

LXXI.—*A few further Remarks upon the Erythræan Molluscan Fauna, with Descriptions of Seven Species from Aden, in the Collection of Commander E. R. Shopland, R.I.M.* By JAMES COSMO MELVILL, M.A., F.L.S.

[Plate IX.]

SINCE the time when, about five years ago, Commander Shopland published* a list of the marine Mollusca noticed by him at or near Aden, he has received from his correspondents several further parcels, and been able to increase the sum total to between 720 and 750 species in all. There still, naturally, remained several doubtful forms, and lately he forwarded the whole of these to me, and many have been now satisfactorily determined. Deducting then various hardly adolescent species and several too imperfect to do otherwise than note their probable generic affinities, the following seven seem worthy of description, all coming from Aden, in or near the harbour. I have no particulars at what depth they were dredged.

It is interesting to record at the same time that certain new and rare forms described during the past few years, being some of the results of the explorations of Mr. F. W. Townsend in the Persian Gulf and Arabian Sea, likewise are among the latest acquisitions of Commander Shopland from the neighbourhood of Aden. Such are *Strombus belutschensis*, Melv., *Pectunculus maskatensis*, Melv., *Donax Townsendi*, Sowb., *D. aperittus*, Melv., and, above all, *Conus clytospira*, M. & S.†, though only in juvenile condition—these, with several others, thus showing a very marked extension of range.

It was in March 1898‡ that I essayed a short bibliographical *résumé* of the Erythræan Molluscan fauna, inclusive of Aden, and since that date but little seems to have been effected by specialists towards further elucidation of this interesting subject, if we except the excellent monograph of Dr. R. Sturany on the 'Pola' Expedition in the Red Sea§.

These dredgings were carried out by Dr. Fr. Steindachner and Herr Friedrich Siebenroch, only the Pelecypoda being

* Shopland, E. R., "List of Shells collected at Aden, 1892-96," Journ. Bombay Soc. x. pp. 217-235; with Addendum, *t. c.* pp. 503, 504.

† *Vide* Ann. & Mag. Nat. Hist. ser. 7, vol. iv. pp. 461-463 (1899).

‡ *Op. cit.* ser. 7, vol. i. 1898, pp. 194-206, pl. xii.

§ "Expedition L.M. Schiff 'Pola' in das Rothe Meer, 1895-96 und 1897-98," Zool. Ergebnisse, Lamellibranchiaten, von Dr. Rudolf Sturany: Wien, 1899, mit 7 Tafeln.

yet published*, with a very few Gastropoda—the genera *Fusus* and *Nassa* mainly. This work leaves little or nothing to be desired for accurate elaboration of detail.

Dr. F. Jousseume, so well known for the close attention he has given to the Erythræan and Adenese Mollusca for a long period, in 1898 published an account of the Triforidæ † of the Red Sea, with descriptions of many new species and likewise various new genera which we have not seen, e. g. *Otitoma otitoma*, *Issina issina* ‡, and others.

Two new *Scalariæ* have been likewise lately described by Clessin § from this region. Bavay has written on the Mollusca of the Suez Canal || and Dall on those of the Gulf of Aden obtained by the Field Columbian Museum East African Expedition ¶.

Dr. E. von Martens, finally, in 1899 ** described three new Erythræan oysters (*Ostrea pectinata*, *dolabriformis*, and *oniscus*), collected long ago (1820–25) by Hemprich and Ehrenberg.

It is much to be hoped that Commander Shopland will, ere long, be able to issue a second edition of his invaluable catalogue, which will then furnish a most complete and up-to-date record of what was known at the commencement of the twentieth century of the Adenese Molluscan fauna. I would just add that it is my hope to be in a position before very long to draw some tangible comparisons between this fauna and that of the Persian Gulf, Gulf of Oman, and Arabian Sea, as evidenced by the Townsend collections mentioned above; but one must wait until the residue of both these large gatherings has been finally worked out.

Sistrum indigoferum, sp. n. (Pl. IX. fig. 1.)

S. testa ovato-fusiformi, solida, brunneo-cinerea, corrugata; anfractibus 5, quorum apicales . . . ? (in omnibus nostris speciminibus detriti), cæteris longitudinaliter nodulosi-costatis, costis percrassis,

* Among the nov. sp. are 5 *Cuspidaria*, 1 *Raëta*, 1 *Lyonsia*, 1 *Cardita*, 2 *Amussium*, 3 *Gastrochæna*, 1 *Diplodonta*, 1 *Chione*, 2 *Scintilla*, 1 *Tellina*, some dredged at great depths.

† Bull. Soc. Philom. ix. pp. 71–77.

‡ 'Naturaliste,' 1898, pp. 14 *et sqq.*

§ Martini and Chemnitz, System. Conch.-Cab., *Scalariidæ*, S. Clessin, pp. 49, 57.

|| Bavay, A., "Note sur les Mollusques du Canal de Suez," Bull. Soc. Zool. France, xxiii. pp. 161–164.

¶ Field Col. Mus. Zool. i. pp. 187–189 (1898).

** 'Symbolæ Physicæ, seu Icones adhuc ineditæ . . . quæ ex itineribus per Libyam, Ægyptum, . . . F. G. Hemprich et C. G. Ehrenberg, annis 1820–25 redierunt. Zoologica. II. Mollusca.'

superne rotunde angulatis, ultimo anfractu circa novem costis prædito, spiraliter arcte bino litarum ordine succinctis, interstitiis inter costas cavernosis; apertura ovato-oblonga, labro incrassato, intus 4-5-denticulato; columella fere recta, omnino cinereo-cærulescente, lapidis fissilis colore præsertim instar.

Long. 18, lat. 8.50 mm.

Though shouldered just below the sutures, the roundly noded ribs of this species, thickly crossed by thin spiral lines, the interstices between the costæ being deeply cavernous, amply characterize it. Indeed, we know no species nearly comparable; and another very special point of distinction is the slate or dull indigo-coloured aperture, labial and columellar area, which seems constant, being present, without any deviation, in all the examples I have examined. The only *Sistrum* at all comparable appears to be *S. anaxares*, Duclos, formerly esteemed a *Purpura*.

Natica (*Eunatica*) *tela-araneæ*, sp. n.
(Pl. IX. fig. 2.) 4

N. testa subperforata, ovato-conica, solida, alba, castaneo-variegata; anfractibus 5, quorum apicales tres subvitrei, brunnescentes, nitidi, perlæves, cæteris ad suturas impressis, lævibus, infra (juxta suturas) spiraliter flammis castaneis decoratis, inde ad basin intricatione intertexta notata, ultimo anfractu cæteros magnopere superante; apertura lunari, albida; peristomate albo, nitido, continuo, subeffuso, margine columellari obliquo, albo-brunnescente, callo nitido brunneo; umbilicum profundum semiobtegente.

Alt. 11, diam. 10 mm.

Allied to *N. Raynoldiana*, Récluz, than which it is much smaller, at the same time being differently marked and coloured. Indeed, the pattern is intricate and somewhat involved—a mesh of textile network, with occasional clear spaces disposed spirally, giving an obscurely white-banded effect, notably just below the sutures. The umbilicus is half hidden by a shining brown callus, the peristome being white, continuous, slightly effuse without. In the example taken as the type the greater part of the body-whorl is dorsally without the chestnut involved pattern; no doubt this is accidental. Another ally is *N. sanctæ-helenæ*, E. A. Sm.; both this, *N. Traillii*, Reeve, and *N. buriasensis*, Récluz, show slight points of relationship; the brown callus of *Traillii* is similar, but in all the pattern of marking is quite distinct, as also are the apical whorls.

Cerithium Shoplandi, sp. n. (Pl. IX. fig. 3.) 10

C. testa elongato-fusiformi, solidula; spira supra multum attenuata, albo-cinerecente; anfractibus 10, sex supernis parvis, quatuor ultimis longitudinaliter irregulariter costulatis et varicosis, in ultimo hic costis omnino evanidis, illic a medio usque ad basin, varicibus albescentibus, anfractibus spiraliter duplicato sulcorum ordine præditis, interstitiis transversim et interruptim cinereo-nodulosis vel lineatis, sex in ultimo anfractu, tribus in penultimo ordinibus; apertura ovata, labro incrassato, intus quinque-sulcato, sulculis rubro-tinctis; columella obliqua, alba, incrassata, brevi rostrata.

Long. 18, lat. 8 mm.

An elegant *Cerithium*, most nearly allied, in my opinion, to the larger and coarser *C. moniliferum*, Dufr., from the Philippines, the chief distinctive characters besides those of size lying in the great attenuation of the upper whorls, the distinct ribs, white varices, and the fine red furrowed lines just below the inner edge of the outer lip.

Several examples. It gives me much pleasure to connect with this pretty species the name of its discoverer.

Bittium chrysomallum *, sp. n. (Pl. IX. fig. 4.) 3

B. testa fusiformi, solida, alba, ochraceo-variegata; anfractibus decem, apicalibus . . . ?, cæteris apud suturas multum impressis, arete longitudinaliter costatis, costis regulariter, quasi spiraliter nodulosis, ultimo, penultimo, et antepenultimo anfractu quatuor, cæteris tribus gemmarum ordinibus præditis, in ultimo infra medium evanidis, inde, usque ad basin, pulchre spiraliter lirato; apertura breviter ovata, intus albescente, labro paullum effuso, subquadrato, margine columellari obliquo, ad basin brevissime rostrato.

Long. 6, lat. 2 mm.

A very delicately variegated *Bittium*, not nearly akin to any species with which I am cognizant. It is white, fusiform, with regular gemmate ribs, the disposition of these gemmæ giving an appearance of spirals round the whorls, so regularly are they disposed; there are three rows of these in the upper whorls, four in the three lowest; in the body-whorl the ribs disappear below the middle, whence to the base are to be seen spiral clear-cut liræ; the mouth is somewhat compressed, outer lip rather effuse, beak very short, columella oblique. The variegation of yellow-brown and white is most pronounced in the last two whorls.

* χρυσόμαλλος, with fleece or sheen of gold; from the pattern.

Delphinula diplacostira *, sp. n.
(Pl. IX. figs. 5, 5 a, 5 b.)

D. testa parva, profunde sed anguste umbilicata, albo-straminea, solidula, supra planata; anfractibus quatuor, quorum tres planati, depressi, simplices, ultimo rapide accrescente, effuso, apud peripheriam acute bicarinato, carinis arcte spinicostatis, superficie undique longitudinaliter tenuissime squamato-lamellosa; apertura rotunda; peristomate extus breviter spinoso, paullum effuso, margine columellari crassiusculo, nitido, albo, ad basin producto, basi circa umbilicum indistincte concentrico-striata, interstitiis undoso-gemmatis.

Alt. 3, diam. 6 mm.

This little species, perhaps not quite fully grown, is distinct from all the others of the genus known to me, in its lamellate longitudinal striæ, double peripheral carinations, the upper keel possessing twelve, the lower seventeen coronals of short spines. The umbilicus is very deep and narrow, the concentric sulcation and waved gemmæ interposing at the base are characteristic, the columellar extension towards the base recalling other *Delphinulæ*. The colour is throughout pale stramineous. *D. stellaris*, Ad. & Reeve, is perhaps the nearest species in affinity.

Donax (Serrula) epularis †, sp. n.
(Pl. IX. figs. 6, 6 a.)

D. testa subtrigonalis, æquivalvis, inæquilateralis, alba; umbonibus parvis, sæpe violaceis, incurvis, approximatis; margine dorsali antice obliquato, extenso, postice multum abbreviato, ventrali subrotundato, conspicue multidenticulato, superficie omni arcte et pulcherrime decussata, costis longitudinalibus latus versus posticum magis conspicuis, sed antice nequaquam evanidis, sulcis spiraliter distinctis prædita, postico latere pulchre sulcifero et costato, costis breviter spiniferis, ad marginem bino spinarum longiorum ordine decorato, intus pagina nitida violaceo-tincta, postice radio nigro-violaceo magis conspicuo, sinu palliali indefinito.

Alt. 5.50, lat. 8.50, diam. 4 mm. (sp. maj.).

An exceedingly highly decorated species, though it must be examined with a lens before its characters are very perceptible. All the specimens are small, and they have in all probability not yet attained their full growth; but the sculpture is unmistakable and more elaborate than in the other species of this large genus that are comparable with it.

* διπλαξ στεῖρα, with double keel.

† *Epularis*, sumptuous.

D. spinosus, Chem., itself a delicately chased little shell, takes second rank without doubt; *D. obesus*, d'Orb., a finely decussate species, is also eclipsed; *D. semisulcatus*, Hanley, from the Indian Ocean, posteriorly similar in its sculpture, is anteriorly almost plain, the whole of the surface of our species being closely ribbed and spirally sharply sulcate, which gives a clear-cut character to the sculpture. The ventral margin is beautifully multidenticulate. Posteriorly, when the two closed valves are viewed laterally, the double row of long spined convergent ribs, with the inner ranks of costæ armed with shorter spines, form a beautiful heart-shaped surface, recalling *Cardium* (*Ctenocardia*) *hystrix*, Wood, in miniature. Indeed, after a minute comparison of the other species of the genus, to some of which allusion has just been made, *D. clathratus*, Desh. 1859 (*cf.* Reeve, *Conch. Icon.*, *Donax*, t. 57), perhaps is the nearest ally; but the character of the decussating sculpture is seen, with a lens, to be of a different character, and it is more isosceles-shaped than our new form.

Cumingia occatilla *, sp. n. (Pl. IX. figs. 7, 7 a.)

C. testa inæquilaterali, protea, ovato-oblonga vel fere rotunda, hic postice abbreviata, illic subquadrata, alba, delicata; umbonibus haud prominulis, contiguis, obliquatis, superficie omni concentrice tenui-lamellata, lamellis marginem apud ventralem sæpius condensatis, irregularibus, in medio regulariter dispositis, interstitiis longitudinaliter delicatissime et arcte striatis, speciminibus vetustis sæpe evanidis, postice compressis, intus pagina alba, nitida, margine antico simul ac ventrali pallide puniceo hic illic variegato, sinu palliali ad medium ascendente, ligamento interno, valvis ambabus dente uno cardinali, simul ac fossa elongata, oblique cochleari, præditis, in dextra quoque duobus dentibus lateralibus fortiter instructa.

Alt. 14, lat. 16, diam. 10 mm. (sp. max.).

This mollusk doubtless, in common with many other *Leptomyæ*, *Thyellæ*, and *Cumingiæ*, inhabits sponges and corals; hence the inequality of form, as protean indeed as any British *Saxicava*. The delicate sculpture is almost identical with that of *Thyella lamellosa*, A. Ad., but the hinge, with undoubted laterals in the right valve, seems more akin to *Cumingia* than to *Leptomya*, with which genus I had essayed at first to connect it.

The large ligamentary pit is obliquely elongate and spoon-shaped, most resembling that of *Leptomya*. An interesting

* *Occatus*, harrowed; from the lamellated parallel ridges.

characteristic is the delicate pale pink blotching round the margins, both ventral and anterior, internally; the pallial sinus is large, extending almost to the centre of the interior.

A specimen identical with those from Aden has been dredged off the Mekran coast of Baluchistan, not very far from Karachi, by Mr. F. W. Townsend, and I purpose figuring this, as it is so much the largest, in company with one of Commander Shopland's types.

It is important that no confusion should exist between *Cumingia lamellosa*, Sowb., 1833, from Chili, and *C. (Thyella) lamellosa*, H. Ad. (= *Cumingia elegans*, Sowb.), from the Eastern Archipelago and Australia. In this latter the lateral teeth are absent in either valve.

* * * *

Calyptrea (Galerus) Edgariana, Melv.* (Pl. IX. figs. 8, 8a).—It is necessary to refigure this, the former delineation not having been very successful. This species has since been found by Mr. Townsend near Bushire and Maskat.

EXPLANATION OF PLATE IX.

- Fig. 1. Sistrum indigoferum.*
Fig. 2. Natica (Eunatica) tela-araneæ.
Fig. 3. Cerithium Shoplandi.
Fig. 4. Bittium chrysomallum.
Fig. 5. Delphinula diplacostira.
Figs. 6, 6a. Donax (Serrula) epularis.
Figs. 7, 7a. Cumingia occatilla.
Fig. 8. Calyptrea (Galerus) Edgariana, Melv.

LXXII.—*Descriptions of Brazilian Coccidæ.*

By ADOLPH HEMPEL, S. Paulo, Brazil.

[Continued from p. 219.]

Genus CEROPLASTES, Gray.

Ceroplastes amazonicus, Hempel.

Adult female scale very convex, oval, with the lower lateral edges much produced. The anterior end is jointed and slightly produced; the posterior edge is slightly notched; the dorsum is obliquely truncated and slightly concave, the wax being a little higher behind than in front. The colour is dirty white, with a brownish tinge on the posterior portion.

* Ann. & Mag. Nat. Hist. ser. 7, vol. i. p. 201 (1898).



Melvill, James Cosmo. 1901. "LXXI.—A few further remarks upon the Erythræan Molluscan fauna, with descriptions of seven species from Aden, in the collection of Commander E. R. Shopland, R.I.M." *The Annals and magazine of natural history; zoology, botany, and geology* 7, 550–556.

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