

Fig. 14. Knobs on the ambulacral plate-edges in relation with sockets on the corresponding interradials. Pits are shown. Magnified.

Figs. 15-17. *Salmacis bicolor*. The median interradial suture, showing pits and knobs, sockets, elevations, and depressions. Magnified.

MOLLUSCA OF H.M.S. 'CHALLENGER' EXPEDITION.—Part XIII.
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Fam. BUCCINIDÆ, *Flem.*

BUCCINUM, <i>L.</i>		NASSA, <i>Lam.</i>
PHOS, <i>Montf.</i>		

BUCCINUM, *L.*

1. *B. albozonatum*, n. sp. | 2. *B. aquilarum*, n. sp.

1. BUCCINUM ALBOZONATUM, n. sp.

St. 155 D. Jan. 20, 1874. Lat. 49° 28' S., long. 70° 13' E.
Royal Sound, Kerguelen. 28 fms. Mud.

Shell.—Small, thin, fusiform, with a high spire, a short base, and a small snout, of a ruddy brown, tipped and banded with white; it has spiral threads. *Sculpture*. Longitudinals—on the earlier whorls there are some feeble folds below the suture; only sharpish hair-like lines of growth elsewhere. Spirals—over the whole surface there are flat threads with furrows of equal breadth between them: of these, on the penultimate whorl there are about 10; on the snout they are finer and closer. *Colour* muddy brown, with a transparent white-tipped pillar and central band on each whorl. *Spire* high, rather narrow. *Apex* blunt, rounded, with a slightly immersed tip. *Whorls* 6, regularly convex; the last contracts slowly on the base, and is produced into a short, one-sided, slightly expanded, truncated snout. *Suture* rather deeply impressed. *Mouth* largish, oval, open, straight, bluntly pointed above, pro-

duced into a small, short, oblique canal below. *Outer lip* thin, blunt, rather patulous, slightly sinuated and angulated a little way below the suture, and below this flatly arched. *Inner lip*: a very thin and narrow glaze covers the arched body and the straight pillar, which is not thickened or twisted, but is obliquely cut off in front. *Operculum* is intermediate in form between that of *Buccinum* and *Cominella*; for, as in the latter, the nucleus is at the lower end, but it is not apical but is within the edge towards the outer margin as in the former. H. 0.4. B. 0.18. Penultimate whorl, height 0.1. Mouth, height 0.19, breadth 0.11.

2. BUCCINUM (?) AQUILARUM, n. sp.

St. 78. July 10, 1873. Lat. 39° 26' N., long. 25° 13' W. Off San Miguel, Azores. 1000 fms. *Globigerina*-ooze.

Shell.—Small, thin, white, ventricose, biconical, oval, subscalar, with an oval, slightly oblique mouth, and a short canal. *Sculpture*. Longitudinals—on the upper whorls there are many feeble, close-set, straight riblets, which are very faint and merge into the lines of growth on the last whorl. Spirals—on the whole surface are fine, rounded, spiral threadlets parted by shallow furrows which are broader than the ribs. *Colour* semitransparent white, under a thin yellow membranaceous epidermis. *Spire* short, broad, conical, subscalar. *Apex* small, but rounded. *Whorls* 6, slightly flattened above; below this there is a very blunt angulation, and the lower part of each whorl is subcylindrical; the last whorl is ventricose, contracting on the base to a very short, rather lop-sided snout. *Suture* impressed. *Mouth* rather large, oval, rounded at the top, and prolonged below into an oblique, short, open canal. *Outer lip* thin, but not sharp, very bluntly angulated near the top, of regular curve, open, with a very slight basal cut at the point of the pillar. *Inner lip*: a thick layer of glaze, with a prominent edge continuous with the outer lip, runs down parallel to the belly-margin, and is cut off by the oblique canal at the point of the pillar, which is neither swollen nor thickened. H. 0.33. B. 0.21. Penultimate whorl, height 0.07. Mouth, height 0.22, breadth 0.13.

This is a perplexing form, in general aspect very like several *Admetæ*. Than *A. ovata*, E. Sm., from Japan, it is very much higher and more attenuated in the spire; than *A. crispa*, Möller, it is much more tumid, and lower in the spire; than *A. viridula*,

Fabr., it is more delicately sculptured, is higher in the spire, and is of slower increase. The absence of the generic teeth on the pillar and the presence of the slight basal sinus are both features not without parallel in the genus *Admete*; but in all *Admetæ* so far as known to me there is a varicose twist at the point of the pillar, between which and the edge of the inner lip lies a more or less distinct umbilical chink or furrow. In this 'Challenger' shell there is no swelling whatever, and scarcely any twist even in the sculpture, and not the slightest approach to an umbilical chink. The absence of the varicose twist is, indeed, rather an objection to putting this species under *Buccinum*; but that genus already accommodates forms still more exceptional than the present one. *Volutharpa* is perhaps nearer; but I do not sufficiently know the limits of that genus to take liberties with it; the absence of an operculum, which seems its only positive claim to generic standing, is a feature out of recognition in the present case.

PHOS, *Montf.*

1. *P. naucratoros*, n. sp. | 2. *P. bathyketes*, n. sp.

1. PHOS NAUCRATOROS, n. sp. (*ναυκράτωρ*, master of the fleet, Admiralty.)

St. 219. March 10, 1875. Lat. $1^{\circ} 54' S.$, long. $146^{\circ} 39' 40'' E.$ Admiralty Islands, N.E. of Papua. 150 fms. Mud.

Shell.—Strong, smooth but not polished, yellowish white, with some pale ruddy bands, with a high conical spire, small sharp apex, and a slightly impressed suture. Whorls rounded, with narrow ribs and spiral threads, a short contracted base, and a twisted pillar. *Sculpture*. Longitudinals—on the last whorl there are about 15, on the earlier about 18, rather narrow, raised, rounded, flexuous ribs, of which one on each whorl is a little larger than the rest; they extend to the upper suture and also to the point of the base, they are parted by rounded furrows of twice their breadth; the lines of growth are extremely numerous and sharp. Spirals—the whole surface is densely packed with strongish, but very unequal, rounded threads parted by fine small furrows; there is a broad shallow furrow round the upper part of the pillar, and in it the spiral threads are sharper and sparser than elsewhere. *Colour* porcellaneous white, stained with yellow on the surface, banded with palish rufous and white. *Spire* high, narrow, conical. *Apex* small and sharp, consisting of four bicarinated, conically shaped,

conical whorls. *Whorls* 10, rounded, constricted below and contracted above; the last is a little tumid, with a short rounded base, which is produced into a short, broad, lop-sided scoop-like snout. *Suture* small, impressed, rather oblique. *Mouth* irregularly oval, pointed above, subangulated at the pillar, and produced in front into the short, open, oblique canal. *Outer lip* thickened by the external callus, in advance of which it is thin; within, it is scored with long narrow teeth; there is a slight open sinus near the body, its curve is a little angulated in front, from which point in particular it is patulous; the broad notch of the canal has a slightly reverted lip. *Inner lip* flat on the body, bluntly angulated at the base of the short pillar, which is swollen and twisted in front, and coarsely flanged on the edge; the extreme point of the pillar is very small and sharp, and is as prominent as the point of the outer lip; the labial pad is very thin and undefined. H. 1. B. 0.5. Penultimate whorl, height 0.2. Mouth, height 0.5, breadth 0.27.

The extreme tip of the apex in the only specimen present is broken. The species presents that feature which is peculiar to the whole genus, of strong family resemblance, but is quite distinct from all the species so far as known to me.

2. PHOS BATHYKETES, n. sp.

St. 210. Jan. 25, 1875. Lat. $9^{\circ} 26'$ N., long. $123^{\circ} 45'$ E. Philippines. 375 fms. Mud. Bottom temperature $54^{\circ} 1$.

Shell.—Thinnish, porcellaneous, without lustre, brownish yellow, with a high conical spire, small turbinated apex, short rounded whorls having feeble ribs and spiral threads, deep suture, small body-whorl, short contracted base, and a broad, deeply nicked snout. *Sculpture*. Longitudinals—on the first regular whorl there are 11 or 12, on the body-whorl about twice as many, narrow, slightly prominent, rounded riblets, which extend from the suture to the point of the base; they have a sinistral trend, which is very marked on the base; they are parted by shallow furrows two or three times their breadth; the lines of growth are fine, sharp, and equal. Spirals—on the penultimate whorl there are about 6, on the body about 12, narrow rounded threads, which rise into sharpish little tubercles in crossing the riblets; the fourth of these lies about the periphery, and the furrow between it and the third is wider than the others; in all of these furrows are feebler threadlets. The front of the pillar has a strong

twisted swelling. *Colour* dull brownish yellow, which is a little deeper on the tubercles. *Spire* high, narrow, conical. *Apex* slightly abrupt, consisting of $3\frac{1}{2}$ turbinated embryonic whorls, of which the extreme tip is very small; they are smooth and rounded, but slightly keeled above the suture; towards the first regular whorl the carinating thread becomes double or triple, and a few very oblique riblets appear. *Whorls* $9\frac{1}{2}$, short, rounded, being pretty equally constricted above and below; the last is small, being neither broad nor long; the base is short and conical, being drawn out into a broad, lop-sided, slightly reverted snout, in which lies the deep, wide, rounded nick of the anterior canal. *Suture* very deeply impressed, rather oblique. *Mouth* semioval, obliquely produced in front and abruptly truncated at the point; it is hardly angulated above. *Outer lip* has a feeble varix outside, formed by a crowding at that point of the longitudinal riblets; the edge is sharp, flatly arched, scored internally with long narrow teeth, which are alternately stronger and weaker; it is slightly emarginated below the suture, prominent in front, and then retreats to the edge of the canal, and here alone it is patulous. *Inner lip* short across the body, where the labial callus spreads somewhat; and there in the middle is a strongish little tooth; the junction of body and pillar is rather concave; the pillar, which is longish and somewhat swollen, is very obliquely cut off and twisted, with a narrow rounded edge; two strongish and one or two feeble teeth cross it almost horizontally; and it runs out in front to a very fine, attenuated, but blunted point. H. 0·9. B. 0·35. Penultimate whorl, height 0·16. Mouth, height 0·36, breadth 0·17.

This species is a good deal like *P. borneensis*, Sow., from Borneo, but is slightly slimmer; the first whorls here are larger, the suture is deeper, and between the spirals the shell is smoother. In Sowerby's species, too, the upper angle of the mouth is much more deeply sinuated, and behind this canal is an angulated callus, the pillar is shorter and less sharply pointed, and there is no tooth on the body; the ribs in that species are stronger and closer set, and are frequently developed into varices, of which, with the exception of the feeble labral swelling, there are none in the 'Challenger' species.

NASSA, Lam.

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| 1. <i>N. levukensis</i> , n. sp. | | 5. <i>N. agapeta</i> , n. sp. |
| 2. <i>N. psila</i> , n. sp. | | 6. <i>N. capillaris</i> , n. sp. |
| 3. <i>N. brychia</i> , n. sp. | | 7. <i>N. ephamilla</i> , n. sp. |
| 4. <i>N. babylonica</i> , n. sp. | | |

1. NASSA LEVUKENSIS, n. sp.

July 29, 1874. Levuka, Fiji. 12 fms.

Shell.—Thin, rather smooth, brownish livid, ovate, subfusiform, scarcely oblique, with a short, subscalar spire, and a small but bluntish apex; the anterior canal is very shortly but sharply margined, with scarcely any snout. *Sculpture*. Longitudinals—the earlier whorls are crossed by numerous rather fine straight riblets parted by similar furrows; these ribs and furrows increase in strength, but not proportionally so, down the spire, and tend to become obsolete on the body-whorl; the lines of growth are fine, smooth and unequal. Spirals—a strongish furrow below the suture cuts off the top of the ribs as a row of nodules; the middles of the whorls are scored, especially in the intercostal furrows, with remote impressed lines, which are more or less obsolete; on the front of the base are 4 to 6 strongish, flat, subimbricated threads: coiling round the base of the pillar is a broad shallow furrow, in which the longitudinal ribs are visible; below this is a prominent thread, while the point of the pillar is scored by about 4 sharpish threads with broader furrows. *Colour* livid, with more or less of brown; the point of the pillar is white, as are two bands, one at the suture and the other above the periphery. *Spire* short, conical, subscalar. *Apex* small but blunt, the three smooth, rounded, globose embryonic whorls being somewhat depressed; they are also markedly smaller than the succeeding regular whorl. *Whorls* 9, conical, slightly convex, the last a little tumid. *Suture* impressed and slightly canaliculate. *Mouth* oval, pointed, channelled and nicked above, with a short oblique canal in front. *Outer lip* sinuated above, straight, and rather contracted to the point of the base, where it is patulous; it is toothed within, serrated on the anterior edge, right-angled at the canal, the edge of which is sharply margined by the infrabasal thread. *Inner lip* concave and toothed above, straight and bluntly tubercled on the pillar, the point of which is flanged, and down which the edge of the labial callus projects prominently, leaving a shallow chink behind it. *Operculum* thin, yellow, oval, triangular, with a slightly ser-

rated outer and inner edge. H. 0·8. B. 0·45. Penultimate whorl, 0·18. Mouth, height 0·33, breadth 0·24.

Mr. Marrat, of Liverpool, whose labours on the genus *Nassa* in particular are well known, and who has had the goodness carefully to examine the whole of the 'Challenger' species of the group, considers this species to be his *N. lævigata* (= *glabella*, Marr. nec Sow.), an opinion which I am not able to accept. With a considerable general resemblance, the form of the shell is very different. In *N. lævigata* the shortness and breadth of the last whorl gives a contour-line totally unlike that of *N. levukensis*, which is narrow at the periphery and comparatively long in the base. It has points of resemblance to *N. monile*, Kien., to *N. algida*, Reeve, to *N. coronata*, Lam., and to *N. crenulata*, Brug., but is certainly distinct from them all. It most of all resembles one of the depauperated forms of *N. canaliculata*, Lam., in some of which the canaliculation of the suture becomes very obsolete; but in none of these is there so sharp a flange round the anterior canal, none have so deep a furrow at the origin of the pillar, nor so sharp a thread in front of that furrow, and in all the apex has a broader base, and is higher, sharper, more conical. The operculum, too, is quite unlike, being in these very much smaller, more oval, and without serrated edges.

2. *NASSA PSILA*, n. sp. (ψιλός, rubbed.)

St. 185 B. August 31, 1874. Lat. 11° 38' 15" S., long. 143° 59' 38" W. Off Raine Island, Torres Straits. 155 fms. Sand and shells.

Shell.—Very thin, glassy, polished, white, with some brown stains; conical, scarcely oblique, with a high scalar spire, a small blunt apex, a short truncate base, a sharply flanged canal, and a very small snout. *Sculpture*. Longitudinals—the earlier whorls are crossed by numerous regular fine riblets parted by very similar furrows; they are straight, but incline a little obliquely to the left; they hardly increase in size, but on the last $1\frac{1}{2}$ whorls become obsolete; the lines of growth are very fine. Spirals—below the suture is a narrow horizontal shelf, whose sharp edge is ornamented with an expressed row of blunt tubercles; these are formed by a deepish furrow isolating the tops of the ribs; narrow shallow furrows stipple the interstices of the riblets; these become faint on the last whorl, but increase in strength and become more continuous as they approach the outer lip; they also increase in strength towards the point of the base. *Colour* horny or translucent

glassy white, with some brown stains vaguely linear. *Spire* high, conical, scalar. *Apex* small, consisting of $3\frac{1}{2}$ depressedly globose, glossy, keeled, embryonic whorls. *Whorls* 9 to 10, horizontally shouldered, angulated, cylindrical, with a short, rounded, and contracted base. *Suture* marginated and slightly constricted. *Mouth* round, sharply pointed above. *Outer lip* rounded on the edge and narrowly reverted, straight above, rounded at the base, more or less patulous throughout; the canal has a reverted, flanged margin. *Inner lip* convex on the body, concave in the middle, straight on the pillar; the labial glaze, which is very glassy, spreads broadly and undefinedly on the body, and projects with a narrow prominent edge down the pillar, which has a flanged and twisted point. H. 0.78. B. 0.39. Penultimate whorl, height 0.16. Mouth, height 0.38, breadth 0.22.

It is quite possible this may prove to be only a deep-water variety of that very variable species, *N. glans*, L.; but it so different that it is impossible to place it in that group, and, indeed, Mr. Marrat connects it with a different section altogether. There is no form which unites the polish and the exquisite sculpture of this species.

3. *NASSA BRYCHIA*, n. sp. (*βρυχίος*, belonging to the deep sea.)
St. VIII. Feb. 12, 1873. Lat. $28^{\circ} 3' 15''$ N., long. $17^{\circ} 27'$ W.
Off Gomera, Azores. 620 fms. Mud, shells.

Shell.—Strong, coarse, dirty white, ovate, rather stumpy, with a conical subscalar spire, a small blunt apex, a round truncated base, a very short pillar, and scarcely any snout. *Sculpture*. Longitudinals—the whorls are crossed by blunt, narrow, sparse, sinistrally oblique riblets, which continue to the snout; the last forms a strong varix on the edge of the lip; the lines of growth are fine, but towards the mouth become coarse. Spirals—below the suture is a slight shoulder formed by a row of coarse, depressed tubercles marking the upper end of the riblets; on the upper whorls there are 2 to 3, on the body about 5, coarse, shallow furrows parted by broadish flat bands; on the base there are 6 of these furrows with narrower bands; round the base of the pillar winds obliquely a shallow furrow, with a slight sharpish band in front; the short pillar is scored with the old contorted canal-scars. *Colour* a dirty porcellaneous yellowish white. *Spire* rather short, conical, subscalar. *Apex* blunt and rounded, consisting of $3\frac{1}{2}$ smooth, depressedly turbinate whorls, of which the tip is very small. *Whorls* 9, conical, scarcely convex, not constricted below,

with a short rounded base. *Suture* margined, and this margin tubercled. *Mouth* oval, open, bluntly pointed above. *Outer lip* sharp on the edge, sparsely toothed, patulous, almost straight, slightly advancing below, but not prominent on the base; the canal has a slightly reverted flange. *Inner lip* straight; on the body it is a little hollowed into the pillar, which is very short, and has in front a thickened (but not flanged) twisted edge; the pad of glaze is not thick, and has a sharply defined outer edge throughout its whole length. H. 0·65. B. 0·37. Penultimate whorl, height 0·14. Mouth, height 0·35, breadth 0·2.

This resembles *N. reticulata*, L., more than any other Atlantic form; but, besides being much smaller, the form of spire is much more scalar; the ribs and spiral threads are much fewer, and their intersections are flattened, not tubercled; the callus on the lip is not indefinitely spread on the body; the junction of the pillar and the body is not so deeply furrowed; and the front of the pillar has no threads, only scars. It somewhat approaches a variety of *N. trivittata*, Say; but that has a much more conical, less scalar spire, with more rounded whorls; the last whorl is much less broad, is higher, is more extended in front, and is covered with raised rounded threads.

Mr. Marrat, in his most curious and interesting study 'On the Varieties of the Shells of the Genus *Nassa*,' p. 52, puts this species into a group very remote from either of the above.

4. *NASSA BABYLONICA*, n. sp.

St. 210. Jan. 25, 1875. Lat. 9° 26' N., long. 123° 45' E. Philippines. 375 fms. Mud. Bottom temperature 54°·1.

Shell.—Small, thin, porcellaneous, high and narrow, scalar, ribbed, with a sharp tubercle at the top of each rib, a small blunt apex, and a very short stumpy base. *Sculpture*. Longitudinals—there are rounded, rather high, narrow, straight, sparsely-set ribs, almost mucronate at the top of the whorls and tubercled on the base; the lines of growth are fine, close, and hair-like. Sp below the narrow, flat, horizontal shoulder are two or three threads, which rise into sharp points in crossing the ribs; in the middle of the whorls there are some faint traces of raised threads; those on the base are sharper, and rise into tubercles in crossing the ribs; all these, as well as the ribs, die out at the extreme point of the base; beyond this the pillar is defined by a strong broad furrow, and the short twisted pillar is scored with rounded

threads. *Colour* porcellaneous white. *Spire* high, scalar, conical. *Apex* a blunt little cone of $3\frac{1}{4}$ depressed rounded whorls, out of which the minute tip just rises into view; the last of these embryonic whorls is keeled. *Whorls* $9\frac{1}{2}$, with a flat horizontal shoulder, from which the higher whorl rises like a cylindrical tower; at the outer edge of the shoulder the whorls are sharply angled; they are all very short; and the last, which is small, has a very truncate rounded base. *Suture* margined and very flexuous in consequence of the tubercles on the margin. *Mouth* round, patulous, bluntly pointed above, prolonged across the front of the very short pillar into a little round hole of a canal. *Outer lip* well arched, retiring, with a rounded edge, and thickened both outside and in; on the internal varix there are in front a few small blunt tubercles; round the canal the edge is thickened, reverted, and emarginate. *Inner lip* straight across the body, concave in the middle, and straight on the very short pillar: the labial pad is rather narrow, thick, with a raised and rounded edge; it has a biggish tubercle near the top, and 3 or 4 others, smaller, on the body and pillar, the point of which is twisted and patulous, but not flanged. *Operculum* very small, triangular or claw-shaped, being long and narrow; the edges are not serrated. H. 0.45. B. 0.23. Penultimate whorl, height 0.1. Mouth, height 0.16, breadth 0.11.

I do not know with what to compare this curiously shaped species, in which the whorls, tubercled round the top, rise one above the other in terraces or small towers. There is a fossil species, *N. turbinelloides*, described and figured by Prof. Seguenza in his great work 'Le formazioni terziarie nella Provincia di Reggio,' p. 261, pl. xvi. fig. 23, which seems to resemble it more than any thing I know; but it is markedly different in the more elongated base. Mr. Marrat, in his 'Varieties of *Nassa*,' p. 59, no. 992, puts the 'Challenger' species between *N. plebecula*, Gould, and *N. luteola*, E. Sm.

5. *NASSA AGAPETA*, n. sp. (ἀγαπητός, beloved.)

July 29, 1874. Levuka, Fiji. 12 fms.

Shell.—Small, thin, translucent, ovate, with a short spire, a small, conical, rather abrupt apex, an impressed suture, a rounded, rather tumid base, and a largish snout. *Sculpture*. Longitudinals—there are smooth, rounded, narrow, sinuous ribs, parted by shallow rounded furrows of double their width; they originate in a row of largish tubercles close to the suture, are somewhat

irregularly continuous from whorl to whorl, and die out at the extreme point of the base; the last forms a large white varix a little remote from the lip-edge. Spirals—there is a continuous thread of largish tubercles close below the suture, with a strongish furrow on its underside; the interstices of the ribs are scored by narrow furrows and flat threads, which latter on the base rise into small tubercles in crossing the ribs: there is no special furrow round the base of the pillar, which is scored with fine close-set threads up to the sharp-topped swelling which is continuous with the canal; the small point beyond this swelling has 3 or 4 coarser irregular threads and furrows. *Colour* faintly yellow, with traces of a sutural, median, and basal band of brown. *Spire* stumpy, conical. *Apex* a short, broad, blunt cone of $3\frac{1}{2}$ whorls, the two last of which are sharply keeled; the union-line of this embryo to the first regular whorl has a deep round sinus with a blunt brown-stained lip. *Whorls* 7, slightly convex, conical, beaded round the top; the last whorl is large compared with the others, is a little elongated, and has a rounded base produced into a snout, which is broadish and somewhat larger than is usual in the genus. *Suture* impressed. *Mouth* oval, pointed above, and continued below into the large oblique funnel-mouthed canal. *Outer lip* thin and sharp in front of the labral varix, straight above, arched and patulous below, with about 12 long little teeth within; it does not form a flange round the very patulous canal-mouth. *Inner lip* concave, with a broad, thick labial glaze, behind the prominent round edge of which is a minute chink; on this glaze there is one large long tooth near the upper corner of the mouth, some 2 or 3 small round tubercles on the body, and 4 larger ones on the very short pillar, whose point is flanged, twisted and very abruptly cut off. H. 0.24. B. 0.12. Penultimate whorl, 0.05. Mouth, height 0.13, breadth 0.07.

This dainty little species, with some very obvious superficial differences, closely approaches *N. pusio*, A. Ad.; but the embryonic whorl has half a whorl fewer, and the sculpture and form are really different. In particular, the pillar is not isolated by a strong basal furrow, and the spiral furrows on the base, though strong, have nothing like the depth they have in that species; nor has the pillar in that the little teeth which are very marked in the 'Challenger' species. Marrat in his monograph on the Varieties in *Nassa*, p. 97, no. 1337, places it between *N. splendida*, Dunker, and *N. trinodosa*, E. Sm.

6. *NASSA CAPILLARIS*, n. sp.

St. 113 A. Sept. 1, 1873. Lat. $3^{\circ} 47'$ S., long. $32^{\circ} 24' 30''$ W.
Anchorage at Fernando Noronha. 25 fms.

Shell.—Rather small, thick, porcellaneous, stumpy, with rounded whorls, a conical subscalar spire, a short conical apex, a rounded, truncate, oblique base, and a short, very oblique snout defined by a strong furrow. *Sculpture*. Longitudinals—there are about 12 coarse rounded ribs and furrows; the last rib forms a strong varix behind the lip; these ribs are very feeble in the suture, and die out on the base; there are hair-like, sharp, close-set lines of growth. Spirals—on the penultimate whorl there are about 6 strongish rounded threads, above these and below the suture are two or three finer and weaker; those on the base are rather stronger than the others; the base of the pillar is defined by a strong furrow, with a sharp thread in front of it; the pillar is somewhat weakly scored by coarse flat spirals. *Colour* somewhat glossy white, with more or less of a rich chestnut band in the middle of the whorls, which colour is strongest in the interstices of the ribs. *Spire* rather high, conical, subscalar. *Apex* small, consisting of three turbinate rounded whorls. *Whorls* 10, short, subcylindrical, constricted at the top; the last is hunchy, very short, round, with a very oblique contracted base. *Suture* a little impressed, and slightly margined in consequence of the comparative feebleness of the ribs immediately below. *Mouth* round, open, very bluntly pointed above, and produced below into the oblique, narrow, funnel-mouthed canal. *Outer lip* thickened outside and in by a white varix, of which the one inside is scored by 10 or 12 long, close-set, sharpish teeth; it is arched throughout, is very slightly retreating, and very patulous on the forward-arching base. *Inner lip* semicircular, with a thick white pad of glaze, which has a sharp, prominent and defined edge with a slight chink behind it; there is a strong blunt tooth above, several irregular and indefinite tubercles on the body, and four or five round and biggish tubercles on the very short pillar, whose twisted patulous and abruptly cut-off point is not flanged. H. 0.5. B. 0.25. Penultimate whorl, height 0.1. Mouth, height 0.21, breadth 0.17.

Mr. Marrat thinks I have mixed up two species here, he regards the largest specimen as *N. proxima*, C. B. Ad. (= *N. versicolor*, C. B. Ad., fide Carp.), a Panama species, and holds the rest as *N. incrassata*, Müller, a North-Atlantic and British species. Dr. Gwyn Jeffreys agrees with me in considering all the specimens

to belong to one species, and that *not N. incrassata*. Compared with *N. proxima* this species differs in being more contracted at the suture; the whorls are rounder and less flat, and lack the peculiar infrasutural contraction and flattening and the solitary strong remote thread which lies there; the spirals are stronger and more regular, while that species is nearly smooth; the embryonic apex is larger, its whorls being in that other species more minute, while they are at the same time depressed or immersed. The longitudinal ribs, too, in *N. proxima* are fewer and weaker the mouth is larger, more oval, more produced at the lower outer corner; the outer lip is thinner, with fewer, narrower, less regular teeth; the inner lip is much more widely spread out on the body; the pillar, too, is shorter. It has resemblances to *N. sanctæ helenæ*, A. Ad., to *N. cinctilla*, Gould, to *N. coccinella*, Lam., to *N. antillarum*, d'Orb., to *N. ambigua*, Pult., to *N. pygmæa*, Lam., to *N. nucleolus*, Phil., and to *N. acuta*, Say, with all of which this species has been very carefully and fully compared; but it is needless to detail the points of distinction. As regards *N. incrassata*, Müller, that very variable species has a very constant stain in the canal; seen from above, the whole canal and pillar are broader; the longitudinal ribs are more regular, and these, like the spirals, are stronger, being both rounder and higher; and they run flexuously indeed, but with a distinct trend from left to right, while in the 'Challenger' species the trend is from right to left. In Müller's species the apical whorls are more rounded, and are parted from each other by a deeper suture; the labial pad, too, is undefined.

7. *NASSA EPHAMILLA*, n. sp. (ἐφάμιλλος, a match for another, viz. *N. Woodwardi*, Forb.)

St. 169. July 10, 1874. Lat. 37° 34' S., long. 179° 22' E. N.E. from New Zealand. 700 fms. Grey ooze. Bottom temperature 40°.

Shell.—Rather small, thin, chalkily porcellaneous, ovate, with a shortish scalar spire, a rounded apex, a marginated suture, whorls rounded and beset with small prickles, a tumid base and a very short pillar. *Sculpture*. Longitudinals—there are on each whorl about 20 narrow feeble ribs, which do not extend to the upper whorl and die out on the base; the lines of growth are fine, flexuous, and close-set. Spirals—there are on the penultimate whorl four broadish but very slightly raised threads; in crossing the longitudinal riblets these rise into small prickles, or pointed

tubercles ; on the body-whorl there are 5 or 6 of these, and 4 or 5 more on the base, which latter are sharper, higher, and less tubercled ; below the suture is a short, bare, more or less flat shoulder ; round the base of the pillar is a small sharp spiral, which is continuous with the upper edge of the canal ; the back of the pillar is scored with very undulating lines, the scars of the old canal. *Colour* chalky white. *Spire* rather short, more or less scalar, with a convex outline. *Apex* blunt and rounded, consisting of nearly 4 largish, smooth, turbinate, convex whorls, of which the highest is immersed. *Whorls* 7, stumpy, convexly cylindrical, flatly shouldered above ; the last is tumid, with a very rounded, almost inflated, and short base, on which, looked at from behind, the point of the pillar is barely discernible, and the edge of the canal does not project at all. *Suture* impressed, flatly margined below, very horizontal. *Mouth* : a perfect oval all round, having no angulation above, and though cut on the edge, yet being in its sweep quite uninterrupted by the canal in front. *Outer lip* thin, sharp, and patulous, very prominent but barely angulated at the point of the base in advance of the pillar ; the canal is shallow and open, with a very reverted funnel-edge. *Inner lip* concave, with a thick, narrow, defined labial pad, running down the very short pillar, whose point is sharp and expanded, but not flanged. *Operculum* plain-edged, small, triangular, slightly subspiral, having its apex terminal and bent in towards the left. H. 0.57. B. 0.33. Penultimate whorl, height 0.14. Mouth, height 0.25, breadth 0.2.

Mr. Marrat considers this species "very closely allied to *N. Woodwardi*, Forbes" and from this fact I have derived its name. It is certainly liker that than any thing else I know, but is very markedly distinct. That species has a conical spire, a long, narrow, oblique body-whorl, with a short penultimate whorl, and a produced base, on which the pillar and canal-edge project prominently ; the whorls are conical ; the suture is not margined so much by a bare shoulder below, as by a row of coarse blunt tubercles ; its ribs and spirals are broad and square ; and their intersection produces square and very blunt tubercles, of which there are about 30 in each whorl ; the outer lip is thick and toothed, and the pillar is comparatively long. The absence of the crimson-brown bands of that species proves nothing ; for these might quite naturally be absent in deep-sea specimens.

Buccinum spinulosum, Phil. (Enum. II. 191, xxvii. 13) seems

to have many points of resemblance. In shape as well as in sculpture it is very like; only both ribs and spirals are much stronger; the mouth, too, is oval, but it is pointed above and is longer below, *N. ephamilla* having a broader and more truncate base. My estimate on all these points, however, is based on Philippi's description and figure, the species itself being unknown to me.

MOLLUSCA OF H.M.S. 'CHALLENGER' EXPEDITION.—Part XIV.

By the REV. ROBERT BOOG WATSON, B.A., F.R.S.E., F.L.S.

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[Read March 16, 1882.]

Fam. MURICIDÆ, *Flem.*

Gen. FUSUS, *Lam.*

Gen. TROPHON, *de Montf.*

In the following group are several interesting forms, especially some of the *Siphos* and *Trophons*; but of them all, probably the most remarkable is one which, for the present, I have called *Fusus (Colus) pagodoïdes*. I have no doubt that in the long run it, with the two species of *Fusus* which here precede it, and many of the *Trophons* will be classed with the *Fusus pagoda*, Less., and the *Pleurotoma spinicincta*, v. Mart., for which last Prof. v. Martens has lately proposed a subgenus (*Columbarium*), based chiefly on the radula. Of this organ Mr. G. Schacko describes and figures two very curious teeth, which were the only ones he was able to obtain from the dried-up specimen in his hands. If I have not adopted Prof. v. Martens's classification here, it is because his paper reached me only a very few days ago, and time has not sufficed to consider the matter in all its bearings.

Gen. FUSUS, *Lam.*

Subgen. METULA, *H. & A. Ad.*
SIPHO (*Klein*), *Mörch.*

Subgen. NEPTUNA, *Bolten.*
COLUS, *Gray.*

1. *Fusus (Metula) philippinarum*,
n. sp.
2. *F. (Sipho) —*, n. sp.
3. *F. (S.) pyrrhostoma*, n. sp.
4. *F. (S.) calathiscus*, n. sp.
5. *F. (S.) setosus*, n. sp.
6. *F. (S.) scalaris*, n. sp.
7. *F. (S.) regulus*, n. sp.

- Fusu : (Sipho) edwardiensis*,
n. sp.
9. *F. (Neptunea) Dalli*, n. sp.
10. *F. (N.) futile*, n. sp.
11. *F. (Colus) radialis*, n. sp.
12. *F. (C.) sarissophorus*, n. sp.
13. *F. (C.) pagodoïdes*, n. sp.



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