

7. ON THE SPECIES OF MURICINÆ FOUND IN JAPAN.

BY ARTHUR ADAMS, F.L.S.

In the recent 'Mollusca Japonica' of Dunker three species of *Murex* only are enumerated, one of which belongs more properly to the purpuroid genus *Sistrum*. During my recent explorations in Japan I collected upwards of twenty-six species of the genus, taken in its Lamarckian sense, besides three species of *Typhis* and ten of *Trophon*. In the southern parts of the Sea of Japan we find a few examples of the long-beaked spiny *Murex* proper and the *Chicoreus* of Montfort, a group with frondose and branching varices. In the north these seem to give place to the winged *Muricinæ*, composing the groups named *Pteronotus* and *Phyllonotus* by Swainson; and further north still to the fusoid *Trophon* of Denys de Montfort, with lacinated varices. The *Muricidea* of Swainson, composed of small coronate forms, also comes into notice, as does also the monoceroid *Cerastoma* of Conrad, which, with a muriciform shell, has a purpuroid operculum like that of *Vitularia*.

1. MUREX, Linn.

1. MUREX TRIBULUS, Linn.

Murex tribulus, Linn. Syst. Nat. 12 ed. p. 1214; Reeve, Mon. Murex, sp. 82.

M. crassispina, Lam.

M. tenuispina, Kien., not Lam.

Hab. Simidsu.

2. MUREX TENUISPINUS, Lam.

Murex tenuispina, Lam. An. s. Vert. ix. p. 566; Reeve, sp. 85.

Hab. O-Sima.

3. MUREX ADUNCOSPINOSUS, Beck.

Murex ternispina, Sow.

M. aduncospinosus, Reeve, sp. 93.

Hab. Kuro-Sima.

4. MUREX SOBRINUS, A. Ad.

M. testa ovata, spira acuta; anfractibus 7, convexis, longitudinaliter nodoso-plicatis, transversim liratis, varicibus tribus, valde spinosis, spinis duabus uncinatis acutis; apertura vix circulari, canali recto, clauso, valde producto, ad basin spinoso, ad extremitatem rufo-fusco variegato: pallide fusca, fascia transversa lata rufo-fusca (in anfractu ultimo duabus) ornata.

Hab. Satanomosaki, 55 fathoms; Gotto, 48 fathoms; Kuro-Sima, 29 fathoms.

This *Murex* is very similar to several others in the same group, but cannot be correctly referred to any of the species already described. There are two red-brown bands on the last whorl, and the end of the long straight beak is variegated with the same colour.

2. CHICOREUS, Montf.

1. CHICOREUS SINENSIS, Reeve.

Murex sinensis, Reeve, Conch. Icon. sp. 25.

Murex elongatus, var., Sow. Conch. Illust. fig. 88.

Hab. Tatiyama; Mososeki.

2. CHICOREUS ADUSTUS, Lam.

Murex adustus, Lam. An. s. Vert. ix. p. 573; Reeve, Mon. Mur., Conch. Icon. sp. 29.

Hab. Tatiyama; Tsu-Sima.

3. PTERONOTUS, Swains.

1. PTERONOTUS TALIENWHANENSIS, Crosse.

Murex talienwhanensis, Crosse, Journ. de Conch. 1862, 3rd ser.

t. ii. pl. 1. f. 9.

Hab. Tsaulian.

2. PTERONOTUS EURYPTERON, Reeve.

Murex eurypteron, Reeve, Conch. Icon. pl. 34. f. 176; Zool. Voy. Samarang, Moll. pl. 8. f. 1 a, b.

Hab. Mino-Sima, 63 fathoms.

3. PTERONOTUS BRACHYPTERON, A. Ad.

P. testa ovato-fusiforimi, tenui, pallide fusca, castaneo sparsim maculata, linea albida transversa in anfractu ultimo ornata, trifariam varicosa; anfractibus sex, convexis, longitudinaliter crebre laciniatis, transversim liratis, liris inæqualibus crenulatis; apertura ovata, labro margine fimbriato, canali mediocri, clauso, recurvato.

Hab. Uruga, 12 fathoms.

This is a thin, somewhat ventricose species, with the winged varices peculiar to the group shorter than in the allied forms. The whorls are variegated with deep chestnut-brown, and there is a faint white transverse line in the middle of the last whorl.

4. PTERONOTUS GOULDI, A. Ad.

P. testa ovato-fusiforimi, fusca, maculis castaneis sparsim ornata, trifariam varicosa; spira acuta; anfractibus 6, planis, postice subangulatis, transversim liratis, liris inæqualibus, confertis, varicibus breviter foliaceis, marginibus denticulatis, postice spina valida dentiformi instructis; apertura ovata, integra; labro margine late fimbriato, canali recto, clauso, producto.

Hab. Tsu-Sima.

In this species the varices are short, and furnished with a strong tooth-like spine at the hind part; and the straight, closed canal is more elongate than is usually the case in this group.

5. PTERONOTUS STIMPSONI, A. Ad.

P. testa ovato-fusiforimi, pallide fusca, trifariam varicosa; spira

acuta; anfractibus 7, planis, postice angulatis, transversim valde liratis, liris æqualibus, lævibus, interstitiis clathratis, varicibus late foliaceis, postice dilatatis et rotundis; apertura ovata, antice acuminata; labro margine late fimbriato, canali brevi, clauso, recto.

Hab. Uruga, 21 fathoms.

A very neatly sculptured species, with the foliate varices of the whorls posteriorly rounded.

4. PHYLLONOTUS, Swains.

1. PHYLLONOTUS FALCATUS, Sow.

Murex falcatus, Sow. Proc. Zool. Soc. 1840; Reeve, Conch. Icon. *Murex*, sp. 61.

Murex aduncus, Sow., var.

Hab. Satanomosaki; Tusaki; Tatiyama.

2. PHYLLONOTUS CORONATUS, A. Ad.

P. testa ovato-trigonalis, fusca, spira conica; anfractibus 6, planis, postice angulatis, liris quatuor, validis, transversis, interstitiis liris squamulosis confertis ornatis, varicibus septem, laciniatis, fimbriatis, postice late uncinatis; apertura oblonga, antice acuminata; labro margine postice angulato, extus fimbriato; canali aperto, brevi, vix recurvato.

Hab. Tsusaki, 35 fathoms.

A somewhat small, neat species, with the whorls very prettily coronate.

3. PHYLLONOTUS ACANTHOPHORUS, A. Ad.

P. testa ovato-fusiforimi, quinquefariam varicosa, solida, albida; anfractibus 5, in medio angulatis, superne planatis, transversim liratis, varicibus crassis, postice spina squamiformi triangulari armatis; apertura oblonga, antice acuminata; labro extus varicoso, crasso, fimbriato, intus valde crenato, canali clauso, antice recurvato, aperto.

Hab. Tsusaki, 37 fathoms.

A solid, triangular species, with a strong squamiform spine at the hind part of the thick prominent varices, which latter are composed of close-set crispate lamellæ. The operculum is purpuroid.

4. PHYLLONOTUS UNIFASCIATUS, A. Ad.

P. testa ovato-fusiforimi, subtrigonalis, quinquefariam varicosa, serotina, fascia transversa lata rufo-fusca in anfractu ultimo ornata; anfractibus 7, planis, postice angulatis, longitudinaliter crebre plicatis, plicis laciniatis crispatis, transversim valde liratis, liris inæqualibus, majoribus cum minoribus alternantibus, varicibus foliatis, brevibus, marginibus crenulatis, postice spina uncinata producta squamata instructis; apertura elongata, subtriangulari, canali aperto, subrecto.

Hab. Uruga, 12 fathoms.

A pale orange species, with a single broad red-brown band on the last whorl, and with the varices terminating posteriorly in a scale-like recurved spine.

5. CERASTOMA, Conrad.

1. CERASTOMA BURNETTII, Ad. & Reeve.

Murex burnettii, Ad. & Reeve, Moll. Voy. Sam. pl. 8. f. 4 *a*, *b*.
Hab. Hakodadi.

2. CERASTOMA EMARGINATUM, Sow.

Murex emarginatus, Sow. Conch. Illus. f. 98, 100.
Hab. Japan (teste Sow.).

3. CERASTOMA RORIFLUUM, Ad. & Reeve.

Murex rorifluus, Ad. & Reeve, Moll. Voy. Sam. pl. 8. f. 2 *a*, *b*.
Hab. Tsu-Sima.

4. CERASTOMA MONACHUS, Crosse.

Murex monachus, Crosse, Journ. de Conch. 1862, 3rd ser. t. ii.
pl. 1. f. 9.
Hab. Tsaulian.

5. CERASTOMA FOURNIERI, Crosse.

Murex fournieri, Crosse, Journ. de Conch. 3rd ser. t. i. pl. 16.
f. 7.
Hab. Sea of Japan (teste Crosse).

6. OCENEBRA, Leach.

1. OCENEBRA JAPONICA, Dunker.

Murex japonicus, Dkr. Moll. Japon. pl. 1. f. 14.
Hab. Japan (Dunker).

2. OCENEBRA LACTUCA, Eschsch.

Murex lactuca, Esch. Zool. Atlas. taf. 9. f. 3 *a*, *b*; Midd. Beitr. zu einer Malac. Rossica, taf. 7. f. 1, 2.
Hab. Aniwa Bay, Saghaleen.

7. MURICIDEA, Swains.

1. MURICIDEA DIADEMA, A. Ad.

Murex diadema, A. Ad. Proc. Zool. Soc. 1853, p. 70.
Hab. Satanomosaki, 48 fathoms.

2. MURICIDEA CIRROSA, Hinds.

Murex cirrosus, Hinds, Moll. Voy. Sulph. pl. 3. f. 17, 18.
Hab. Mino-Sima, 63 fathoms; Satanomosaki, 48 fathoms.

3. MURICIDEA PUTEOLA, A. Ad.

M. testa ovato-fusiformi, spira elata, conica, pallide fusca; anfract. 5, in medio angulatis, liris transversis, validis, squamoso-

asperis, subdistantibus instructis, varicibus septem, transversim costato-spinosis et postice in spinas squamatas productis; apertura ovata, postice integra, canali brevi, aperto, recurvato.

Hab. Tsusaki.

A small species, with angular spinose whorls, and with a short, open, recurved canal.

8. TYPHIS, Montf.

1. TYPHIS MONTFORTII, A. Ad.

T. testa ovato-fusiformi, sordide carnicolore; spira producta; anfractibus 6, gradatis, planis, postice acute angulatis, lævibus, varicibus tribus crispatis, interstitiis tubulis productis, tubulo unico dorsali valde producto; apertura circulari, tubulosa, peritremate acuto, integro, producto, subreflexo, canali valde prolongato, recurvato, clauso; labro extus fimbriato.

Hab. Gotto, 48 fathoms; Okino-Sima, on the sands.

A beautiful little species, with an entire trumpet-like aperture, and with a single, long, tubular dorsal spine on the right side of the median varix.

2. TYPHIS JAPONICA, A. Ad.

T. testa oblongo-ovata, sublævigata, castanea, spira elata, apice mammillato, quinquefarium varicosa, varicibus rotundis, funiculatis, interstitiis tubulis pallidis, oblique truncatis, mediocribus instructis; apertura ovata, integra, canali brevi, clauso, subrecto.

Hab. Uruga, 21 fathoms.

This species is small, but very peculiar. It has rounded varices and rather short obliquely truncate tubes, which externally form pseudo-varices or rib-like ridges, extending down between the proper varices of the whorls.

9. TROPHON, Montf.

1. TROPHON CLATHRATUM, Linn.

Murex clathratus, L., Phil. Zeits. für Malak. 1845, p. 78.

Tritonium clathratum, Fabr.

Bucc. laciniatum, Martyn.

Murex lamellosus, Gm.

Fusus lamellosus, Gray.

Murex foliaceus minor, Chem.

Tritonium bamfi, Fabr.

Fusus bamffius, Donov.

Murex multicostatus, Eschsch.

Fusus scalariformis, Gould.

Hab. Aniwa Bay, Saghaleen; Olga Bay; Vladimir Bay.

2. TROPHON CRASSUM, A. Ad.

Murex crassus, A. Ad. Proc. Zool. Soc. 1851, p. 269.

Hab. Hakodadi.

3. TROPHON INCOMPTUM, Gould.

Trophon incomptus, Gould, Otia Conch. p. 125.

Hab. Hakodadi. Perhaps the same as *T. crassus*.

4. TROPHON LIRATUM, Couth.

Fusus liratus, Couth., Gould, Otia Conch. p. 64.

Hab. Castle Point, Manchuria, 20 fathoms.

5. TROPHON CRISPUM, Gould.

Fusus crispus, Gould, Proc. Bost. Soc. Nat. Hist. 1849, Exp. Shells, f. 279.

Hab. Rifunsiri, 37 fathoms; Sea of Okhotsk, 29 fathoms.

6. TROPHON ORPHEUS, Gould.

Fusus orpheus, Gould, Proc. Bost. Soc. Nat. Hist. 1849, Exp. Shells, p. 285.

Hab. Okosiri, 35 fathoms.

7. TROPHON CANDELABRUM, Ad. & Reeve.

Fusus candelabrum, Ad. & Reeve, Conch. Icon. sp. Mon. *Fusus*.

Hab. Tsusaki, 55 fathoms.

8. TROPHON FIMBRIATULUM, A. Ad.

T. testa ovato-fusiforimi, pallide fusca, spira producta; anfractibus 6, convexis, longitudinaliter subplicatis, transversim liratis, liris squamulosis, confertis, æqualibus; apertura ovata, integra; labro extus eleganter fimbriato, fimbria lata, margine laciniato, canali recto, clauso, producto.

Hab. Gotto, 48 fathoms; Kuro-Sima, 55 fathoms.

There are no varices on the whorls, except the broad fimbriate one which margins the outer lip. It is an elegantly formed species, with squamulose liræ crossing the very convex whorls.

9. TROPHON CONCINNUM, A. Ad.

T. testa ovato-fusiforimi, solida, cinerea, liris concentricis nodulosis et plicis tenuibus longitudinalibus decussata; anfractibus 5, in medio subangulatis; spira acuto-conica; anfractu ultimo in rostrum contortum subito contracto; apertura angusta, ovata, antice in canalem obducta; columella arcuata, lævi.

Hab. Rifunsiri, 35 fathoms.

This little neatly sculptured species resembles in some particulars *Fusus crispus* of Gould; but the transverse liræ are nodulous and crowded, and the longitudinal lacinated plicæ are close together, whereas in *T. crispus* the whorls are finely cancellated.

10. TROPHON TANTILLUM, A. Ad.

T. testa parva, ovato-fusiforimi, alba, nitida, lamellis laciniatis longitudinalibus lirisque crispatis transversis late cancellata; anfract. 6, in medio angulatis, rostro brevi vix recurvo; apertura

angusta, subovata; columella rectiuscula, lævi; labro margine incrassato, late reflexo, postice subsinuato.

Hab. Satanomosaki, 55 fathoms.

This is a beautiful little white cancellated species, with a dilated variced outer lip, and with the aperture produced anteriorly into a very short canal.

The following list of additions made to the Menagerie during the month of November was read to the Meeting:—

		Presented by
2 pairs of Italian Cattle ...	<i>Bos taurus</i> , var.	} His Majesty The King of Italy.
2 Chamois	<i>Rupicapra tragus</i>	
2 Ibex	<i>Capra ibex</i> , hybrid	
1 Alexandrine Parrakeet ...	<i>Palæornis alexandri</i>	Mrs. Roper.
1 Sea-Eagle	<i>Haliaëtus albicilla</i>	J. Sloman, Esq.
1 Bateleur Eagle, young ...	<i>Helotarsus ecaudatus</i> ...	— Monteiro, Esq.
1 young Herring Gull	<i>Larus argentatus</i>	Mrs. Thomas Page.
2 Iceland Falcons	<i>Falco islandicus</i>	S. L. Spencer, Esq.
1 Leopard.....	<i>Felis varius</i>	H.M. The King of Portugal.
6 Common Adders	<i>Pelias berus</i>	B. G. Dupper, Esq.
1 Malabar Squirrel	<i>Sciurus purpureus</i>	Sir Arthur Cotton.
1 Common Quail	<i>Coturnix dactylisonans</i> ...	Mrs. Jewitt.
1 Rhesus Monkey	<i>Macacus erythræus</i>	Dr. Clark.
8 Australian Porphyrios ...	<i>Porphyrio melanotus</i> ...	Dr. Mueller, C.M.
1 Eagle (Geneva).....	<i>Haliaëtus albicilla</i> ?	Thomas Kingscote, Esq.
1 Lizard	<i>Monitor gouldi</i>	} Purchased.
1 Egyptian Vulture	<i>Neophron percnopterus</i> ...	
1 Egyptian Cat	<i>Felis chaus</i>	
1 pair of Parrakeets	<i>Conurus holochlorus</i>	
1 Stock-Dove	<i>Columba ænas</i>	
1 Squirrel.....	<i>Sciurus dorsalis</i>	
1 Tree-Sparrow	<i>Passer montana</i>	
1 Gazelle (Algeria)	<i>Gazella cuvieri</i>	
3 Clapperton's Francolins ..	<i>Francolinus clappertonii</i>	
2 Hooper Swans	<i>Cygnus ferus</i>	