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VIII.—Descriptions of fifteen Terrestrial Mollusca from South Africa

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Fig. 2. Podocotyle atomon, Rud. Shell-gland complex; ventral view. *DG*, yolk-duct; *YR*, yolk-receptacle; *KG*, oviduct.

Fig. 3. Lepodora rachiza, Cobbold. Ventral aspect.

Fig. 4. Ditto. Male genital apparatus; penis retracted; dorsal view.

PLATE II.

Fig. 5. Stephanochasmus baccatus, sp. n. Ventral aspect.

Fig. 6. Ditto. Head, showing spines; ventral aspect.

Fig. 7. Ditto. Outline of ovum.

Fig. 8. Zoogonoides viviparus, Olsson. Ventral aspect. *Em*, embryo.

PLATE III.

Fig. 9. Zoogonoides viviparus, Olsson. Penis-sac; penis retracted, showing the spines; ventral view.

Fig. 10. Derogenes cacozelus, sp. n. Right lateral aspect.

Fig. 11. Hemiuirus appendiculatus, Rud., from *Hippoglossus vulgaris*. Loop of uterus, showing ova with pigment-spots.

Fig. 12. Head of Cottus bubalis, Euphr. Eye removed, to show pigment-spots in the eye-socket.

PLATE IV.

Fig. 13. Head of Cottus bubalis, Euphr. Lower jaw divided and turned to the sides; gills bent back, to show the pigment-spots in the roof of the mouth, following the course of the blood-vessels.

Fig. 14. Ascaropsis morrhue, van Ben., from *Gadus aeglefinus*. *a*, cephalic spines; *b*, termination of annulating furrow; *c*, end of oesophagus; *d*, ova.

Fig. 15. Ascaropsis morrhue, van Ben., from *Cottus bubalis*. Highly enlarged view of head, showing the two spines.

Fig. 16. Ditto. Tail; ventral aspect. *Int*, intestine; *An*, anus.

The drawings, with the exceptions of figs. 2, 4, 8, 9, were made from preserved specimens.

VIII.—*Descriptions of Fifteen Terrestrial Mollusca from South Africa.* By JAMES COSMO MELVILL, M.A., F.L.S., and JOHN HENRY PONSONBY, F.Z.S.

[Plate VI.]

THREE years having now elapsed since our last communication*, we now venture to offer an eighteenth contribution upon the subject, mainly consisting of the descriptions of seven *Enneæ* and several Helicoids, mostly collected by Miss Hickey, Messrs. J. McBean, J. Farquhar, and H. C. Burnup, to whom our best acknowledgments are due, while we would

* Ann. & Mag. Nat. Hist. ser. 7, vol. xii. (December 1903), pp. 595 *seq.*

take this opportunity of especially thanking the last-named for his continued valuable critical assistance.

Ennea Aliciae, sp. n. (Pl. VI. fig. 1.)

E. testa rimulata, obtuso-cylindrica, lævissima, pellucida, tenui, nitida, lubrica; anfractibus 9, quorum apicales 3 subconici, cæteris ventricosulis, apud suturas impressis, ultimo paullum producto, ad basin arcte striato; apertura semicirculari, peristomate incrassato, nitido, plicis dentibusve quatuor munito: plica parietali acinaciformi, acuta, intrante, dente labiali bi- vel trifido, magno, plica basali incurva, columellari omnino interna, bimamillata, magna, aperturam fere claudente.

Long. 9·5, lat. 4·5 mm.

Hab. Makowe, Zululand (*Burnup*).

A large and handsome species, slightly recalling *E. formosa*, M. & P., in general appearance; but it is a much smoother shell, with subconical apex, whorls broader and tun-shaped, mouth-processes differing in the absence of a columellar tooth, in the tendency of the labial tooth to become trifid, the internal columellar plait being almost identical in both species.

To Mrs. Alice Burnup, companion of her husband on so many successful expeditions in South Africa, this conspicuous *Ennea* is dedicated.

Ennea johannesburgensis, sp. n. (Pl. VI. fig. 2.)

E. testa parva, subrimata, dolioliformi, solidula, pallide straminea, apice obtusissimo; anfractibus 7, paullum ventricosus, apud suturas impressis, undique longitudinaliter obliquistriatis; apertura fere rotunda; peristomate albo, nitido, incrassato: plica parietali acuta, intrante, fere recta, dente labiali acuto, basali obtuso, plica columellari conspicue et omnino intrante, rotundata, mammæformi.

Long. 6, lat. 2 mm.

Hab. Johannesburg, Transvaal (*McBean, Johnson*).

More than a dozen examples of this species have been inspected, besides one or two that were received a few years since from Mr. Johnson, shortly after his first arrival in South Africa. One of these slightly exceeds 6 mm. in length. It belongs to the alliance of *S. eximia*, *Collieri*, *Wottoni*, M. & P., or *infans*, Craven, from which it chiefly differs in the presence of an obtuse basal tooth.

*Ennea phragma**, sp. n. (Pl. VI. fig. 3.)

E. testa cylindrica, dolioliformi, apud basin pone labrum conspicue scrobiculata, recta, parva, pallide albo-straminea, apicem versus

* φράγμα, a palisade or fence.

planata; anfractibus, inclusis apicalibus, 7, ad suturas impressis, undique arete longitudinaliter liratis, liris obliquis; apertura ovata; peristomate incrassato, sinuoso, albo, nitido, dentibus plicisve quatuor munito: plica parietali conspicua, magnopere intrante, dente labiali crasso, acuto, basali parvo, plica columellari bifida, superficialiter dentiformi, multum intrante, subtus mammæformi.

Alt. 3·5, diam. 1·5 mm.

Hab. Waku District, Cathcart, near the Klipplatz River (*Miss Hickey*).

Smaller, narrower, and more cylindrical than *E. drakensbergensis*, M. & P., and in general form more resembling *E. caryatis*, M. & P., but differing from that species entirely as regards the disposition of the oral plaits and teeth. It may be compared also with *E. montana*, M. & P., from Mountain Drive, Grahamstown, the aperture of which is trigonous, with finer and closer spirals on the whorls.

Ennea stauroma *, sp. n. (Pl. VI. fig. 4.)

E. testa subrimata, ovato-oblonga, lævigata, nitida; anfractibus, apicali incluso, 8, omnibus pellucidis, perlævibus, vitreis; apertura rotunda; peristomate incrassato, nitente, albedo, plicis dentibusve complicatis fortiter munito: plica parietali crassa, labiali magnopere intrante, 3- vel 4-partita, devia, dente basali minore, squarroso, plica columellari omnino interna, tridentata, magna, aperturam semiclaudente.

Alt. 6, diam. 3 mm.

Hab. Melmoth, Zululand, at 3000 feet, with "no water near the spot" (*Miss Hickey*).

Several examples of a pellucid, very smooth and shining *Ennea*, eight-whorled, oval or oval-oblong in form, with very complicated peristomatal processes, the most peculiar being the thrice or four times divided labial tooth or plait, proceeding deeply within, and irregularly serrulate. The moderately-sized basal tooth is squarely oblong, the columellar process wholly internal, half closing the orifice below.

We take as the type the ovate form. One specimen is decidedly oblong, in all other respects similar.

Ennea vallaris †, sp. n. (Pl. VI. fig. 5.)

E. testa breviter cylindrica, crassa, parva, solidula; anfractibus 8, apice ipso obtusissimo, cæteris arctissime obliquicostulatis; apertura subrotunda; peristomate albo, nitido, crassiusculo,

* *σταύρωμα*, a palisade, from the oral processes.

† *Vallaris*, belonging to a fortification or rampart.

plicis dentibusve 5 prædito: plica parietali acinaciformi, intrante, plicis duabus labialibus, extus dentiformibus, longe intrantibus, dente basali simplice, acuto, parvo, plica columellari mammæformi, profunda, aperturam fere claudente.
 Alt. 4, diam. 1.5 mm.

Hab. Melmoth, Zululand (*Miss Hickey*).

Four examples, all precisely similar, of a small peculiarly incrassate species, something like *E. crassiden*s, Pfr., and other members of that alliance in miniature. The peristomatal processes are very marked, almost between them closing the roundish aperture.

Ennea xysila *, sp. n. (Pl. VI. figs. 6, 6 a.)

E. testa recta, cylindrica, variabili, parum rimata, nunc majore, solida, albo-cinerea, longitudinaliter indistincte et oblique crass-costata, nunc (var. *hyalina*) lævi, pellucente, nitida; anfractibus 7-9, quorum apicales obtusissimi, subplanati, cæteris rectis; apertura ovata vel ovato-rotunda; peristomate nitido, albo, incrassato, dentibus plicisve quinque instructo: plica parietali acuta, longe intrante, dentibus duobus labialibus, quorum superior bifidus, dente basali conspicuo, acuto, plica columellari omnino interna, magna, mamillata.

Long. 5, lat. 2 mm. (sp. min., var. *hyalina*).

„ 8, „ 3 „ (sp. maj.).

Hab. Johannesburg, Transvaal (*Johnson, McBean*); Pretoria (*McBean*).

A variable species, the smaller, very smooth, shining, transparent form (var. *hyalina*) offering considerable contrast to the large, more coarsely longitudinally striate shell which attains the maximum development as given above, and was collected by Mr. Johnson.

The mouth-processes in both are virtually identical. With the larger form *E. vanstaadensis*, M. & P., is comparable, as also are *E. instabilis* and *ampullacea*, Stur. (= *obovata*, Pfr. ?), but our species differs in the more cylindrical contour and bolder disposition of peristomatal plaits. Another marked characteristic in *E. xysila* is the bifurcation of the upper labial tooth.

Our best thanks are due to Mr. Henry C. Burnup for having devoted much time to the elucidation of this very interesting but variable species.

Ennea zelota †, sp. n. (Pl. VI. fig. 7.)

E. testa ovato-oblonga, politissima, obtecte rimata, apud apicem

* ξύσινος, smoothish.

† ζηλωτός, enviable.

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obtusa, albo-hyalina, vel pallide straminea; anfractibus 8, parum ventricosus, lævissimis, striis longitudinalibus fere evanidis, non nisi apud basin (vel, in uno specimine, obscurissime juxta suturas); apertura ovata; peristomate albo, nitido, sex plicis dentibus instructo: plica parietali conspicua, dente ad sinistram minuto addito, dentibus labialibus duobus, inferiore forti, bifido, superiore minuto, dente basali bene definito, columellari magna, haud profunde intrante.

Long. 5, lat. 2 mm.

Hab. Port Shepstone (*Burnup*).

A remarkable *Ennea*, without a near ally in the disposition of its very elaborate peristomatal processes. The shell is smooth, shining, oblong-ovate, remarkably obtuse, with only occasional faint signs of striation; there exists a small parietal tooth near the strong deep-seated plait; the labial teeth are two in number, the lower being very well defined and bifid; the basal and columellar teeth are likewise conspicuous.

Natalina arguta *, sp. n. (Pl. VI. fig. 8.)

N. testa profunde umbilicata, læte rufo-brunnea, depresso-orbiculari, undique arete longitudinaliter striata, apud basin nitidior; anfractibus ad 5, ventricosulis, ultimo magno; apertura rotundo-lunari; peristomate, præcipue apud regionem columellarem, paulum reflexo.

Alt. 14, diam. 21 mm.

Hab. East London (*Burnup*).

Allied to *N. Trimeni*, M. & P., that species being more globose, of olivaceous rather than rufous-brown hue, not so regularly striate throughout, the base being smoother and far more shining, the umbilicus narrow, and aperture slightly oblique. *N. arguta*, in brief, is a brighter-coloured and handsomer form in every way.

Natalina insignis, sp. n. (Pl. VI. fig. 9.)

N. testa magna, depresso-globosa, profunde sed anguste umbilicata, sordide olivacea; anfractibus ad 5, convexiusculis, longitudinaliter rudi-striatis, striis irregularibus, subtus apud basin nitidam fere evanidis; apertura rotundo-lunari; peristomate apud marginem paulum incrassato, ad umbilicum triangulatim reflexo.

Alt. 23, diam. 30 mm. (sp. maj.).

Hab. Teafontein, Grahamstown.

May be compared with *N. eumacta*, M. & P., a more

* *Argutus*, clear, distinct.

globular species, and *Rhytida Kraussii*, Pfr.* We have only as yet seen two examples of this interesting mollusk, the first being in the British Museum (Natural History). This is taken as the type.

Helicarion asthenes †, sp. n. (Pl. VI. fig. 10.)

H. testa ampla, suborbiculari, læte olivacea, vel rufescenti-cornea, tenui; spira depresso-conica, tenui; anfractibus 5, ultimo rapide accrescente, magno, superficie undique sericea, paullum nitida (præcipue ad basin in statu juvenili); apertura lata, ovali; peristomate tenuissimo.

Alt. 13, diam. 21 mm.

Hab. Cradock (*J. Farquhar*).

A brightly coloured shell, of a yellowish or rufous olive, somewhat depressed, thin, effuse; surface entirely silky, shining only in young examples basally. In size approximating *H. fuscicolor*, M. & P., which is only four-whorled, with slightly iridescent epidermis, and of a peculiar warm sepiæ coloration.

Trachycystis paula, sp. n. (Pl. VI. fig. 11.)

T. testa minuta, umbilicata, depresso-globosa, cornea, tenui; anfractibus 4, ventricosis, undique longitudinaliter sparsim lirato-plicatis, liris irregularibus, rarius arctis, hic illic rugulosis, obliquis; apertura rotunda; peristomate tenui, apud umbilicum triangulatim reflexo.

Alt. 1, diam. 1.75 mm.

Hab. Johannesburg (*J. McBean*).

Very small, with narrow but deep umbilicus, depressedly globose, four-whorled, the plaited liræ being irregular, obliquely disposed, sometimes wrinkled, and rarely close-set. A few specimens. It seems comparable with *T. somersetensis*, M. & P.†, both of these species being only provisionally located in the genus *Trachycystis*.

Trachycystis rotula, sp. n. (Pl. VI. figs. 12, 12 a.)

T. testa minuta, depressa, profundissime umbilicata, cornea, delicata, tenui, interne circa basin concentrice sulcata; anfractibus 5-6,

* The opportunity may be taken to mention that further comparison of *Dorcasia inhluzana*, M. & P. (Ann. & Mag. Nat. Hist. 1894, vol. xiv. p. 91, pl. i. fig. 4; 1895, vol. xv. pl. xii. figs. 6, 6 a), with *Rhytida Kraussi*, Pfr., convinces us they must, if not varieties of each other, be placed in the same genus.

† *dothrys*, from its fragility.

† Ann. & Mag. Nat. Hist. vol. xi. (1893) p. 19, pl. iii. fig. 2.

angustis, ventricosulis, apud suturas multum impressis, undique sub lente arcuissime liratis, liris tenuibus; apertura lunari, peristomate tenui.

Alt. 75, diam. 1.5 mm.

Hab. Fern Kloof, Grahamstown (*J. Farquhar*).

Another exceedingly minute species, with deep perspective umbilicus. With the aid of a lens the whole surface, which is horny and subpellucid, is seen to be very closely lirato-striate. There is a single broadish spiral groove present, running through the centre of the body-whorl, but not quite extending to the orifice, this being an unusual character, and one which we have not before met with in any other South-African Helicoid. A few examples only.

Trachycystis spissicosta *, sp. n. (Pl. VI. fig. 13.)

T. testa parva, depresso-globosa, umbilicata, tenui, subpellucida, cornea; anfractibus 4, ad suturas multum impressis, apice ipso lævi, aliter undique arcuissime longitudinaliter tenuiliratis; apertura rotundo-lunari, peristomate tenuissimo.

Alt. 4, diam. 6.5 mm.

Hab. Near the racecourse, Grahamstown (*J. Farquhar*).

A pretty species, of the same alliance as *T. bisculpta*, Bens., *bathycæle* and *epetrima*, M. & P., &c., very strongly costulate, thin, horny, globosely depressed in form, and narrowly but deeply umbilicate.

? *Phasis sollers* †, sp. n. (Pl. VI. fig. 14.)

Ph. testa anguste umbilicata, tenui, delicata, pallide straminea, globoso-conica; anfractibus 5, apud suturas impressis, undique præcipue superne, irregulariter et oblique plicato-liratulis, superficie omni, præcipue ad basin lævigatam, spiraliter tenuissime sub lente sericeo-striata, ultimo ad peripheriam angulato; apertura late lunari; peristomate tenui, marginem apud columellarem, supra umbilicum, triangulatim reflexo.

Alt. 4.5, diam. 7 mm.

Hab. Melmoth, Zululand (*Miss Hickey*).

A very few examples only have yet been received of a little Helicoid with a certain resemblance to *Phasis capensis*, Pfr., but entirely differing in texture, as seen by the above description. The spiral, silky, close striation is only visible with a powerful lens. We are not quite sure of its right generic location, but provisionally place it in *Phasis*.

* *Spissus, costa*, with close-set ribs.

† *Sollers*, adroit, expert.

Euonyma platyacme, sp. n. (Pl. VI. fig. 15.)

E. testa elongata, imperforata, albida, epidermide olivacea contacta, haud nitente, tenui; anfractibus 12, quorum apicales duo obtusi, clavulati, parvi, tres superni his proximi recti, angusti, cæteris leniter accrescentibus, undique irregulariter oblique rudi-plicatis, ultimo et penultimo fere rectis; apertura ovata; peristomate tenuissimo.

Alt. 38, diam. 11 mm. (sp. maj.).

Hab. Kei Road Bush (*Miss Hickey*, May 1906).

Semi-fossilized specimens, with but scant remains of epidermis, have as yet come to hand, and though in the opinion of the discoverer it may be an "extinct species" (*Miss Hickey, in litt.*), we consider the evidence of the fragmentary epidermis militates against this theory. The gradually increasing whorls, club-shaped apex, and absence of any umbilical perforation characterize this species, which differs considerably from any form hitherto known from the South-African region. We place it in the genus *Euonyma*, recently monographed* by Pilsbry, who has included in it not only the original sinistral type (*E. leocochlis*, M. & P.), but likewise "*Bulimus*" *turriiformis*, Krauss, and its allies. Compared with its nearest ally, *E. lanceolata* (Pfr.), the proportionate size of the last whorl is striking. This last species is, so far as is yet known, confined to Natal.

EXPLANATION OF PLATE VI.

- Fig. 1. Ennea Aliciæ.*
- Fig. 2. — johannesburgensis.*
- Fig. 3. — phragma.*
- Fig. 4. — staurema.*
- Fig. 5. — vularis.*
- Fig. 6. — xysila.*
- Fig. 6a. — —, var. hyalina.*
- Fig. 7. — zelota.*
- Fig. 8. Natalina arguta.*
- Fig. 9. — insignis.*
- Fig. 10. Helicarion asthenes.*
- Fig. 11. Trachycystis paula.*
- Fig. 12. — rotula.*
- Fig. 13. — spissicosta.*
- Fig. 14. ? Phasis sollers.*
- Fig. 15. Euonyma platyacme.*

* Man. Conch., Pulmonata, vol. xviii. p. 38.