

VII. Descriptions of Thirty-four Species of Marine Mollusca from the Arabian Sea, Persian Gulf, and Gulf of Oman.

(Mostly collected by F. W. Townsend, Esq.)

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For the past three or four years, Mr. F. W. Townsend, of Manora, Karachi, has been most successfully utilising the exceptional advantages possessed by him as officially connected with the Submarine Telegraph Service in the North Indian Ocean, embracing the whole distance from Karachi to Bushire, frequent inspection of the cable being, of course, necessary.

Various marine objects, both animal and vegetable, rapidly surround and encrust the cable, and these have, from time to time, to be removed.

It is only natural to suppose that many Mollusca take up their abode amongst the *Algæ* and other growths, and the results of Mr. Townsend's dredgings and examinations of the cable have, in this particular, been beyond all measure gratifying and encouraging.

Mr. G. B. Sowerby, F.L.S., has already described some remarkable new species thus discovered by Mr. Townsend, of which the most remarkable, perhaps, are a most beautiful *Niso* (*N. venosa* Sowb.), a *Cancellaria* (*C. paucicostata* Sowb.), a large orange and white *Spondylus*

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(*L. exilis* Sowb.), a handsome Pecten (*P. Townsendi* Sowb.), and some very pretty *Trochidæ*, *Bulliæ*, and other Mollusca.*

Mr. Townsend's collection abounds in species not yet satisfactorily named. Many, especially amongst the *Pelecypoda*, are juveniles, and for identification, therefore, not in good condition; others are mature, but obscure in themselves. Amongst such are many small *Pleurotomidæ*. However, as the following paper will show, there are amongst them some very fine and unequivocal addenda to Molluscan species, the most conspicuous, perhaps, being the *Mitra* (*Costellaria*) *stephamucha*, a giant of its section, and which Mr. Townsend has just discovered in greater plenty than when the first specimens came to light. The beautiful *Scalaria fimbriolata* is also noteworthy, a large *Tapes*, and a *Yoldia*, of which the forms known hitherto are arctic rather than tropical.

We believe it to be Mr. Townsend's intention to publish sooner or later a complete summary of the species obtained in his various dredging expeditions in this locality, or, rather, series of localities between long. 50° and 70°.

This catalogue, when fully worked out, will be found to contain several hundred species, and will be the most important contribution towards the Mollusca of the North-west Indian Ocean (embracing the Persian Gulf, Sea of Oman, and the Arabian Sea) that has been written within recent years.

Combining and connecting, as this vast region does, the fauna of the Red Sea and Aden with that of Bombay and Ratingiri, and, still further south, Ceylon, it is not surprising to find that several species hitherto thought peculiar have extended their range. Only very recently, when describing certain new marine shells from Bombay,

* Vide *Proc. Mal. Soc. Lond.*, Vol. I, pp. 160, 214, 278.

I dwelt upon the specialised nature of the forms. Already one has had cause to modify that opinion. Of the 50 to 60 species then described as novelties, more than 20 have already been found in Mr. Townsend's dredgings, thus extending their range. Of these we may mention, as being especially abundant, the following: *Rissoina pachystoma*, *R. epentroma*, *Marginella mazagonica*, *Tellina lechriogramma*, and *Engina zea*. *Pyrgulina callista*, *P. Edgarii*, and *Scila bandorensis* have also occurred, and *Phasianella minima*.

A few of the following new forms were dredged by Captain E. R. Shopland, at Karachi, or off the Mekran Coast, and we also include a *Columbella* (*C. Cartwrighti*), collected by Capt. Cartwright, R.N., from this same region.

It now only remains for me to briefly tender my best thanks to Sir Rawson W. Rawson, K.C.M.G., for kindly forwarding for my inspection Mr. Townsend's MS. lists, with valuable notes of locality, and for giving me information thereupon; to Mr. Hugh Fulton, for many notes and specimens bearing on the results of the examination of this collection at, and comparison with the stores of, the British Museum of Natural History; and especially am I under a great debt of obligation to Mr. G. B. Sowerby, F.L.S., of Fulham Road, London, whose notes on most of the species now to be described have been of the greatest possible value, and they nearly all have passed through his hands.

Now also, as on many other occasions, must I render thanks to Mr. Edgar Smith for much help and assistance; and finally, and here I speak not only for myself, but for all interested in the geographical distribution of Marine Mollusca, much gratitude is due to Mr. F. W. Townsend, for it is too rarely that such exceptional advantages as those possessed by him, as chief executive officer with regard to the Telegraph Cable, are grasped at, at all events so thoroughly and enthusiastically.

NASSA (NIOTHA) MAMMILLIFERA, *sp. nov.* (Pl. 6, f. 2).

N. testa fusiformi, spira attenuata, ad apicem acuta, gracili, solidiuscula, anfractibus octo, quorum apicalibus duobus, vitreis, lævibus, cæteris apud suturas multum impressis, subventricosis supernis tribus, ultimo undecim gemularum vel mammillarum ordinibus spiralibus decorato, mamillis parvis, rotundis, nitidis, valdè regularibus, infra suturas et ad medium ultimi anfractus obscurè rufo-vittata, apertura oblonga, labro extus paullum effuso, incrassato, nitido, albo, intus denticulato, canali brevi, margine columellari paullum effosso, dente suturali prominente.

Long. 11, lat. 5 mm., *sp. maj.*

Hab. Persian Gulf.

Five specimens of a small *Nassa*, which is unlike any in the National collection. It would appear near *N. margaritifera* Dunker. The above description will show its peculiarities, the very regular mammillate nodules, three-rowed in the upper whorls, eleven-rowed in the lowest, with much attenuation of whorl, and sharp apex. The shell is obscurely banded transversely with rufous.

NASSA (HIMA) TOWNSENDI, *sp. nov.* (Pl. 6, f. 1).

N. testa fusiformi, eleganter superne attenuata, sub-turrita, pallidè brunnea, anfractibus octo, tumidulis, ad suturas impressis, longitudinaliter arcuè obliquicostatis, spiralliter livatis, costis ad juncturis livarum clathrato-noduliferis, liris ultimi anfractus ergà basin fortioribus, ad suturas et ad medium ultimi anfractus obscurè rufocincta, apertura subrotunda, sinu canali lato, peristomate extus incrassato, intus sex crenato-dentato, dente suturali prominente.

Long. 14, lat. 6 mm.

Hab. Mekran Coast.

An elegantly formed *Nassa*, the upper whorls becoming much attenuate, somewhat tumid, impressed at the

sutures, lower whorls rounded, pale brown, banded with obscure rufous toning at the sutures and middle of the last whorl. Longitudinally costate, costæ somewhat noduled at the junction of the spiral liræ, mouth roundish, sinus of the canal broad, lip thickened without, six crenate-dentate within, sutural tooth prominent. Near *N. concinna* Powis. Two specimens, precisely similar.

I venture to dedicate this interesting species to Mr. F. W. Townsend, its discoverer.

SISTRUM RAWSONI, *sp. nov.* (Pl. 6, f. 3).

E. testa ovato-fusiformi, brunneo-castanea, anfractibus octo, quorum tribus apicalibus pallidé brunneis, vitreis, lævissimis, cæteris paullum ventricosis, longitudinaliter laticostatis, costis obtusis, spiraliter crassiliratis, interstitiis transversim tenuistriatis, livis in penultimo et antepenultimo anfractu quatuor, in ultimo circá octodecim, apertura ovata, labro extus incrassato, intus rufo-carnoso, decem vel undecim denticulato, denticulis albis, nitidis, columella rufo-carnosa, simplice, canali paullulum producto.

Long. 15, lat. 7 mm., *sp. max.*

Locality. Persian Gulf. Long. 27 N., lat. 52 E.

A very pretty species, that might almost equally well be considered an *Engina*; but there are several points of similarity between the shell now before us and *S. concatenatum* Lam. Of a warm chestnut-brown colour, covered with a fugitive epidermis, the whorls eight, three being apical, pale brown, glassy, smooth, the remainder thickly ribbed, and coarsely transversely lirate; the mouth oval, outer lip thickened, ten or eleven denticled within, the denticles being white, shining, the interstices, with the outer lip and columella, rufous, flesh colour; canal very slightly produced.

I venture to associate with this species the name of Sir Rawson W. Rawson, K.C.M.G., so well and uni-

versally known for successful scientific investigations conducted both in the Eastern and Western hemispheres.

A great many specimens.

CORALLIOPHILA PERSICA, *sp. nov.* (Pl. 6, f. 4).

C. testa pyramidata, fusiformi, utrinque attenuata, sordidé alba, anfractibus septem, quorum apicalibus duobus, minutis, lævibus, sordidé albis, cæteris obscure costatis, costis infra suturas evanidis, et spiraliter arctissimé liratis, liris pulchré squamatis, ultimo anfractu expanso, apertura ovata, labro extus effuso, parum incrassato, columella simplice, canali producto, recto.

Long. 15, lat. 6.50 mm.

Hab. Persian Gulf.

A fusiform shell, much attenuate both apically and at the base. Seven-whorled, dirty-white, the whorls obscurely ribbed, and transversely beautifully lirate, the liræ being squamigerous.

MITRA (COSTELLARIA) STEPHANUCHA, *sp. nov.*

(Pl. 6, f. 7).

M. testa attenuata, fusiformi, solidiuscula, rufo-cinerea, indistincté fasciata vel hic illic maculata, apice acutissimo, anfractibus quatuordecim, gradatulis, supernis multicoatulatis, costulis simplicibus, quinque vel sex ultimis longitudinaliter fortiter paucicostatis, costis infra, juxta suturas, angulatim noduliferis, nodulis arctis, spiraliter coronatis, interstitiis omnes apud anfractus inter costas spiraliter puncto-liratis, apertura angusta, oblonga, labro extus tenui, intus striato, columella quadriplicata.

Long. 42, lat. 12 mm.

Hab. Persian Gulf, Muscat, &c.

A very highly interesting *Mitra*; doubtless its affinities are with *M. mucronata* Sw., and its allies, e.g., *M.*

fusiformis, chem *M. Dohrni* A. Ad., *M. nodilyrata* A. Ad., &c., but it differs from all in its large size, attenuate fusiform shape, cinereous-red colour, the gradate whorls 14 in number, smoothness of the whorls (to the naked eye), excepting where the spiral acutely noded coronations encircle the upper part of the last five or six whorls, these coronations gradually get fainter, and disappear altogether in the upper whorls, which are many-ribbed, with interstitial transverse liration; these liræ continue on the lower whorls, many-punctate, and the ribs on these last are fewer and very strongly marked.

Two specimens, and, I believe, others have been more recently procured by Mr. Townsend, from Muscat.

(στεφανούχος, crown-bearing.)

MARGINELLA (GIBBERULA) CHARBARENSIS, *sp. nov.*

(Pl. 6, f. 16).

M. testa oblonga, nivea, politissima, apice acuto undique polito, anfractibus quinque, lævissimis, unicoloribus, ultimo anfractu recto, apertura angusta, oblonga, labro extus subincrassato, involuto, intus planato, lævi, columella quinqueplicata.

Long. 8, lat. 4 mm.

Hab. Charbar, Mekran Coast; also Persian Gulf.

A snowy-white, unicolorous, vividly polished shell, five-whorled, the last whorl straight, aperture narrow, oblong, outer lip slightly thickened, involute, columella five-plaited. Though allied to *M. monilis* Phil., and others of the same section, it appears distinct from its congeners. We have seen several specimens, from the two distinct localities as given above, all much alike, excepting that one (Charbar) form has a more sunken spire.

MARGINELLA (CRYPTOSPIRA) SHOPLANDI, *sp. nov.*

(Pl. 6, f. 15).

M. testa ovata, conica, albo-lactea, semipellucida, tenui, lævissima, nitida, anfractibus quatuor, linea lactea suturas circumcingente, spira conspicua, prominente, apertura angusta, oblonga, labro extus paululum incrassato, supra applanato, intus, præcipué ad basim, minuté denticulato, columella quadriplicata.

Long. 3, lat. 1.50 mm.

Hab. Karachi.

This has been collected at the above-mentioned locality by Captain E. R. Shopland, in whose honour we have the pleasure of naming it, as well as by Mr. Townsend.

It is a delightful little species, of a beautiful semi-pellucid milky-white colour, four-whorled, whorls shining, smooth, a milk-white line encircling the sutures, the spire prominent, mouth narrow, oblong, outer lip flattened above, attenuate below, within, especially towards the inner base, minutely denticled, columella four-plaited.

This species is of the same contour as the larger and coarser *M. mazagonica* Melv., and here we may take the opportunity of mentioning that this latter species, described in the *Manchester Memoirs*, vii. (1893) p. 57, from Bombay, has since been dredged both on the Mekran Coast and Persian Gulf by Mr. Townsend, much enlarging its area of distribution in consequence.

COLUMBELLA (MITRELLA) CARTWRIGHTI, *sp. nov.*

(Pl. 6, f. 14).

C. testa oblongo-fusiformi, versus apicem attenuata, solidiuscula, anfractibus octo, feré lævibus, castaneo-brunneis, longitudinaliter albo-maculatis vel strigatis, strigis zebrinis,

ultimo anfractu versus basim attenuato, et sulculoso, apertura ovato-oblonga, labro crassiusculo, intus multidenticulato, columella simplice.

Long. 6.50, lat. 3mm.

Hab. Bahrein, Persian Gulf (Captain Cartwright, R.N.).

Several specimens received from Captain Cartwright of an almost smooth *Mitrella*, eight-whorled, and typically striped with longitudinal yellow or whitish flames on a dark-chestnut ground. There is, however, more variable-ness in marking, other specimens being yellow-chestnut and round spotted; others, again, paler, and showing the white marking as calcareous, on a pale cinereous semi-transparent ground. It is a smaller, more compact shell than *C. Euterpe* Melv. from Bombay, and which Mr. Townsend has also dredged at Karachi. The specimens have been examined by Mr. Stephen Pace, who meditated at one time describing them, and, indeed, gave the name as above in MS., in honour of the discoverer; but his approaching departure to the East Indies has compelled him to abandon the idea, and, accordingly, we include it in this paper, gladly adopting his proposed name for the species.

TEREBRA SEVERA, *sp. nov.* (Pl. 6, f. 8).

T. testa aciculata, per attenuata, cinereo-brunnea, anfractibus undecim, quorum duobus apicalibus lævissimis, brunneis, tribus vel quatuor proximis his supernis longitudinaliter acuticostatis, costis paucis, et transversim uni- vel bi-livatis, cæteris valdè irregulariter rudicostatis, vel striatis, ultimo anfractu juxta basim obscurè spiritaliter albo-vittato, apertura oblonga, labro extus simplice, margine columellari subplicato, apud basim corrugato.

Long. 14.50, lat. 4 mm.

Hab. Mekran Coast.

A very attenuate, finely aciculate species of sombre colour, and rude irregular longitudinal plaiting. I agree with Mr. Hinds and other authors that the genus is difficult to sub-divide; but this shell would probably be termed an *Acus*, being allied to *A. cinerea* Bom. in form.

(*severus*, grave, austere.)

TEREBRA (EURYTA) THYRÆA, *sp. nov.* (Pl. 6, f. 13).

T. testa gracili, nitida, fusiformi, albida, anfractibus octo, quorum duobus apicalibus, pervitreis, lævissimis, cæteris ventricosis, apud suturas impressis, longitudinaliter indistinctè obliquicostatis, apud basim evanescentibus, undique spiraliter irregulariter sulculosis, anfractibus supernis transversim brunneo-vittatis suprâ suturas, in ultimo trivittato, viz.; infra, juxta suturam, irregulariter squarroso-maculato, apud medium laticincto, ad basim vitta continua irregulari dorsaliter confluenta, apertura recta, angusta, labro tenui, columella recta.

Long. 12, lat. 4 mm.

Hab. Karachi and Mekran Coast.

This is a very elegant, chaste species, and quite an outlying form of the genus, being most allied to *T. (Euryta) Brazieri* Angas, from Australia, and *T. pulchella* A. Ad. It is almost an *Olivella* in shape, graceful, attenuate, white with transverse interrupted brown banding or spotting, eight-whorled, two being transparent, apical, the remainder obscurely longitudinally obliquely ribbed, and irregularly sulcose. Aperture straight, narrow, outer lip simple, columella straight. Two specimens.

(*Θυραῖος*, outside, outlying, from its characters when compared to the majority of the genus.)

NATICA STRONGYLA, *sp. nov.* (Pl. 6, f. 20).

N. testa parva, globosa, pallidé ochraceo-cornea, profundé angusté umbilicata, spira brevissima, anfractibus quinque, quorum apicalibus duobus albo-vitreis, lævibus, apud suturas valdé impressis ultimo anfractu permagno, rapidé accrescente, et, cum penultimo, infrá, juxta suturas, spiráliter oblique crenulato-rugosis, in uno specimine ultimo anfractu transversim squarrosis brunneis maculis decoratis, cum bino macularum minorum ordine intercalato, in alteris unicoloribus, apertura lunata, labro parum effuso, lævi, margine columellari incrassato, extus sinuoso, callo intus regionem umbilicarem extenso, operculo normali, pulchré costato.

Long. 9, lat. 9 mm.

Hab. Persian Gulf.

A pretty little *Eu-Natica*, of a pale ochraceous-brown colour, deeply impressed at the sutures, five-whorled, two being apical; below the sutures on the last three whorls obliquely wrinkled; on one specimen two transverse bands of square red spots are seen on the last whorl, and between these two rows, two other rows of very small brown dots. The aperture is lunar, lip smooth, columellar margin without cinereous, thickened, extended into the region of the deep but narrow umbilicus. The operculum is beautifully ribbed. Near *N. pulicaris* Phil.

We cannot exactly match this little species, which may not have quite attained its full growth. Three specimens.

(στρόγγυλος, round).

SCALARIA FIMBRIOLATA, *sp. nov.* (Pl. 6, f. 10).

S. testa attenuato-fusiforimi, gracili, candida, delicatula, tenui, anfractibus quatuordecim, quorum apicalibus quatuor albo-vitreis, lævissimis, cæteris longitudinaliter arcté lamel-

latis, apud suturas multum impressis, lamellis delicatis, fimbriolatis, duplicatis, ad suturas supra angulatis, interstitiis regulariter transversim squarrosé clathratulis, ultimo anfractu infra medium biangulato, angulo inferiore acuto, ad basim extremam spiraliter pulchré coronato, et spiraliter eximie clathrato, apertura rotunda, peristomate incrassato, albo, nitido, continuo, margine columellari simplice.

Long. 19, lat. 5 mm.

Hab. Karachi.

An exquisite species. The whorls are 14, four attenuate, fusiform, colour white, much impressed at the sutures, the longitudinal lamellæ are doubly fimbriate, angled below the sutures, very close, and interstitially transversely latticed. Below the middle of the last whorl are two angles, the lower, or most basal of them, is acute, and spirally extending round the base of the shell, the base itself being spirally crenulate-fimbriate, and within beautifully latticed. Mouth round, peristoma white, shining, continuous. Allied to the large and powerful *S. decussata* Kien (= *Kieneri* T. Canefri) in sculpture and texture, but the whorls are not so ventricose.

(*fimbriolata*, from the fringed appearance of the lamellæ.)

SYRNOLA KARACHIENSIS, sp. nov. (Pl. 6, f. 9).

S. testa attenuata, aciculata, fusiformi, subpellucida, perlævi, læté ochraceo-brunnea, anfractibus undecim, ad suturas paululum canaliculatis, rectis, lævissimis, anfractu ultimo tres proximos altitudine exæquante, apertura oblonga, labro extus tenui, ad basim paululum reflexo, columella uniplicata.

Long. 10, lat. 2.25 mm.

Hab. Karachi.

A very sharply pointed, attenuate species, with smooth straight whorls, ochraceous-brown, subpellucid, 11 in number. Slight canaliculation exists at the sutures, the

mouth is oblong, outer lip simple, somewhat reflexed at the base, columella one-plaited. We have seen three specimens, all similar. The shell might be considered *S. brunnea* A. Ad., in miniature; but the latter species is of very much stouter build throughout, and is not, really, very nearly allied.

ELUSA BRUNNEO-MACULATA, *sp. nov.* (Pl. 6, f. 5).

E. testa aciculata, terebrali, albida, parum nitente, anfractibus quatuordecim, apicalibus?, rectis, minimè turritis, undique longitudinaliter crassicostatis, costis obtusis, planis, interstitiis spiraliter tenuistriatulis, albis, sparsim raro brunneo-maculatis, apertura ovata, labro paululum crassiusculo, apud medium extus simul ac intus brunneo-tincto, margine columellari, incrassato, uniplicato.

Long. 15, lat. 4.50 mm., *sp. maj.*

Hab. near Karachi, 7 fathoms.

A fine, conspicuous *Elusa*, of bold design, and distinguished by the scattered brown spots and dashes here and there, on a white ground. The whorls are 14, all uniformly thickly costate, the interstices being spirally very finely striate. Mouth ovate, outer lip a little thickened, stained both outside and within in the middle with a brown streak. Columellar margin thickened, one-plaited. Two or three specimens only.

EULIMA EPIPHANES, *sp. nov.* (Pl. 6, f. 6).

E. testa aciculata, politissima, lævi, lactea, apice acutissimo anfractibus quatuordecim, rectis, continuis, lævissimis, ultimo recto, apertura oblonga, labro paululum producto, margine columellari obliquo.

Long. 14, lat. 2.50 mm.

Hab. Linjah, Persian Gulf, 5 fathoms, soft mud.

This very graceful *Eulima* resembles nearly only two others of the genus, viz., *E. attenuata* Sowb. and *E. epeterion* Melv.

From the former of these (*attenuata*) it differs in greater width of whorl, and more oblique columella; from the latter in smaller size, more straightness of whorl, and less width in the last whorl. To *E. pura* Ad. it also bears some resemblance, but the outer lip is not thickened as in *E. pura*, and the aperture is longer in proportion to the length of the shell in our species.

(ἐπιφάνης. Manifest, conspicuous.)

TURRITELLA FULTONI, *sp. nov.* (Pl. 6, f. 12).

T. testa attenuata, pergracili, apice aciculato, pallidé albo-ochracea, anfractibus sexdecim ad novemdecim, ad suturas impressis, ventricosis, supernis tricarinatus, quatuor vel quinque ultimis, ad penultimum spiraliter quadricarinatis, ultimo anfractu octo vel novem carinis instructo; præter has, carinula minore primam et secundam carinam interveniente, inter secundam et tertiam, tertiam et quaternam liris elevatis accingendis, apertura rotunda, labro simplice, basi lirata.

Long. 27, lat. 8 mm., *sp. max.*

Hab. Ormara, 2 fathoms, in sand.

Allied to *T. incrassata* Sowb., but the sculpture is not quite the same. The largest specimen is sixteen-whorled, very gracefully attenuate, whorls screw-like, impressed at the sutures, with in the upper whorls three, in the lower four thick angular spiral keels, the last whorl being adorned with eight or nine. Between these principal keels there are lesser ones, sometimes degenerating into mere varied liræ—the base of the shell being also lirate. Mouth round, lip simple.

Six specimens.

In the National collection is a tablet of this shell, collected in the Persian Gulf by Mr. W. D. Cumming.

GIBBULA (CANTHARIDELLA) PHÆDRA, *sp. nov.*

(Pl. 6, f. 17).

G. testa acuté conica, angusté ad profundé perforata, pyramidalis, parva, solidula, anfractibus sex, nigro-olivaceis, infra juxta suturas, hic illic cinereo-flammatis, undique longitudinaliter et minuté punctolineatis, lineis regularibus, ultimo ad peripheriam acutangulato, apertura quadratula, intus vividissime iridescente, basi simili modo sulcato-lineata, columella recta.

Alt. 6, lat. 4 mm.

Hab. Charbar Pt., 7 fathoms.

Allied to *G. Stolickzana* Nevill, from Ceylon, but of totally different shape, being more acutely conical, and in this respect exactly (save for the umbilicar perforation) resembling a *Cantharidus* or *Elenchus*. The whorls are six, colour dark olive, with occasional white flaming at the sutures. The peripheral angle of the last whorl is acute, the whole shell is closely sulcate-linear, these lines being most regular. The square mouth is intensely green, iridescent within.

Three specimens.

(φαίδρος, brilliant.)

MONILEA ASTROLABENSIS, *sp. nov.* (Pl. 7, f. 21).

M. testa perforata, depresso-globulosa, solida, alba, anfractibus quatuor, ventricosis, undique spiraliter tenuilivatis, infra suturas et ad medium anfractus ultimi squarrosé brunneo-maculatis, et hic illic læté brunneo-ochraceo interspersis, ultimo ad peripheriam rotundato, ad basim spiraliter livato, et ochraceo-sparso, circá umbilicum crenulifero, apertura rotunda, peristomate lævi, haud multum incrassato, simplice.

Alt. 3.50, diam. 4 mm.

Hab. Astrolabe Island, Mekran Coast.

A thick, almost smooth shell, but when examined with a lens it is found to be uniformly spirally striate. Four-whorled, the whorls tumid, and painted below the sutures and in the middle of the last whorl with square brown spots, the surface between being mottled with lighter ochraceous-brown painting, as is also the case at the base. This is likewise spirally striate. The umbilical region is crenulate, the umbilicus itself narrow. Mouth quite round; peristome not much thickened, simple. The nearest ally is the more sombre-coloured *M. rotundata* Sowb., from Hong Kong (*Proc. Mal. Soc.*, Vol. I., p. 158, pl. xii., f. 19), with which it agrees in size, and the character of the thickly crenulated basal ridge fringing the umbilicus; but we have compared it closely with the types, and find many differences, notably in the striolation.

MINOLIA CLIMACOTA, *sp. nov.* (Pl. 7, f. 22).

M. testa gradato-conica, subdepressa, angusté umbilicata, solida, albo-ochracea vel albo-cinerea, anfractibus septem, apud suturas multum impressis, undique irregulariter spiraliter arcaté liratis, liris conspicuis, sulculosis, pulchré tornatis, infra juxta anfractuum suturas nigris, nigro-rufis vel cinereis flammis maculisve depictis triangularibus, basi planata, lævissima, ad peripheriam unangulata, infraque peripheriam brunneis vel cinereis flammis decorata, apertura angulato-rotunda, labro simplice.

Alt. 14, diam. 14 mm., *sp. maj.*

Hab. Charbar.

Though allied to *M. variabilis* Sowb., we do not think this shell a form of that species. Four specimens are before us, the three larger of these being gradate, and from them the above description is taken; the smaller shell, perhaps not full grown, is, as in the types, very deeply spirally lirated and sulcucose, the triangular

notches of black-brown painting being the same, while the narrow umbilicus and smooth base are also identical, but the whorls are not gradate, or hardly so.

(κλιμάκωτος, terraced.)

MINOLIA NEDYMA, *sp. nov.* (Pl. 7, f. 23).

M. testa laté et profundé umbilicata, depresso-conica, gradatula, anfractibus quinque concinné tornatis, infrá suturas rectangulatis, flammis variis longitudinaliter cinereis depictis, ultimo rapidé accrescente, regulariter spiraliter sulcato, et longitudinaliter obscuré decussato, apud peripheriam rotundo-angulato, et pulchré marginato, basi concentricé costulata, costulis gemmatis, apertura rotunda, labro simplice.

Alt. 3, lat. 5 mm.

Hab. Off anchor, Bunder-Abbas, Persia.

About 20 specimens. Mr. Hugh Fulton has compared closely with this *M. Caifassii* Caramagna, from Assab, Red Sea, from which it differs in being less fragile, and in its much flatter and more depressed form. *M. gradata* Sowb. is a much larger shell.

(νήδυμος, delightful.)

THALOTIA BELUCHISTANA, *sp. nov.* (Pl. 6, f. 19).

T. testa pyramidata, angusté umbilicata, solidiuscula, anfractibus novem, tribus apicalibus ventricosulis, striatulis, puniceo-tinctis, cæteris ad suturas, et ultimo ad peripheriam spiraliter carina elevata, filosa, rufo-punicea, longitudinaliter obliquissimé striata accinctis, superficie anfractuum transversim regulariter livata, et obliquissimé longitudinaliter striata, cinerea, apud peripheriam anfractus ultimi acuticarinatam, basi concinna, applanata, concentricé decemlirata, liris filosis, regulariter rufo-punctulatis, apertura quadrata, peristomate tenui, margine columellari paullum reflexo, umbilicum semiobtegente.

Alt. 10, diam. 9 mm.

Locality. Charbar, 7 fathoms.

An extremely neat shell, which seems better placed in *Thalotia* than *Calliostoma*. It is allied to *T. Torresi* Smith, being identical in form, and in umbilicus, but the grained pattern is here replaced by smooth whorls, spirally lirate, and at the sutures elevate, threaded, red tained, and the whole surface of the whorl being extremely obliquely striate, the striæ passing from left to right. The periphery is acutely keeled, the concentric liræ at the base are rufous-dotted, and the reflexed columellar margin half conceals the narrow umbilicus. The upper whorls are tinged with pink—say the three apical, and the next three as well.

CALLIOSTOMA FUNICULARE, *sp. nov.* (Pl. 6, f. 18).

C. testa solida, pyramidata, pallidé fulvescente-ochracea, hic illic cinereo-effusa, anfractibus decem, apicalibus duobus pellucentibus, deinde quatuor supernis transversim tribus gemmularum ordinibus instructis, cæteris quatuor vel quinque cingulis funiculatis accinctis, nitidis, cingulo superiore angusto, crenulato-gemmulifero, duobus inferioribus cingulis præcipue in penultimo, antepenultimo, et apud peripheriam ultimi anfractus latioribus, nitidis, et regulariter læté rufo-maculatis, ad peripheriam acutangulato, basi spiraliter concinné novem-funiculata, delicatè et regulariter rufo-punctata, apertura subquadrata, labro paullum effuso, marginem apud columellarum incrassato.

Alt. 14, diam. 11 mm.

Hab. Telegraph Cable. Lat. 27 N., long. 52 E.
(F. W. Townsend.)

A compact pyramidal species of the normal type of *Calliostoma*, being in pattern not altogether unlike a small *C. zizyphinus* L. The whorls are 10, two being apical, and the next four transversely beaded, shining, the remaining

whorls are four or five spirally banded with raised liræ, the upper lira beaded, the two lower broader, smooth, rufous-spotted. At the periphery there are two similar liræ, and the base is beautifully spirally lirated, the liræ being also rufous-dotted. The mouth is square, outer lip somewhat expanded, columellar margin thickened.

(*funicularis*, bestowed in double sense, from the locality, and also from the rope-like spiral banding.)

ETHALIA CARNEOLATA, *sp. nov.* (Pl. 7, f. 25, 26).

E. testa depresso-conica, profundè sed angustè umbilicata, solida, lævissima, lætè carnea, anfractibus quinque vel sex, apud suturas impressis, apicalibus minutis, omnibus lævibus, supernis interdum spiraliter tenuissimè striatis, ultimo ad peripheriam obtus-angulato, rapidè accrescente, omnibus spiraliter pallidè brunneo- et albo-vittatis, ultimo apud basim lævi, circà umbilicum incrassato et lævi-tornato, apertura rotunda, intus puniceo-carnea, peristomate extus simplice, columellarem apud marginem albo, incrassato, umbilicum callo nitido paululum obtegente.

Alt. 4, diam. 7 mm.

Hab. Bass Island, 10 fathoms.

A depressedly conical smooth little species, which, owing to the callus on the columellar margin, seems better included in *Ethalia* than *Minolia*. It is of a pale carnation or flesh-colour in hue, inside the mouth a deeper shade of the same colour, painted with fillets spirally of ochre-brown beaded with white.

Several specimens.

N.B.—A much larger shell (alt. 6, diam. 11) is in the collection, from the Persian Gulf. This shell, though it shows no trace of carnation tinging, as in the *Ethalia* just described, yet has so many points in common with it that we expect it will be found to be an outlying variety of this species.

ETHALIA MINOLINA, *sp. nov.* (Pl. 7, f. 24).

E. testa depresso-conica, rufo-carnea, spiraliter albo-vittata, solida, anfractibus sex, inclusis apicalibus, undique spiraliter arctissimé filostriatis, striis variis, anfractu penultimo gradatulo, ultimo apud peripheriam rotundo-angulato, basi simili modo filostriata, umbilico profundo, apertura rotunda, peristomate marginem apud columellarem linguifero, calloso, umbilicum impendente. Operculo corneo.

Alt. 6, diam. 10 mm.

Hab. Persian Gulf.

A pretty, bright shell, depressedly conical, six-whorled, rufous-flesh colour, uniformly very closely filostriate, the pattern being, as is so often seen in this genus and the congeneric *Minolia*, a banded filleting of white and fawn colour. The umbilicus is deep, and partly covered by the tongue-shaped callus extending from the columellar margin. Allied to *E. striolata* A. Ad., from Borneo.

(*minolina*, resembling a *Minolia*.)

FISSURELLA TOWNSENDI, *sp. nov.* (Pl. 7, f. 27, 27a).

F. testa oblonga, ad medium utrinque paullulum attenuata, fovamine oblongo, declinato, undique radiatim arcté costulato, spiraliter clathrato, interstitiis squarrosis, colore pallescente, radiis variis brunneis depicto, margine basali crenulato.

Long. 21, lat. 13 mm.

Hab. Karachi.

Mr. Hugh Fulton, who has carefully studied this species, and compared it with its congeners, writes me that it is near *F. fumata* Reeve and *F. corticula* Sowb., but flatter than the former, and the orifice, though in declension, is more terminal than in either of the foregoing.

Several specimens.

DENTALIUM CONSPICUUM, *sp. nov.* (Pl. 7, f. 28).

D. testa nitida, subulata, arcuata, lactea, longitudinaliter tenuistriata, striis inæqualibus, hic tenuibus, illic crassioribus, spiraliter irregulariter concentricè liricinctis, ad apicem octagonalibus, ad basim evanidis, basi ipsa perlævi, rotunda.

Long. $1\frac{3}{4}$, lat. $\frac{5}{8}$ unc.

Hab. Karachi.

A milky-white conspicuous species, slightly arcuate, eight-angled at the apex, the longitudinal striæ very unequal down the body of the shell, and entirely vanishing before the base, which is very smooth, and round at the orifice. It is concentrically unequally lirate.

Two specimens.

LEUCOTINA JASKENSIS, *sp. nov.* (Pl. 6, f. 11).

L. testa pergracili, multum attenuata, delicatula, alba, anfractibus novem, ad suturas impressis, ventricosulis, spiraliter costatis, costis lævibus, nitidis, interstitiis decussatis, apertura oblonga, peristomate extus haud incrassato, paullulum producto, columella recta.

Long. 10, lat. 2.50 mm.

Hab. Jask, Persian Gulf.

A white, exceedingly graceful, attenuate *Leucotina*, nine-whorled, the whorls being slightly ventricose, all uniformly spirally ribbed, the ribs smooth, bold, and shining. Interstitially the whorls are decussate. Mouth oblong, the peristome thin, slightly produced, columella straight. Another beautiful form of this genus, *L. speciosa* Ad., also occurs in Mr. Townsend's collections.

CHIONE MEKRANICA, *sp. nov.* (Pl. 7, f. 30).

C. testa parva, subtriangulari, pallidé albo-carnea, postice trapeziformi, anticè paullum producta, margine ventrali recto,

intus denticulato-serrato, umbonibus parvis, haud conspicuis, lunula brunnea, angusta, valvis longitudinaliter radiatim sulcatis, sulcis irregularibus, interstitiis inaequalibus, posticé majoribus.

Alt. 7.50, diam. 3.50, lat. 10 mm.

Hab. Mekran Coast.

A small somewhat triangular species, almost colourless, except for one or two cinereous blotches on the posterior side; it is slightly produced anteriorly, the ventral margin being almost straight. Umboes inconspicuous, the valves being longitudinally radiately ornamented with irregular sulcations, the sulci not being equi-distant, large interstitial spaces occurring on the posterior side. The lunule is dark brown, and narrow.

Allied to the group of *C. Layardi*, &c.

DOSINIA GLOBA (A. Ad. Mss.), *sp. nov.* (Pl. 7, f. 35).

D. testa feré rotunda, solida, sordidé alba, omnino concentricé regulariter costulata, costis parvis, simplicibus, anticé abbreviata, cum margine ventrali ad latus posticum rotundato, umbonibus incurvis, lunula cordata.

Alt. 25, lat. 26, diam. 12 mm., *sp. max.*; alt. 15, lat. 18, diam. 9 mm., *sp. min.*

A typical *Dosinia*, apparently common on the East coast of the Arabian Sea. It is in our Bombay list, as collected by Mr. Abercrombie, under the name *D. gibba* Ad., and also in Paetel's catalogue (Vol. III., p. 90), under the same name, without locality or reference. We think there has been some confusion here, and that this Mollusc has never been properly described, and accordingly we consider it best to rectify this omission at the present opportunity.

TAPES ONCODES, *sp. nov.* (Pl. 7, f. 34).

T. testa rudi, sordidé alba, tenui, inflata, concentricé ruduplicata et lineata, anticé rotunda, posticé oblonga, producta, umbonibus convexis, margine dorsali posticé rectiusculo, anticé declivi, margine ventrali subconvexo, feré recto.

Alt. 29, lat. 47, diam. 25 mm.

Hab. Mekran Coast.

A coarse, dirty white shell, but of light make, and not unlike some forms of *T. pullastra* L. Many specimens.

(ὄγκώδης, inflated.)

TELLINA (MÆRA) METHORIA, *sp. nov.* (Pl. 7, f. 31).

T. testa parva, alba, nitida, perlævi, pulchré prismatica, subtrapeziformi, anticé oblonga, declivi, posticé truncata, brevi, margine ventrali paullulum sinuosa, umbonibus parvis, dorsaliter utrinque declivi, valvis delicatissimé spiraliter concentricé striatulis.

Alt. 8, lat. 12, diam. 4.50 mm.

Hab. Dredged at 2 fathoms off Mekran Coast.

A shining white shell, very smooth, with beautiful prismatic reflections. With aid of a lens the surface of both valves is seen to be very finely spirally striate; the umbones are very small, posterior margin truncate, and very contracted; the anterior is oblong, somewhat slanting, the ventral a very little sinuous.

Many specimens allied to *T. lechriogramma* Melv., which, described four years ago from Bombay, has been found to have a wide distribution further north, Mr. Townsend having dredged beautiful specimens, some with a flesh-coloured tinge. Our shell, however, differs from this in shape, sculpture, and presence of prismatic reflections.

(μεθόριος, akin to, *i.e.*, *lechriogramma*.)

DONAX APERITTUS, *sp. nov.* (Pl. 7, f. 33).

D. testa solidiuscula, compacta, lævi, nitida, indistincté lirata, latere antico producto, postico subtruncato, paullum extenso, radiatim recti-corrugato, margine ventrali minuté serrato, umbonibus inconspicuis, planatis.

Long. 8, lat. 15 mm.

Hab. Karachi.

A smooth shell, with the anterior side produced, somewhat truncate, though slightly extended also posteriorly, the radiate corrugations being prominent; the rest of the surface almost smooth, the umbones inconspicuous; ventral margin minutely serrate.

(ἀπέριττος, simple.)

PECTUNCULUS MASKATENSIS, *sp. nov.* (Pl. 7, f. 32).

P. testa paullum compressa, æquilaterali, solidiuscula, rotundata, dorsaliter recta, brunneo-rufa-alboque sparsa, umbonibus parvis sed conspicuis, radiatim fortiter costulata, costis uniformibus, apud medium et infrá sulculo divisis, utrâque parte nodulis parvis decoratis, interstitiis spiraliter tenuissimé liratis, cardine dentibus octodecim in utrâque valvâ instructo, pulchré brunneo-tinctis, interiore albo-lacteo.

Alt. 22, lat. 25, diam. 10 mm.

Hab. Muscat (or Maskat), Arabia, 10 fathoms in sandy mud.

Allied to the well-known *P. pectiniformis*, Lam., but the ribs, as seen by the above description, are of an entirely different character, being smooth and undivided by a sulculus in Lamarck's species. It ranks among the more select of a genus famous for a highly-individualised type of beauty.

YOLDIA TROPICA, *sp. nov.* (Pl. 7, f. 29).

Y. testa oblonga, trapezioide, tenui, lævissima, spiraliter striatula, epidermide olivacea contecta, anticé prolongata subrostriata, posticé brevi, rotundata, margine ventrali recto, dorsali declivi, umbonibus parvis, lunula angustissima, dentibus anticis septemdecim, posticis quatuordecim, pectinaceis, intus albo-lactea.

Alt. 10, lat. 18, diam. 7.25 mm.

Hab. Karachi.

One perfect example of an interesting shell, of which one valve also exists, unnamed, in the National Collection. It is thin, covered with an olivaceous epidermis, spirally finely striate, squarely elongate. Slightly swollen towards the umbones, which are small, anteriorly prolongate, posteriorly short and rounded, ventrally straight, dorsally slightly sloping on each side of the umbones. The anterior comb-like teeth are 17, the posterior 14 in number. Within the shell is milky-white.

Explanation of Plates.

PLATE 6.

- Fig. 1. *Nassa Townsendi*.
" 2. *Nassa mammillifera*.
" 3. *Sistrum Rawsoni*.
" 4. *Coralliophila persica*.
" 5. *Elusa brunneo-maculata*.
" 6. *Eulima epiphanes*.
" 7. *Mitra (Costellaria) stephanucha* (nat. size).
" 8. *Terebra severa*.
" 9. *Syrnola karachiensis*.
" 10. *Scalardia fimbriolata* (nat. size).
" 11. *Leucotina jaskensis*.
" 12. *Turritella Fultoni* (nat. size).
" 13. *Terebra (Euryta) thyræa*.
" 14. *Columbella (Mitrella) Cartwrighti*.
" 15. *Marginella (Cryptospira) Shoplandi*.
" 16. *Marginella (Gibberula) charbarensis*.
" 17. *Gibbula (Cantharidella) phædra*.
" 18. *Calliostoma funiculare*.
" 19. *Thalotia beluchistana*.
" 20. *Natica strongyla*.

PLATE 7.

- Fig. 21. *Monilea astrolabensis*.
" 22. *Minolia climacota*.
" 23. *Minolia nedyma*.
" 24. *Ethalia minolina*.
" 25. *Ethalia carneolata*.
" 26. *Ethalia carneolata*, var.
" 27. } *Fissurella Townsendi*.
" 27a. }
" 28. *Dentalium conspicuum*.
" 29. *Yoldia tropica*.
" 30. *Chione mekranica*.
" 31. *Tellina (Mæra) methoria*.
" 32. } *Pectunculus maskatensis*.
" 32a. }
" 33. *Donax aperittus*.
" 34. *Tapes oncodes*.
" 35. *Dosinia globa*.



