. figs. 7-7 b.)

*T.* testa depresso-conica, profunde umbilicata, apice mamillato, lævi, pellucido-cinerea, epidermide fusca omnino contexta; anfractibus 5-6, paullulum tumidulis, longitudinaliter arctissime et delicate obliquiliratis, spiraliter minutissime arctistriatis, ultimo apud peripheriam acuticarinato, setifero; apertura ovato-lunari; peristomate simplici, margine columellari ad umbilicum fortiter triangulatim reflexo.

Alt. 4, diam. 6 mm.

*Hab.* Kowie River (*Cox*).

The acute keel distinguishes this from the majority of its allies, e. g. *T. trichostiroma* and *strobilodes*, M. & P.; in form it perhaps most calls to mind *T. Alcocki*, M. & P., from which, however, it is at once distinguished by the more elaborate sculpture and the hairy epidermis.

*Trachycystis ectima* †, sp. n.  
(Pl. III. figs. 8, 8 a.)

*T.* testa conica, subperforata, tenui, stramineo-cornea, apice tumido; anfractibus 5, apud suturas impressis, ventricosulis, arcte et delicate longitudinaliter obliquicostatis, costulis irregularibus; apertura ovato-lunari; peristomate tenui, regionem apud umbilicarem triangulatim reflexo.

Alt. 2, diam. 3.50 mm.

*Hab.* Umkomaas, Natal (*Burnup*).

Very small, but with the aid of a lens this little species is seen to merit the specific title assigned to it, being very delicately and closely obliquely ribbed, with somewhat irregularly placed liræ.

*Trochomorpha placenta*, sp. n. (Pl. III. fig. 9.)

*T.* testa umbilicata, pellucida, tenui, placentiformi, olivaceo-brunnea; anfractibus 5, supernis compressis, planatis, superficie undique oblique irregulariter lirata, et sub lente spiraliter delicatissime striatula, anfractu ultimo apud peripheriam acutissime carinato; apertura subquadrata; peristomate tenui, margine columellari paullum reflexo.

Alt. 4, diam. 11 mm.

*Hab.* 'Nkandhla Forest, Zululand.

A very remarkable form, unlike any other hitherto recorded from the South-African region.

\* πύκνος, θρίξ, thickly bristled.

† ἔκτιμος, select.



*Balea africana*, sp. n. (Pl. III. fig. 10.)

*B.* testa sinistrorsa, fusiformi, haud profunde perforata, tenui, nitida, olivaceo-brunnea; anfractibus 7, apicali obtuso, cæteris apud suturas impressis, tumidulis, undique longitudinaliter ruguloso-striatis; apertura ovata; peristomate continuo, paullum incrassato, margine columellari intus indistincte et obtuse uniplicato, crassiusculo.

Long. 6, lat. 1.75 mm.

*Hab.* Van Rienen, Drakensberg Mountains (*Quekett*).

Another most interesting addition, generically, to the South-African fauna. From the few other *Baleæ* known to us this would seem to differ mostly in the shorter and less acuminate spire, more compressed growth, and in the very obscure character of the obtuse columellar fold. We should consider it a member of the typical section of the genus, with the European *B. perversa*, L., = *fragilis*, Fitz.

*Pupa cryptoplax* \*, sp. n. (Pl. III. figs. 11, 11 a.)

*P.* testa conico-pyramidata, valde et profunde perforata, tenui, olivaceo-brunnea, apice obtusissimo, planato; anfractibus 8, apud suturas impressis, undique sub lente obliquistriatis; apertura obliqua; peristomate fere continuo, albo, nitente, reflexo; plica parietali magna, acinaciformi, columellari perintrante, conspicua, acuta, intus duplicata; dente labiali parvo, albo, obtuso.

Long. 3.50, lat. 2 mm.

*Hab.* Kragga Kanma, Port Elizabeth.

One of the most abnormal of the genus, and perhaps worthy of special subgeneric rank. We figure an example broken away (fig. 11 a) so as to show the duplicated internal columellar fold.

*Curvella sinuosa*, sp. n. (Pl. III. fig. 12.)

*C.* testa fusiformi, nitida, tenui, pallide et læte straminea; anfractibus (incluso apice papillari, obtuso, lævissimo) 7, apud suturas impressis, fere lævibus, sub lente longitudinaliter flexuoso-striatulis; apertura ovata; peristomate sinuato, simplici, margine columellari recto.

Long. 6.50, lat. 3 mm.

*Hab.* Umkomaas, Natal.

An elongate fusiform *Curvella*, quite distinct from the two other recently described species (*catarractæ* and *globosa*,

\* κρυπτόπλαξ, with hidden plicæ.



M. & P.), but equally delicate and remarkable. The chief peculiarity of the shell now before us is, as indicated by the specific name, its sinuous lip.

*Auricula catonis*, sp. n. (Pl. III. fig. 13.)

*A.* testa oblongo-cylindracea, angusta, nitida, perlævi, pallide olivacea; anfractibus (in speciminibus nostris decollatis) verisimiliter quinque, tribus ultimis apud suturas irregulariter impressis, ultimo elongato, recto, cylindriformi; apertura anguste oblonga, alba, labro exteriori recto, simplici; columella paullum incrassata, haud nitente, biplicata.

Long. 9, lat. 4 mm.

*Hab.* Cato's Creek, Durban (*Burnup*).

The few examples we have seen of this species are uniformly decollate, but the whorls would probably be five in number in perfect specimens\*. The only two *Auriculæ* comparable with this and the following species (*A. durbanica*) are *pellucens*, Mke., and *tornatelliformis*, Pet. To the former we have just referred in the Addenda to our Check-list (*vide supra*); the latter is a larger species altogether, and much more angled at the superior part of the body-whorl.

*Auricula durbanica*, sp. n. (Pl. III. fig. 14.)

*A.* testa oblonga, lævi, paullum nitida, pallide olivacea, apice decollato; anfractibus verisimiliter 5, apud suturas irregulariter impressis, lævibus, vel indistincte longitudinaliter striatulis, ultimo lato; apertura anguste oblonga; peristomate tenui, simplici; columella vix nitente, albida, oblique biplicata.

Long. 11.50, lat. 5.50 mm.

*Hab.* Cato's Creek, Durban (*Burnup*).

This species differs from *A. catonis*, just described, in its stouter and broader build, the last whorl being decidedly shouldered just below the sutures, and also in its larger size throughout. The spire, too, seems more attenuate, and the aperture, though narrow, broader than in *A. catonis*, especially towards the base. *A. tornatelliformis*, Petit, with which our species is also comparable, has the base of the aperture broader and rounder and the last whorl more conspicuously shouldered. The whorls are likewise spirally wrinkled just below the sutures in Petit's species.

\* The figures of these two *Auriculæ* do not show the decollation.



## EXPLANATION OF PLATE III.

- Fig. 1. *Ennea microthauma*.  
 Fig. 2. — *juxtidentis*.  
 Fig. 3. *Zingis Haygarthi*.  
 Fig. 4. — *inuncta*.  
 Fig. 5. — *ampliata*.  
 Figs. 6, 6 a, 6 b. *Trachycystis calorama*.  
 Figs. 7, 7 a, 7 b. — *pycnotricha*.  
 Figs. 8, 8 a. — *ectima*.  
 Fig. 9. *Trochomorpha placenta*.  
 Fig. 10. *Balea africana*.  
 Figs. 11, 11 a. *Pupa cryptoplax*.  
 Fig. 12. *Curvella sinuosa*.  
 Fig. 13. *Auricula catonis*.  
 Fig. 14. — *durbanica*.  
 Fig. 15. *Cyclophorus minimus*, M. & P. Operculum.  
 Figs. 16, 16 a, 16 b. *Trachycystis charybdis*, Benson.

XVII.—*Descriptions of some new Species of Heterocera.*  
 By HERBERT DRUCE, F.L.S. &c.

## Fam. Lithosiidæ.

*Chionæma sumatrensis*, sp. n.

*Male*.—The head, collar, and tegulæ white, the collar and tegulæ edged with yellow; the thorax and basal half of the abdomen white, the anal half of the abdomen yellow; antennæ, palpi, and legs yellow. Primaries white, crossed from the costal to the inner margin by three waved yellow lines; two small black dots at the end of the cell and a short yellow streak in the cell; the outer margin bordered from the apex to the anal angle with yellow; the fringe white: secondaries white, shaded with yellow at the apex and partly round the outer margin.—*Female* very similar to the male, but with the markings all red instead of yellow; the secondaries salmon-colour, with the fringes white.

Expanse, ♂  $1\frac{1}{2}$ , ♀  $1\frac{3}{4}$  inch.

*Hab.* Sumatra, Pedang (*Bock, Mus. Druce*).

*Lithosia subcosteola*, sp. n.

*Male*.—The head, antennæ, and legs black; collar, tegulæ, and thorax yellow; abdomen greyish black, the sides and anus yellow. Primaries greyish black, yellow at the base and streaked along the costal margin from the base to the apex with yellow: secondaries pale yellow.

Expanse  $1\frac{6}{10}$  inch.

*Hab.* Central China, Hunan (*Pratt, Mus. Druce*).





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