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CONTRIBUTION TO THE KNOWLEDGE ON INDIAN MARINE MOLLUSCS : FAMILY TEREBRIDAE

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INTRODUCTION

Members of family Terebridae are one of the most spectacular groups of shelled molluscs. Shells of the family Terebridae are very typical in nature. These are commonly known as auger shells. They take their vernacular name from their long, slender and pointed shell, which are often attractively coloured and delicately sculptured. The salient feature of the Terebrid shell, are smooth or with axial sculpture, spiral sculpture or combination of the both. Varices absent, usually with subsutural grooves, outer lip not thickened and without denticles or lirae, columella smooth or with a plait, presence of shallow to deep siphonal notch, with fasciolar band. They have close relationship with some other families like Turritellidae, Cerithidae and Pyramedellidae. Terebridae differs from Pyramedellidae by having no fasciolar band and often have lirae or denticles inside the outer lip, shells of Turritellidae and Cerithidae have no fasciolar band, but Cerithidae often have varices.

Terebrids are sand dwelling animals. In tropics the majority occur inter tidally and in the shallow sub-tidal, down up to about 40 meters. Sub-tidal species down up to about 350 meters, also occur in tropics, constituting more significant component of the fauna in temperate latitudes. All Terebrids are carnivorous, usually burrowing not exceeding the shell length. There are three different types of feeding mechanisms. (a) Radula and without poison apparatus; (b) there is a venom apparatus which injects venom by harpoon. (c) Without radula and venom apparatus in which the animal feeds the slow moving worms, which can be swallowed whole. Globally this family represented by about 265 species, with the greatest concentration of species in the Tropical Indo Pacific region (153 species). About 412 species were reported globally in different

names. Still there is confusion exist in ascertaining the number of species due to polymorphic nature of the family Terebridae in geographical differences among the morphological features in different species. Only 69 species are known from India and 12 species known from literature. Species of this family are predominantly grouped into the genus *Terebra* or *Hastula* with a few species remaining into the genus of *Diplomeriza* and *Impages*, one species remain in the genus *Terenolla*.

Indian Terebrids have been inadequately treated so far. Smith (1899) describes 18 species under 3 genera 2 subgenera from the collections present in the British Museum. Melvill and Sykes (1897, 1899) described about 3 species from Andaman Islands. Smith (1877-1906) described four species and reported about 24 species from Andaman seas. Preston (1908, 1914) described 4 species from Orissa coast. Ray (1948) described 3 species of Terebrids from Orissa coast.

Subba Rao *et al.*, (1991) reported 6 species under two genera from Orissa coast. Surya Rao *et al.* (1992). Subba Rao *et al.* (1992) reported about 3 species under one genera from Digha coast of West Bengal. Subba Rao and Dey (2000) reported about 25 species belongs to 4 genera in their catalogue of marine gastropods from Andaman and Nicobar Islands. Subba Rao (2003) reported 15 species belongs to 4 genera of family *Terebridae* from different locations of Indian coast. Surya Rao (2004) reported about 2 species belongs to 2 genera from Gujarat coast and Ansari *et al.* (2006) reported of 6 species of genus *Terebra* from Andaman.

The objective of this work is to update our knowledge on Terebridae of India. The present account deals with the 52 species inhabiting the Indian seas. It includes the up to date nomenclature, synonymy, distinctive features, affinity and their distribution.

MATERIALS AND METHODS

This work is based on the large collection of Terebridae present in the National Zoological Collection of Zoological Survey of India obtained from the following sources.

i) Shore collections from Indian main land and its adjoining islands by surgeons Naturalists of Indian Marine Survey, Abroad RIMS 'Investigator' during 1887-1939.

ii) Collection brought by faunestic survey parties of Zoological Survey of India from different coastal areas.

PROCEDURAL TECHNIQUES

Morphological examination of the shell was carried out with the help of magnifying glass (10x) or under a binocular microscope.

All the measurements are given in millimeters (mm). For each species, largest and smallest were selected for measurements. Shell measurements are given in terms of maximum dimension along the longitudinal axis (Length) maximum dimension along body whorl (Width) and the maximum length of the aperture (Aperture length). All the measurements were taken with the help of a dial caliper.

In the descriptive part the usual procedure employed by malacologist is followed for the sake of uniformity.

The systematic arrangement of genera and species is mainly based on Vaught's classification (1989).

HISTORY OF CLASSIFICATION

Adanson, (1757) in his voyage to Senegal instituted the genus *Terebra*, to include those Species, which Linnaeus (1857) after wards included in his genus *Buccinum*. It is true that Adanson's genus brought together two distinct form of molluscs; one group belonging to the *Buccinum*, to comprehended within that genus; whilst the other contains species which have been considered by Bruguiere (1789) and Lamarck (1822) as typical of the genus *Terebra* and this genus, so reconstituted, has been recognized of all naturalists.

Not withstanding this unanimity with respect to the genus, an attempt has been made by Schumacher (1817) and supported by Blainville (1825) to make an alteration in its constitution. Schumacher in fact proposes to give the name *Terebra* to the *Bucciniform* species, and call the others by a new generic name reformed by Bruguiere and Lamarck. This change might have been brought about it during the time of Adanson, the genus

Buccinum had not been established by Linnaeus, since which period it has only been necessary to embrace under it the two species erroneously referred to the *Buccinum* of Adanson and this way the genus becomes naturally constituted. The nomenclature of Bruguiere and Lamarck ought therefore to be retained. The inutility of the genus *Subula* of Schumacher is in this manner demonstrated. No one had dreamt of this genus till Adams and Adams attempted to establish in their work instituted "The Genera of Recent Molluscs"

Terebra have the closest relation to *Buccinum*, as conchologist well known, and it fell to Lamarck to introduce two species of the *Buccinum* amongst the *Terebra*. And the reversal has also taken place, for some true *Terebra* have been ranged with *Buccinum*. These facts show how these two genera are related; and so it seems natural to place first the species most nearly allied to *Buccinum* and lastly those with a farthest removed from them.

SYSTEMATIC LIST OF INDIAN SPECIES

Class GASTROPODA

Subclass PROSOBRANCHIA

Order NEOGASTROPODA

Superfamily CONOIDEA

Family TEREBRIDAE

Major Genera :

Genus *Diplomeriza*

Genus *Hastula*

Genus *Impages*

Genus *Terebra*

Genus *Terenolla*

Family TEREBRIDAE

1. Genus *Diplomeriza*

1. *Diplomeriza anomala* (Gray)
2. *Diplomeriza duplicata* (Linnaeus)
3. *Diplomeriza evoluta* Deshayes**
4. *Diplomeriza raphanula* Lamarck
5. *Diplomeriza spectabilis* (Hinds)
6. *Diplomeriza straminea* Gray
7. *Diplomeriza tiurensis* Schepman**
8. *Diplomeriza tricolor* (Sowerby)

2. Genus *Hastula*

1. *Hastula albula* (Menke)
2. *Hastula bacillus* Deshayes
3. *Hastula cinerea* Born
4. *Hastula diverse* Smith
5. *Hastula hastata* Gmelin

6. *Hastula inconstans* Hinds
7. *Hastula inconstans confusa* Smith**
8. *Hastula lanceata* Linnaeus**
9. *Hastula lauta* (Pease)
10. *Hastula matherionana* (Deshayes)
11. *Hastula penicillata* Hinds**
12. *Hastula solida* Deshayes
13. *Hastula strigilata* (Linnaeus)
14. *Hastula stylata* (Hinds)
15. *Hastula tenera* (Hinds)
16. *Hastula traillii* (Deshayes)

3. Genus *Impages*

1. *Impages hectica* Linnaeus

4. Genus *Terebra*

1. *Terebra areolata* (Link)
2. *Terebra affinis* Gray
3. *Terebra alveolata* Hinds
4. *Terebra amanda*. Hinds
5. *Terebra amoena* Deshayes
6. *Terebra anilis* (Roeding)
7. *Terebra babylonia*. Lamarck**
8. *Terebra bifrons* Hinds**
9. *Terebra cerithina* Lamarck
10. *Terebra chlorata* Lamarck
11. *Terebra cingulifera* Lamarck
12. *Terebra columellaris* (Hinds)
13. *Terebra commaculata* (Gmelin)
14. *Terebra crenulata* (Linnaeus)
15. *Terebra crenulata f. fimbriata* Deshayes*
16. *Terebra crenulata f. interlineata* Deshayes*
17. *Terebra decorata* Deshayes**
18. *Terebra deshayesi* Reeve
19. *Terebra dimidiata*. (Linnaeus)
20. *Terebra durgella* Ray
21. *Terebra felina* (Dilwyn)
22. *Terebra fenestrata* Hinds
23. *Terebra funiculata* Hinds
24. *Terebra guttata* (Roeding)
25. *Terebra laevigata* Gray
26. *Terebra maculata* (Linnaeus)
27. *Terebra macandrewii* Smith
28. *Terebra nebulosa* Sowerby
29. *Terebra nodularis* Deshayes**
30. *Terebra pertusa* Born
31. *Terebra polygyrata* (Deshayes)
32. *Terebra punctatostriata* Gray
33. *Terebra quoygaimard* Cernohorsky
34. *Terebra roseata*. Adams & Reeve**
35. *Terebra subulata* (Linnaeus)
36. *Terebra succincta* Gmelin

37. *Terebra succinea* Hinds**
38. *Terebra tessellata* Gray**
39. *Terebra textilis* Deshayes
40. *Terebra tricincta*. Smith
41. *Terebra tricolor* Sowerby**
42. *Terebra triseriata* Gray
43. *Terebra undulata* Gray
44. *Terenolla pygmaea* Hinds**

**Literature only *forms

Class GASTROPODA

Subclass PROSOBRANCHIA

Order NEOGASTROPODA

Superfamily CONOIDEA

Family TEREBRIDAE

Family TEREBRIDAE Moersch

1852. *Terebrina* Moersch, *Cat. Conchyl. Yoldi* 1., p. 741-853.
Acusidae Gray. *Ann. Mag. Nat. Hist. Ser. 2*, 14(62) :
 129 (based on *Acus* Gray, 1847—non Lecepede, 1803).
 1853. *Terebrinae* H & A. Adams, *Gen. Rec. Moll.*, 1 : 224.
 1969. *Pervicaciidae* Rudman, *Veliger*, 12(1) : 63.

Diagnostic Characters : Shell variable in shape, generally fusiform, with a high slender spire. Outer surface with many sculptural patterns composed of spiral or axial to oblique ribs and cords, grooves, nodules or spines. Often present with periostracum. Aperture more or less elongate, siphonal canal well marked, short to long, outer lip thin and sharp. A characteristic slit or notch along the posterior part of the outer lip, which is reflected in the growth line made by the lip.

Key to the Genera

1. Suture distinctly separated, absence of a heavy callous on the parietal wall *Terebra* Bruguiere
 — Suture indistinctly separated, presence of a narrow callous band *Impages* Smith
2. Spiral sculpture absent; siphonal canal with a deep notch *Hastula* Adams & Adams
 — Spiral sculpture present; siphonal canal without a deep notch; axial ribs prominent, spiral grooves deep *Diplomeriza* Dall

Genus *Diplomeriza* Dall 1908

Diplomeriza duplicata Linnaeus, 1758

Diagnostic Characters : Shell solid, glossy, medium in size, aperture small and ovate, sculptured with prominent axial ribs and deep spiral grooves at suture. Interstices narrow and smooth, with stain, pre-sutural band below the suture divides by grooves with folded whorls.

Genus *Diplomeriza*, Dall 1908*Diplomeriza duplicata* Linnaeus, 1758Key to the species under the Genus *Diplomeriza*

1. Columella strongly twisted fasciole with a ridge, suture with sub-sutural band *straminea*
- Columella slightly twisted, fasciole without a ridge, suture without sub-sutural band 2
2. Whorls flatly convex, ornamented with square orange spots *raphanula*
- Whorls straight sided, without any ornamentation 3
3. Earlier whorls expanding, axial ridge above and below on all whorls *spectabilis*
- Earlier whorls expanding, axial ridge above and below on all whorls *spectabilis*
- Earlier whorls not expanding, with out axial ridge 4
4. Shell with a peripheral band; pale spiral band with isolated brown spots *duplicata*
- Shell without a peripheral band; absence of pale spiral band with brown spots 5
5. Whorls flatly convex, smooth with 3 distinct orange red lines *tricolor*
- Whorls folded above, without any colored lines, axial ribs straight not continuous on entire whorl *anomala*

1. *Diplomeriza anomala* Gray

(Pl. 1, Fig. 1)

1834. *Terebra anomala* Gray, *Proc. zool. Soc. Lond.*, p. 62 : (habitat : Singapore).
1844. *Terebra anomala* : Hinds *Thes conch.* p. 180. Pl. 45. figs. 101-102.
1859. *Terebra anomala* : Deshayes *Proc. zool. Soc. Lond.*, 27 p. 291 Sl. No. 81.
1860. *Terebra anomala* : Reeve, *Conch. Icon*, **12**, *Terebra*. Pl. 12; fig. 36.

Material examined : Chennai coast (26 exs).*Measurements* (mm) : Length : 15.30-34.00, Width : 3.70-7.00 Aperture length : 2.30-5.40

Description : Shell small in size, up to 34 mm in height, spire pointed, whorls about 12 and folded above; aperture broad and quadragular, columella straight and little calloused. Suture divided by an impressed punctuate line. Shell smooth polished with a whitish band on the periphery.

Remarks : The chief distinct feature of this species is the wavy spiral groove or impressed line which divides the whorls a little below the suture.

Distribution : India : Tamilnadu. Chennai Coast.*Elsewhere* : Philippines, Sandwich Island, Singapore.2. *Diplomeriza duplicata* (Linnaeus)

(Pl. 1, Fig. 2)

1758. *Buccinum duplicatum* Linnaeus, *Syst. Nat.* **10** : 758, **12** : 1206.
1767. *Diplomeriza duplicata* Linnaeus, *Syst. Nat.*, ed. **12** : 1206.
1839. *Terebra lamarcki* Kiener, *Icon des Coq. Viv.* p. 30, t. 9, fig. 19.
1857. *Terebra reevei* Deshayes, *J. Conchyl.*, **6** : p. 65-102, pl. 35.
1906. *Terebra duplicata* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.
1921. *Terebra duplicata* : Hornell, *Madras Fish. Bull.*, **14** : 141.
1942. *Duplicaria duplicata* : Gravely, *Bull. Madras Govt. Mus. New Ser. (Nat. Hist.)*, **5**(2) : 80.
1952. *Duplicaria duplicata* : Satyamurti, *Bull. Madras Govt. Mus. New Ser. (Nat. Hist.)*, **1**(2) : 214. Pl. 21, fig. 5.
1952. *Terebra duplicata* : Subramanyam, Karandikar and Murti, *J. Univ. Bombay*, **21**(3) : 55. Fig. 171.
1961. *Duplicaria duplicata* : Menon, Datta Gupta and Gupta, *J. Bombay nat. Hist. Soc.*, **58**(2) : 490, Pl. 9, fig. 77.
1986. *Duplicaria duplicata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, *Zool. Surv. India*, p. 173.
1990. *Duplicaria duplicata* : Pinn, *Sea Shells of Pondicherry*, Nehru Science Centre, p. 109, fig. 200.
2000. *Diplomeriza duplicata* : Subba Rao and Dey *Rec. zool. Surv. Ind. Occ. Paper*, **187** : p. 175.
2003. *Duplicaria duplicata* : Subba Rao, *Rec. zool. Surv. Ind. Occ. Paper*, **192** : pl. 87, fig. 2 & 3 and pl. 89, fig. 6-7.
2004. *Diplomeriza duplicata* : Rao, Maitra, Barua and Ramakrishna, *Fauna of Gujarat, State Fauna series*, **8**(2) : 324. *Zool. Surv. India*.
2007. *Diplomeriza duplicata* : Ramkrishna, Dey, Barua and Mukhopadhyaya, *Fauna of Andhra Pradesh, State Fauna series*, **5**(7) : 136, XI, figs. 131 & 132. *Zool. Surv. India*.

Material examined : Andamans (9 exs), Gujarat (2 exs). Tamil Nadu (5 exs).*Measurements* (mm) : Length : 47.70-52.50, Width : 8.00-8.30 Aperture length : 8.10-8.80.

Description : Shell of medium size, up to 50 mm in height, narrowly elongate with 15 to 17 whorls. Aperture small and ovate, columella twisted, anterior canal recurved. Sculptured with a deep sutural groove, 25-30 flat and close set of axial ribs, whorl divided by a spiral groove above the middle. Shell glossy, cream or brown coloured with darker rusty brown transpirally elongate markings with a pale band just above suture.

Remarks : It can be differentiated by the presence of deep sutural groove and flat close set of axial rib in transparent in appearance.

Distribution : India : Tamil Nadu : Madras, Gulf of Mannar (Tuticorin, Pamban, Krusadai Islands), Andaman Islands.

Elsewhere : China, Indo-Pacific (common) Madagascar, Malacca's, Singapore, Viti Islands.

3. *Diplomeriza raphanula* Lamarck
(Pl. 1, Fig. 3)

1822. *Terebra raphanula* Lamarck, *Anim. Sans. Nat.* **10** : p. 246.
 1839. *Terebra raphanula* : Kiener, *Icon. des Coq. viv.* p. 21, (16); pl. 10, fig. 20.
 1844. *Terebra raphanula* : Hinds. *Thes Conchyl.* P. 159. (23) : pl. 44, fig. 94.
 1898. *Terebra raphanula* : Melvill and Sykes, *Proc. malac. Soc. London*, **3** : 43.
 1986. *Duplicaria raphanula* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands. Zool. Surv. India*, p. 173.
 1990. *Duplicaria raphanula* : Pinn, *Sea Shells of Pondicherry*, Nehru Science Centre, p. 110, fig. 202.

Material examined : Andamans (5 exs), Marine survey (2 exs), Kerala (3 exs), Karnataka (4 exs).

Measurements (mm) : Length : 38.10-46.70, Width : 8.30-8.50 Aperture length : 10.00-10.60.

Description : Shell somewhat cylindrical, up to 46 mm in height, whorls flatly convex gives some what tower like appearance, whorls divided at the upper part by a sharp groove, the folds disappearing on the last whorl, aperture squarish, columella slightly recurved. Ornamented with longitudinally square orange spots and red dotted at the sutural margin.

Remarks : It can be differentiated from other species by its more slender and shiny distinct tessellated ash colour.

Distribution : India : Andaman Islands.

Elsewhere : South Africa, Fiji Island, Philippines.

4. *Diplomeriza spectabilis* Hinds
(Pl. 1, Fig. 4)

1844. *Terebra spectabilis* Hinds, *Proc. zool. Soc. Lond.*, pl. 11, p. 153.
 2003. *Terebra spectabilis* : Subba Rao, *Rec. zool. Surv. Ind. Occ. Paper*, **192** : 319, pl. 87.

Material examined : Andamans (8 exs).

Measurements (mm) : Length : 10.50-17.00, Width : 2.90-4.50 Aperture length : 2.70-4.20.

Description : Shell solid, 17 mm in height, glossy, straight sided but earlier whorls expanding more rapidly

than later ones, last whorl roundly keeled at base, suture deep; deep sutural groove has crowded, straight, axial ridges above and below on all whorls, smooth between ridges, siphonal canal strongly recurved, amber with white band above and below suture, columella white.

Remarks : A gracefully colored species, encircled by a marked depression above and below the suture.

Distribution : India : Andaman Islands.

Elsewhere : Guinea, Pakistan, Sumatra, Tasmania.

5. *Diplomeriza straminea* Gray
(Pl. 1, Fig. 5)

1843. *Diplomeriza straminea* Gray, *Proc. zool. Soc. London*, **11** : 62.
 1839. *Terebra babylonia* Var. Kiener, *Icon. Decay* **5** : pl. 14, fig. 35a.
 1859. *Terebra approximata* Deshayes, *Proc. zool. Soc. Lond.*, p. 299, sp. no. 125.
 1898. *Terebra straminea* : Melvill and Sykes, *Proc. malac. Soc. London*, **3** : 43.
 1908. *Terebra unicolor* Preston, *Rec. Indian Mus.*, **2** : 190, pl. 17, fig. 65.
 1986. *Duplicaria straminea* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands, Zool. Surv. India*, p. 173.
 2000. *Diplomeriza straminea* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.* **187** : 175.

Material examined : Andaman (4 exs).

Measurements (mm) : Length : 54.60-65.20, Width : 9.00-10.30 Aperture length : 8.60-10.00.

Description : Shell large and slender, up to 65 mm in height, about 21 whorls, whorls convex, spirally and finely ridged, aperture narrowly oval, columella twisted and recurved at the base, outer lip thin. Sculptured with fine axial and spiral lines, suture deep, interstices rather excavated, swollen and turreted suture impressed with orange or brown color.

Remarks : It nearly allied to *T. quoygaimard*. It can be identified by the sculpture of fine incised grooves.

Distribution : India : Andaman Islands and Lakshadweep.

Elsewhere : Philippines, China.

6. *Diplomeriza tricolor* (Sowerby)
(Pl. 1, Fig. 6)

1825. *Diplomeriza tricolor* Sowerby, *Cat. Shell Tankerville, appendix*, p. 24.
 1833. *Terebra taeniolata* Quoy & Gaimaird, *Voy. De PAstr.* T ii. p. 466, pl. 36, fig. 25-2.
 1860. *Terebra deshayesii* : Reeve, *Conch. Icon.*, **12**, Fig. 45.
 1898. *Terebra tricolor* : Melvill and Sykes, *Proc. malac. Soc. London*, **3** : 43.
 1906. *Terebra tricolor* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.

1986. *Duplicaria tricolor* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 173.

2000. *Diplomeriza tricolor* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No. 187* : 175.

Material examined : Andamans (9 exs).

Measurements (mm) : Length : 33.70-55.40, Width : 5.80-8.60 Aperture length : 4.80-8.20.

Description : Shell large and slender, up to 56 mm in height, almost straight sided, whorls slightly convex, about 18-21 whorls, early whorls slightly crenulated and later one become smooth; aperture small, columella twisted recurved. Suture impressed, sutural band with creamy white in color, each whorl is covered by 3 distinct red-orange color spiral lines; shell orange fawn in color.

Remarks : It is characterized by a typical state, encircled with 3 distinct orange red lines; it differs very little from *T. cingulifera*.

Distribution : India : Andaman Islands.

Elsewhere : Indonesia, Japan and Tonga Islands.

Genus *Hastula* H. Adams & A. Adams, 1853

Type sp. : *Hastula (Hastula) strigilata* Linnaeus, 1758

Diagnostic Characters : Shell of moderate size, aperture wide, anterior canal very short with a wide deep notch; siphonal fasciole wide, with an indistinct groove, columella with a basal fold, callus curving inner wall, narrow axial ribs, which fade out on anterior part of whorls.

Key to species under genus *Hastula*

1. Axial ribs continue on entire body whorl, presence of a narrow pre-sutural band *inconstans*
— Axial ribs not continue on entire body whorl, absence of a narrow pre-sutural band 2
2. Nuclear whorl with brown color, with blackish brown rhomboidal blotches *strigilata*
— Nuclear whorls without color, without any blotches; body whorl with a color band 3
3. Body whorl with a narrow brown band, purple spot in upper part *cinerea*
— Body whorl with a broad white band, ornamented with short axial streaks 4
4. Shell shining brown, axial streaks forms a narrow band *stylata*
— Shell shining white, axial streaks not forming a band, well defined at suture 5

5. Upper part of suture with continuous plication, and with a sutural groove *albula*
— Upper part of suture without continuous plication and without a sutural groove 6
6. Shell elongate cylindrical, columella arched; suture without band *hastata*
— Shell short not cylindrical, columella twisted, suture with a band 7
7. Suture with red color band below, with interstices concave *tenera*
— Suture variously banded, interstices not concave, coloration on apex 8
8. Suture encircled with a narrow violet band, band becomes broad at base *trailli*
— Suture encircled with a purple band, band becomes narrow at base 9
9. Shell grayish, columella without callous, axial ribs straight *lauta*
— Shell brownish, columella with callous, spot below suture 10
10. Length of aperture more than half of the body whorl, pre-sutural margin with a pit *matherionana*
— Length of aperture less than half of the body whorl, pre-sutural margin without a pit 11
11. Axial ribs narrow and sharp; interstices with peculiar leaden ash colour *bacillum*
— Axial ribs broad and flat; interstices with orange colour *solida*

7. *Hastula albula* (Menke)

(Pl. 1, Fig. 7)

1843. *Terebra (Hastula) albula* Menke, *Moll. Nov. Holl. Spec.* p. 30, No. 163.
1844. *Terebra (Hastula) albula* : Hinds, *Thes conch.* p. 183. (93) Pl. 43, fig. 126.
1859. *Terebra incolor* Deshayes, *Proc. zool. Soc. Lond.*, p. 283.
1898. *Terebra casta* Lamarck : Melvil and Skyes, *Proc. malac. Soc.* London, 3 : 42.
1986. *Duplicaria albula* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 173.
2000. *Hastula albula* : Subba Rao and Dey *Rec. zool. Surv. Indi. Occ. Paper, 187* : 176.

Material examined : Andamans (6 exs).

Measurements (mm) : Length : 22.00-26.80, Width : 2.30-2.50 : Aperture length : 5.40-6.00.

Description : Shell small and cylindrical, up to 27 mm in height, about 9-11 flattened whorls, undivided,

closely plicated round the upper part plaits produced at the suture, whorls divided by an impressed punctate line near suture; aperture rather small, and columella rather short, weakly arched. Shell smooth, polished, ornamented with a whitish band on the periphery.

Remarks : This species is widely distributed, varies is slender and sculpture. Variability may occur due its habitats. This species does not have any encircling groove.

Distribution : India : Andaman Islands.

Elsewhere : Australia, Philippine, Straits of Malacca.

8. *Hastula bacillus* (Deshayes)

(Pl. 1, Fig. 8)

1859. *Terebra bacillus* Deshayes, *Proc. zool. Soc. Lond.*, pl. 25, sp. no. 134.

1959. *Terebra lactea* Deshayes, *Proc. zool. Soc. Lond.*, no. 52, p. 285.

1860. *Terebra bacillus* : Reeve, *Conch. Icon.*, 12, *Terebra* sp. 134, pl. 25, fig. a, b, c.

2008. *Hastula bacillum* : Mahapatra, *Fauna of Krishna Estuary, Estuarine Ecosystem series*, 5 : 136, Zool. Surv. India.

Material examined : Orissa (72 exs) Visakhapatnam (56 exs).

Measurements (mm) : Length : 13.15-18.75, Width : 2.85-3.46; Aperture length : 3.20-5.30.

Description : Shell solid, needle like, up to 18 mm in height, whorls sloping flattered, undivided, elongate plicate crenulated round the upper part, aperture small, columella arched and short. Ornamented with banded leaden ash—colour, shining, some times spotted beneath the sutures, apex lead colour.

Remarks : A shining solid shell, of transparent white, variously banded with a peculiar leaden ash colour.

Distribution : India : Orissa, Andhra Pradesh : Visakhapatnam, Bhimlipatnam.

Elsewhere : Red sea; Sandwich Island.

9. *Hastula cinerea* (Born)

(Pl. 1, Fig. 9)

1780. *Terebra cinera* Born, *Test. Mus. Caes. Vindobonesia* p. 267, pl. 10, fig. 11 & 12.

1843. *Terebra luctuosa* Hinds, *Proc. zool. Soc. Lond.*, p. 157.

1850. *Terebra jamaicensis* Adams, *Cont. conch.* p. 58.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 25.00-27.40, Width : 5.20-5.70; Aperture length : 5.40-6.60.

Description : Shell medium in size, up to 27 mm height, with pointed and long spire, whorls about 10-

12 sharply flattened; whorls, longitudinally finely striated; aperture small, columella callous, shining chestnut, straight, somewhat truncated. Ornamented with a dark brown, short axial streaks at suture which gives a narrow band appearance. Sculptured with narrow curved axial ribs which become obsolete in short distance before to the suture; body whorl with a white and brown band.

Remarks : Characterized by a uniform cinereous colored shining chestnut columella, and by the delicate concentric placations of the upper part of the whorls, round which there is only a scarcely perceptible depression in the place of the customary groove.

Distribution : India : Andaman Islands.

Elsewhere : Isles of Mindanao, Japan, Philippines, Polynesia and West Africa.

10. *Hastula hastata* (Gmelin)

(Pl. I, Fig. 10)

1791. *Buccinum hastatum* Gmelin, p. 3502, no. 144.

1828. *Terebra costata* Menke, *Syn. Mus.*, p. 84.

1839. *Terebra hastata*, Kiener, *Icon. Des Coq. Viv.*, 17 : p. 22, pl. 10, fig. 23.

1844. *Terebra hastata* Hinds, *Proc. zool. Soc. Lond.*, p. 162, no. 43.

1859. *Terebra crasula* Deshayes, *Proc. zool. Soc. Lond.*, p. 282, No. 37.

2000. *Hastula hastata* : Rao and Dey. *Rec. zool. Surv. Ind. Occ. Paper*, 187 : 176.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 14.60-26.50, Width : 3.00-6.50; Aperture length : 3.40-7.10.

Description : Shell elongate and cylindrical, keeled at base, whorls about 9-10, flattened, undivided, closely plicated round the upper part plaits produced at the suture, Axial ribs flat and continuous, aperture rather small, columella rather short and arched. Shell creamy white, ornamented with a white band at sutures, interstices smooth filled with dark—orange color. Pre-sutural groove is absent.

Remarks : Widely distributed species varying in slender and define of sculpture along to its habitat. It is one of the species which do not have pre-sutural groove.

Distribution : India : Andaman Islands.

Elsewhere : Australia, Philippines, Sandwich Island, West Indies.

11. *Hastula inconstans* (Hinds)

(Pl. 1, Fig. 11)

1844. *Terebra inconstans* Hinds, *Thes. Conch.*, p. 179, no. 85, pl. 44, fig. 83.

1859. *Terebra inconstans* Deshayes *Proc. zool. Soc. Lond.*, p. 291, no. 80.
 1860. *Terebra aciculina* Reeve. *Conch. Icon.*, **12**, *Terebra* sp. 134, pl. 25, fig. a, b, c.
 2003. *Terebra inconstans* : Subba Rao, *Rec. zool. Surv. Ind. Occ. Paper*, **192** : 338, pl. 89, fig. 1.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 23.80-29.80, Width : 6.30-7.10; Aperture length : 6.50-8.60.

Description : Shell small, up to 30 mm in height, thin, narrow and acicular with about 12 whorls. Aperture short broadly effused at base, columella calloused, very short and straight, keeled at base. Upper part of the whorls sculptured with elongate folded axial ribs. Color shining white, with pale band towards base, sutures white with pale band and brown dots below.

Remarks : This species has much of general character of *T. anomala* but whorls are continuous entire and the shells are more acuminate of the body.

Distribution : India : Andamans; Tamil Nadu : Tranquebar.

Elsewhere : Marques Island, Sandwich Islands.

12. *Hastula lauta* (Pease)

(Pl. I, Fig. 12)

1869. *Terebra lauta*, Pease, *Am. Journ. Conch.*, **5**, p. 66.
 1967. *Hastula lauta* : Cernohorsky. *Marine shells of Pacific*, **1**, p. 210, fig. 404.
 2003. *Terebra lauta* : Subba Rao, *Rec. zool. Surv. India, Occ. Paper No. 192*, p. 339, pl. 89, figs. 8 & 9 (only description not figures).

Material examined : Andaman (2 exs).

Measurements (mm) : Length : 21.50-22.00, Width : 4.50-4.70; Aperture length : 4.30-4.60.

Description : Shell solid, sub-cylindrical in shape up to 22 mm in height with about 12 whorls, aperture small; sculptured with strong longitudinally plicated axial ribs, the placcations are regular, sharp and extending across the whorls, the interstices with a single row of punctuation near the suture; deep spiral groove at suture; leaden gray to orange brown in color, ornamented with polished banded with yellow, bearing a row of chestnut spots at the suture with a pale peripheral band, beneath which the body whorl is chestnut colored.

Remarks : This species is nearly allied to *H. strigilata* but it can be identified by sharp plication and the line of punctuation which indicate a sutural space and no demarcation defined upon the in the ribs.

Distribution : India : Andaman Islands.

13. *Hastula matheroniuna* (Deshayes)

(Pl. I, Fig. 13)

1959. *Terebra matheroniuna* Deshayes. *Proc. zool. Soc., Lond.* : p. 287, no. 60, pl. 27.
 1860. *Terebra aciculina* Lamarck, Reeve *Proc. zool. Soc., Lond.*, pl. 23, sp. no. 121.
 1869. *Terebra strigilata* Linnaeus, Pease, *Am. J. Conch.*, **4**, p. 123.
 1885. *Terebra lauta* Pease, Tryon, *Man. Conch.* **7** : 33, pl. 10, fig. 91 (figd. Type specimen).
 2000. *Hastula matheroniuna* : Subba Rao and Dey. *Rec. zool. Surv. Ind. Occ. Paper No. 187* : 176.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 18.50-21.00, Width : 3.60-4.50; Aperture length : 4.30-4.80.

Description : Shell solid, small up to 21 mm in height, spire long and pointed, whorls about 14, whorls slopping flattened, undivided. Longitudinal placcations are continuous to the base of the whorl, aperture small and narrow, broadly effused at the base, other lip thin, columella very short, callous, and straight keeled at base. Color white or ash, shining, ornamented with pale band towards the base, suture white, encircled with elongated brown dots. Body whorl with a white band.

Remarks : Longitudinal plications are continuous to the base of the whorl, and the aperture is small and narrow and not patulateas. This species varies little in form, except in having the plicated sculpture more or less strongly developed. It is nearly allied to *H. strigilata*.

Distribution : India : Andaman Islands.

Elsewhere : Manila, Singapore, Sandwich Islands.

14. *Hastula solida* (Deshayes)

(Pl. I, Fig. 15)

1859. *Terebra solida* Deshayes *Proc. zool. Soc., Lond.*, p. 282, no. 36.
 1898. *Terebra solida* : Melvill and Skyes, *Proc. malac. Soc., London*, **3** : 42.
 1967. *Hastula solida* : Cernohorsky. *Marine shells of Pacific*, **1**, p. 212, pl. 54, fig. 408.

Material examined : Andamans 1 ex.

Measurements (mm) : Length : 18.50, Width : 4.60; Aperture length : 3.20.

Description : Shell solid, with pointed spire, whorls about 9-12, nuclear whorls light orange in colour aperture broad, columella straight, little callous. Sculptured with 14-18 broad and flat axial ribs; white ornamented with a narrow fawn band; interstices are smooth and often stained with orange.

Remarks : This species can be identified with the aid of axial ribs are flat and broad; stained with orange colour.

Distribution : India : Andaman Islands.

Elsewhere : Tropical Pacific, uncommon (Cernohorsky, 1967).

15. *Hastula strigilata* Linnaeus
(Pl. I, Fig. 14)

1758. *Buccinum strigellatum* Linnaeus, *Syst. Nat.*, ed., **10** : 741 (Type locality : O Asiatic).

1844. *Terebra strigilata* Hinds, *Thes. Conch.* p. 180, pl. 45, figs. 101-102.

1859. *Terebra modesta* Deshayes, *Proc. zool. Soc., Lond.* : p. 288, No. 64.

1967. *Hastula strigilata* : Cernohorsky, *Marine shells of Pacific*, **1**, p. 154, fig. 409.

Material examined : Orissa (12 exs).

Measurements (mm) : Length : 25.60-28.35, Width : 5.60-6.20; Aperture length : 4.20-5.20.

Description : Shell medium in size, with pointed spire, up to 28 mm in height, about 10-15 whorls; Whorls flat sided, aperture small, columella short, slightly twisted; color shining brownish gray, with white bands below suture, blackish brown rhomboidal on a white pre-sutural band. Sculptured with broad and flat axial ribs, interstices narrow and smooth; body whorl with a white peripheral band.

Remarks : White purple band with blackish brown rhomboidal below the suture helps to identify this species.

Distribution : India : Orissa; Tamil Nadu : Madras.

Elsewhere : Australia, Indonesia, Indo Pacific, Philippines, Sandwich Islands, Sri Lanka.

16. *Hastula stylata* (Hinds)
(Pl. I, Fig. 16)

1844. *Terebra stylata* Hinds, *Proc. Zool. Soc. Lond.*, **11** : p. 152.

1967. *Hastula stylata* : Cernohorsky, *Marine shells of Pacific*, **1**, p. 214, fig. 410.

1898. *Terebra confusa* : Melvill and Sykes, *Proc. malac. Soc. London*, **3** : 42.

2000. *Hastula stylata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 177.

Material examined : Andaman Islands (4 exs) Orissa (2 exs).

Measurements (mm) : Length : 25.60-36.50, Width : 5.60-7.40; Aperture length : 4.20-5.40.

Description : Shell medium in size, with pointed spire, up to 36 mm in height, about 10 whorls; aperture small,

columella callous, shining chestnut, straight, somewhat truncated, color shining brownish gray, Ornamented with dark brown short axial streaks at suture, which tend to form a narrow band. Sculptured with narrow curved axial ribs, which becomes obsolete before suture. Body whorl with a white and brown band.

Remarks : Narrow curved axial ribs which become obsolete a short distance posteriorly to sutures helps to identify this species.

Distribution : India : Andaman Islands, Orissa.

Elsewhere : Tropical Pacific.

17. *Hastula tenera* (Hinds)
(Pl. I, Fig. 17)

1843. *Terebra tenera* Hinds, *Proc. zool. Soc. Lond.*, p. 158.

1940. *Terebra tenera* : Crichton, *J. Bombay nat. Hist. Soc.*, **42** : 335.

1952. *Terebra tenera* : Subramanyam. *J. Univ. Bombay*, **21**(3) : 55, fig. 169.

1992. *Terebra tenera* : Subba Rao, Dey and Barua, *Fauna of West Bengal, State Fauna series*, **3**(9) : 200. *Zool. Surv. India*.

2004. *Terebra tenera* : Surya Rao, *Zool. Surv. India, State Fauna Series 8, Fauna of Gujarat*, p. 324.

Material examined : Andamans (5 exs) Gujarat (3 exs) Karnataka (5 exs).

Measurements (mm) : Length : 8.00-17.50, Width : 1.00-2.20, Aperture length : 1.50-1.90.

Description : Shell small and narrow, up to 17 mm in height, about 6-8 flattened convex whorls; aperture shining, oblong and small, columella little twisted; suture distinct beaded with red, surface almost smooth, polished with darkish spiral bands, ribs transpired, interstices distant concave.

Remarks : This little species, with its distinct varicose ribs has somewhat the appearance of *Mangelia* but, it can be identified with shell small, polished with darkish spiral bands, ribs transpiral.

Distribution : India : Gujarat, Karnataka, Maharashtra, Tamil Nadu, West Bengal.

Elsewhere : Pakistan, Sri Lanka, Straits of Malacca.

18. *Hastula trailii* (Deshayes)
(Pl. I, Fig. 18)

1859. *Terebra trailii* Deshayes, *Proc. zool. Soc. Lond.*, p. 285 no. 53. (Type locality : Viasigapatnam, Ocean Indian (= Visakhapatnam)).

1860. *Hastula trailii* : Reeve, *Conch. Icon.*, **12**, *Terebra* sp. 142, pl. 26, figs. 142a-b.

1991. *Hastula trailii* : Rao, *Zoological Survey of India, State fauna series*, **1. Fauna of Orissa (Part-3)** **148** : p. 90.

2003. *Hastula trailii* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper No.*, **192** : p. 338, pl. 89. fig. 3 & 4.

2007. *Hastula trailli* : Ramkrishna, Dey, Barua and Mukhopadhyaya, *Fauna of Andhra Pradesh, State Fauna series*, 5(7) : 136, XI, figs. 127 & 128. Zool. Surv. India.

Material examined : Orissa (99 exs). Andhra Pradesh (57 exs).

Measurements (mm) : Length : 13.35-25.92, Width : 3.05-4.60, Aperture length : 2.00-2.53.

Description : Shell small, narrow and needle shape, up to 26 mm in height, with flattened slopping whorls; whorls with ash colour spiral bands and indistinct spots below the suture. Aperture small, columella arched and short, ornamented with orange yellow color, encircled with a narrow violet band. Suture indistinct, surface almost smooth, except for elongate plications on the upper part of whorls, axial ribs continued up to the base.

Remarks : This species closely agrees with *H. bacillum* but differs from it in size. Coloration and absence of dark brown patch on the apex, axial ribs not continued to base.

Distribution : India : Andhra Pradesh : Vishakapatnam, Bhimilipatnam, Orissa, Tamil Nadu, Chennai.

Elsewhere : Indian Ocean.

Genus *Impages* Smith, 1873

Type sp : *Impages caerulescens* Lamarck, 1822

Diagnostic Characters : Shell moderate in size, with pointed spire, aperture broad at the base and triangular, columella smooth and stright, whorls entire, sculptured with fine deep grooves. Suture indistinctly separated, with a narrow callus band above it.

19. *Impages hectica* (Linnaeus) (Pl. I, Fig. 19)

1758. *Buccinum hecticum* Linnaeus, *Syst. Nat.* ed. 10; 758 ed 12 : 1206.

1791. *Buccinum niveum* Gmelin, *Linn.*, ed xiii, p. 3504.

1817. *Buccinum bifasciatum* Dillwyn, *cat.*, ii, p. 651, No. 155.

1822. *Terebra caerulescens* Lamarck, *Anim. sansvert.*, x. p. 245.

1828. *Buccinum terebrale* Menke *Syn. Mus.*, p. 84.

1839. *Terebra castanea* Kiener, *Icon. Des Coq. Viv.*, p. 22, No. 17, pl. 9, fig. 23.

1843. *Bullia fuscus* Gray, *Proc. zool. Soc. Lond.*, p. 62.

1844. *Terebra nimbose* Hinds, *Proc. zool. Soc. Lond.*, p. 151.

1898. *Terebra chlorata* Lamarck : Melvil and Skyes, *Proc. malac. Soc.*, London, 3 : 42.

1898. *Terebra caerulescens* : Melvill and Skyes, *Proc. malac. Soc.*, London, 3 : 42.

1995. *Impages hectica* : Bosch *Sea shells of Eastern Arabia.*, p. 170, pl. 761.

2000. *Hastula hectica* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, 187 : 176.

2003. *Impages hectica* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper No.*, 192 : 337, pl. 89, fig. 5.

Material examined : Andamans (17 exs) Andhra Pradesh (4 exs), Tamil Nadu (6 exs).

Measurements (mm) : Length : 15.50-53.60, Width : 3.20-12.70, Aperture length : 3.10-5.00.

Description : Shell solid, glossy, up to 53 mm in height. Suture finely incised, about 10-12 whorls, last whorl gently rounded below, early whorl with weak axial ribs; aperture broad at the base and triangular; columella smooth and almost straight, fasciole with central groove, basal ridge does not reach columella. Surface smooth, callous near suture, ornamented with grayish yellow with white band above suture, purplish brown flames and streaks below them.

Remarks : It is mainly collected for its shell, this species is commercially important on the Coromandel coast of India.

Distribution : India : Andhra Pradesh : Visakhapatnam; Tamil Nadu.

Elsewhere : Wide spread in the Indo Pacific, Africa, Hawaii, Japan Madagascar, Polynesia; Queensland and Red Sea.

Genus *Terebra*, Bruguiere, 1789

1789. *Terebra* Bruguiere, *Encycl. Meth. Hist. Nat. Vers.*, 1 : 15. *Terebra* Bruguiere, *Encycl. Meth. Hist. Nat. Vers.*, 1 : xy, type species by SM (Lamarck, 1799) *Cinum subulatum* Linnaeus, 1767, Recent, Indo Pacific.

Type sp. : *Terebra subulata* Linnaeus

Diagnostic Characters : Shell long and slender, very sharply turreted, profusely colored, and often very elaborately sculptured, sinuate at the base, whorls narrow, very numerous, flatly convex, aperture small, lip simple, never reflected, operculum small, horny. The flaring apex and absence of a heavy callous on the parietal wall are characteristic in the typical *Terebra*.

Terebra subulata Linnaeus, 1758

Key to the Species under the genus *Terebra*

1. Shell sculptured with two spiral cords at suture; whorls with growth lines (2)
- Shell sculptured with row of beads at suture; whorls without growth lines (4)
2. Suture with deep punctuate spiral groove; whorls with shallow spiral line *cingulifera*

- Suture with moderate punctuate spiral groove; whorls with crenulated margin (3)
3. Sutural margin swollen; presence of close set of white nodules at suture *quoygairmardi*
Sutural margin not swollen, absence of close set of white nodules at suture, Shell smooth, suture separated by deep spiral groove *laevigata*
4. Body whorl with colour band; ornamented with colour spots (5)
Body whorl without a colour band, ornamented with blotches (9)
5. A row of brown spots on infra sutural band *alveolata*
A row of reddish purple spots on infra sutural band (6)
6. Suture with alternate white and brown spots, Interstices with reddish purple colour *pertusa*
— Suture with white axial zone, interstices without colour, axial ribs curved (7)
7. Infra sutural band stands out from the shell *amoena*
— Infra sutural band stands equal to the shell, whorls stepped up at suture (8)
8. Spire longer than the body whorl; axial ribs narrow, strong and regular *durgella*
Spire shorter than the body whorl; axial ribs broad, basal ridge continuous with outer lip .. *polygyrata*
9. Interstices filled with colour; axial ribs broad and curved (10)
— Interstices filled with punctuations, axial ribs narrow and round (12)
10. Ornamented with irregular orange red blotches *nebulosa*
— Ornamented with regular orange yellow axial lines and bands (11)
11. Whorls slightly stepped up at suture; axial cords white *cerithina*
— Whorls not stepped up at suture; axial cords yellow with punctuate line *affinis*
12. Interstices with deep groove filled with dark yellow colour *columellaris*
— Interstices with a moderate groove filled with dark brown colour *undulata*
13. Interstices without spiral ridges, with presence of pre-sutural band (14)
— Interstices with spiral ridges, absence of pre-sutural band (19)
14. Beads squarish at suture; spiral groove punctuate, whorls with 3-4 rows of punctures *amanda*
— Beads oblique at suture, spiral groove deep whorls with spiral ridges (15)
15. Interstices without overriding spiral ridges, axial growth line *funiculata*
— Interstices with overriding spiral ridges, axial growth line (16)
16. Suture separated by deep groove; *fenestrata*
— Suture separated by concentric wrinkles (17)
17. Whorls flat and encircled with 3 distinct linear grooves prickled granules *deshayesi*
— Whorls straight sided; crenulated (18)
18. Early whorls slightly crenulated, spirals lining of 3 distinct red-orange colour *tricolor*
— Early whorls not crenulated whorl with 5 low spiral ridges *anilis*
19. Interstices with 8-9 spiral cords and a row of oblique beads at sutures : *textilis*
— Interstices with 4-6 spiral cords and two rows of oblique beads at sutures (20)
20. Interstices with spiral ridges; highly marked sub-sutural groove *succincta*
— Interstices with out spiral ridges; lightly marked sub-sutural groove (21)
21. Spiral groove with granulated sculpture, axial rib weak *triseriata*
— Whorls arranged like a pyramid, radial striae throughout whorls *tricincta*
22. Whorls with axial lines or bands or spots, shell with ornamentation (23)
— Whorls straight sided, whorls divided by spiral platforms or tubercles (28)
23. Early whorls plicated, with a deep groove below the sutures; six rectangular brown blotches bordered by a white ridge with thin brown dashes *commaculata*
— Early whorls not plicated, without a deep groove below the sutures; top of each whorl is well rounded (24)
24. Three rows of blotches on body whorl, two rows of dark brown squarish blotches on spire whorls, *subulata*

- Four rows blotches on the body whorl; Three rows of blackish brown square blotches on spire whorls (25)
25. Spiral groove divides the whorls into lower and upper part: blotches above suture are larger *areolata*
- Spiral groove not divides the whorls into lower and upper part: blotches above suture are smaller (26)
26. Presence of purple-brown blotches and wavy lines in whorls; columella not in line with the outer lip *chlorata*
- Absence of purple-brown blotches and wavy lines in whorls; columella very much in line with the outer lip (27)
27. Suture divided by an impressed line, one row of brown spot above the suture; two rows in the last whorl *felina*
- Suture not divided by an impressed line; two rows of dark brown blotches below the suture; five pale tan rectangular blotches on the body whorl *maculata*
28. Whorls with 2 rows of distinct reddish brown dots; presence of sharp white tubercles *crenulata*
- Whorls without reddish brown dots, absence of sharp white tubercles, (29)
29. Axial riblets on early whorls; ornamented with, Y' shaped white streaks on the upper part of the whorl *dimidiata*
- Axial riblets absent on early whorls; ornamented with spots (30)
30. Two rows of large white spots, spiral groove minute, suture slightly raised *guttata*
- Absence of large white spots, spiral groove strong, suture deep and whitish *macandrewii*

20. *Terebra areolata* (Link)

(Pl. II, Fig. 20)

1807. *Subula areolata* Link, *Alders Erben, Rostock*, pp. 94-160.
1816. *Terbra subulata*, Lamarck, *Anim. Sans. Vert.* 2 ed. 10, p. 242 (Non-Linnaeus, 1767).
1906. *Terebra muscaria* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.
1952. *Terebra muscaria* : Subramanyam, Karandikar and Murti, *J. Univ. Bombay*, **21**(3) : 55, fig. 173.
1972. *Terebra areolata* : Cernohorsky, *Marine Shells of the Pacific*, **1** : 198, pl. 49, fig. 358.
1986. *Terebra areolata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.

2000. *Terebra areolata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 172.

2003. *Terebra areolata* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper No.*, **192** : p. 335, pl. 88, fig. 1.

Material examined : Andamans (6).

Measurements (mm) : Length : 72.20-118.70, Width : 12.70-19.50, Aperture length : 10.20-11.40.

Description : Shell large, up to 118 mm in height, about 20-21 whorls. Early whorls have vertical ridges which tend to become obsolete on later whorls. Aperture oval, columella straight with a strong fasciole and with a ridge upper half of the outer lip angled. Color shining cream or pale yellowish brown. Surface smooth except for growth striae. Spiral grooves divides the whorl into a smaller (1/3) upper part and a broad (2/3) lower part. Sculptured with spiral rows of blackish brown blotches, blotches just above the suture are larger than others.

Remarks : This species can be identified with its ornamentation of three rows of blackish brown square blotches on spire whorl and four rows on the body whorl; it is mainly collected for its shell.

Distribution : India : Andaman Islands, Lakshadweep.

Elsewhere : East Africa Hawaii, Japan, Madagascar, Polynesia, Queensland, Red Sea, Wide spread in Indo-west Pacific.

21. *Terebra affinis* Gray

(Pl. II, Fig. 21)

1834. *Terebra affinis* Gray, *Proc. zool. Soc.*, London, **1834** : 60.
1839. *Terebra pertusa* var. Kiener, *Icon. des Coq viv.*, pl. 11, fig. 24c.
1860. *Terebra affinis* : Reeve, *Conch Icon.* **12** *Terebra.* : pl. 10, fig. 39.
1878. *Terebra affinis* : Smith, *Proc. zool. Soc.*, London, **1878** : 805.
1898. *Terebra affinis* : Melvill and Sykes, *Proc. malac. Soc.*, London, **3** : 41.
1906. *Terebra affinis* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.
1952. *Terebra affinis* : Subramanyam, Karandikar and Murti, *J. Univ. Bombay*, **21**(3) : 55, fig. 174.
1986. *Terebra affinis* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.
1991. *Terebra affinis* : Rao and Rao, *Fauna of Lakshadweep, State Fauna series*, **2** : 341. Zool. Surv. India.
2000. *Terebra affinis* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 172.

Material examined : Andamans (15 exs) Marine Survey station. 655. (2 exs).

Measurements (mm) : Length : 9.80-38.80, Width : 3.00-9.50, Aperture length : 2.00-9.00.

Description : Shell medium in size, up to 38 mm in height; spire long and pointed; aperture small; columella strongly twisted. Color creamy white with blotches of brown or yellowish orange, interspaces between the ribs often brownish, body whorl with light tan band, sub-sutural band marked with deep punctuations between ribs, broad axial ribs with punctuate line between interspaces filled with punctuations.

Remarks : It is more allied to *Terebra nebulosa* but smaller and more slender in proportion and grooves are more punctuate.

Distribution : India : Andaman and Nicobar Islands, Lakshadweep, Maharashtra.

Elsewhere : Fiji Island, Maldives, Philippines, Seychelles. Throughout tropical Indo-Pacific.

22. *Terebra alveolata* Hinds

(Pl. II, Fig. 22)

1844. *Terebra alveolata* Hinds, *Proc. Zool. Soc. Lond.*, p. 151.

1860. *Terebra alveolata* : Reeve, *Conch. Icon*, **12** *Terebra* : pl. 19, sp. no. 89.

2000. *Terebra alveolata* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper No.*, **187** : 172.

Material examined : Andaman (9 exs).

Measurements (mm) : Length : 19.50-44.60, Width : 4.50-9.50, Aperture length : 4.30-8.70.

Description : Shell long, medium in size, up to 45 mm in height, spire pointed, with about 16 turreted whorls and flatly convex, aperture small, and columella straight, keeled and recurved at base. Transparent flesh color, streaked with orange brown, encircled at the suture and at the base with small reddish chestnut spots, pricked in the interstices, divided by a groove at the upper part, sutural margin rather swollen.

Remarks : Shell more slender, similarly sculptured; spot on the infra sutural band dark brown; rest of the surface purplish brown; variegated with white patches.

Distribution : India : Andaman and Nicobar Islands.

Elsewhere : Indonesia, Japan, Philippines, Straits of Malacca.

23. *Terebra amanda* Hinds

(Pl. II, Fig. 23)

1844. *Terebra amanda* Hinds, *Proc. zool. Soc. Lond.*, p. 154.

1860. *Terebra amanda* : Reeve, *Conch. Icon*, **12** *Terebra* : pl. 19, sp. no. 89.

1908. *Terebra unicolor* Preston, *Rec. Indian Mus.*, 2(2) : 190, pl. 17, fig. 65.

Material examined : Andaman Island (3 exs).

Measurements (mm) : Length : 35.00-44.20, Width : 6.50-7.25, Aperture length : 2.00-2.50.

Description : Shell medium in size, up to 44 mm in height, long and pointed spire, aperture small; columella recurved, twisted, canal short. Pale brownish orange colour throughout; whorls 14-18; sculptured with a coarse infra sutural spiral crenulated ribs and fine smaller spiral crenulated ribs, and with two white beads of tubercles below the suture, the interstices finely punctuate.

Remarks : It can be distinguished by its much blunt form, lack of white edging to the whorls, coarse ribbing and finer punctuation.

Distribution : India : Andaman Islands.

Elsewhere : Throughout Indo-Pacific.

24. *Terebra amoena* Deshayes

(Pl. II, Fig. 24)

1859. *Terebra amoena* Deshayes, *Proc. zool. Soc. Lond.*, p. 297, no. 113.

1860. *Terebra specillata* Reeve, *Conch. Icon*, **12** *Terebra* : pl. 24, sp. no. 89.

1898. *Terebra andamanica* Melvill and Sykes, *Proc. malac. Soc. Lond.*, **3** : 41, pl. 3, fig. 3.

Material examined : Andaman (2 exs).

Measurements (mm) : Length : 18.00-24.00, Width : 4.50-5.25, Aperture length : 3.00-4.50.

Description : Shell solid, medium in size up to 24 mm in height, glossy, whorls straight sided, whorls about 16, aperture small columella little twisted, convex and longitudinal sculpture more elevated; sutural band alternatively spotted with white and red and the spots are not so regular; Infra sutural band stands more out from the shell. Axial ribs are spirally and linearly grooved.

Remarks : This species is more allied to *T. alveolata* Hinds, but, it differs in form and coarseness of sculpture. In comparison with *T. pertusa* Born, it differs by having broader in proportion to its length.

Distribution : India : Andaman Islands.

Elsewhere : Indian Ocean, Indo-West Pacific.

25. *Terebra anilis* Roeding

(Pl. II, Fig. 25)

1798. *Epitonium anile* Roeding *Mus. Bolten.*, pp. 1-199.

1834. *Dimidacus stramineus* Gray, *Proc. zool. Soc. Lond.*, p. 621.

1850. *Terebra serotina* Adams & Reeve, *Mollusca*. pp. 45-87.

1857. *Terebra circinata* Deshayes, *Proc. zool. Soc. Lond.*, **27** : 270-321.
 1908. *Terebra rubrobrunnea*, Preston, *Rec. Indian Mus.*, **2** : 189, pl. 17, fig. 64.
 1995. *Terebra anilis* Bosch, *Sea shell of Eastern Arabia*, No. 763, p. 170.

Material examined : Andaman. (3 exs) Goa (1 Ex).

Measurements (mm) : Length : 30.00-88.00, Width : 4.60-6.00, Aperture length : 4.20-6.00.

Description : Shell solid, up to 88 mm in height, moderately glossy, whorls narrow concave sided, sutures shallow, base slightly keeled. Each whorl has 5 low, spiral ridges and many more axial ridges giving cancel late effect; above these ridges is a broad, nodular sub-sutural cord with lesser cord below. Siphonal canal slightly twisted, bearing a thin basal ridge continuous with outer lip dark brown fading to amber.

Remarks : Allied to *T. fenestrata*, Hinds, The transverse costae in the present species are however, close together and not too coarse, the spiral striae are also more numerous and not so well defined.

Distribution : India : Andaman Islands.

Elsewhere : Western Pacific; North Queensland.

26. *Terebra cerithina* Lamarck

(Pl. II, Fig. 26)

1822. *Terebra cerithina* Lamarck, *Hist. nat. Anim. Sans. Vert.*, **10** : 247.
 1839. *Terebra cerithina* : Kiener, *Icon. des Coq. viv.*, p. 33 (25), pl. 11, fig. 25.
 1844. *Terebra pulchra*, Hinds *Thes. Conch.*, p. 178. (81) pl. 45, fig. 129.
 1859. *Terebra cerithina* : Deshayes *Proc. zool. Soc. Lond.*, p. 299. No. 124.
 1860. *Terebra cerithina* : Reeve, *Conch. Icon*, **12**, *Terebra*, pl. 9, sp. no. 35.

Material examined : Andaman (2 exs).

Measurements (mm) : Length : 43.80-51.70, Width : 9.80-10.50, Aperture length : 8.30-10.50.

Description : Shell large, up to 52 mm in height, solid, pointed spire, aperture narrow and rectangular. Outer lip thin and constricted posteriorly, columella rather straight, anterior canal curved towards left. About 25 whorls, lightly stepped at suture. Early whorls are divided by a punctuated spiral groove. Suture impressed; Posterior whorls show two rows of nodulation which disappear in the middle portion of the shell. Sculpture of axial rib is very pronounced. Axial and spiral ribs have dark yellow colour the axial cord are white and the groove have cream to orange pale markings.

Remarks : Cylindrical form and orange yellow coloration in the interstice between the ribs, darker spots below the suture help to distinguish it from other species.

Distribution : India : Andaman Islands.

Elsewhere : Philippines, Seychelles.

27. *Terebra chlorata* Lamarck

(Pl. II, Fig. 27)

1822. *Terebra chlorata* Lamarck, *Hist. nat. Anim. Sans. Vert.*, **10** : 246.
 1839. *Terebra chlorata* : Kiener, *Icon. des Coq. viv.*, p. 24, pl. 6, fig. 2.
 2003. *Terebra chlorata* : Subba Rao, *Rec. Zool. Surv. Ind., Occ. Paper No.*, **192** : 335, pl. 88, fig. 2.

Material examined : Andaman (3).

Measurements (mm) : Length : 60.10-67.20, Width : 13.40-15.90, Aperture length : 16.70-17.00.

Description : Shell solid, moderately large, up to 68 mm in height, with about 14 whorls. Aperture small, outer lip thin, lower part of columella not in line with the outer lip. Surface smooth, obsolete plications on the early whorls, a deep groove below the sutures. Color white, ornamented with irregular, purple-brown blotches and wavy lines.

Remarks : The spots which have a milky appearance and the splashed wavy line, the purple brown blotches make this species distinct from others.

Distribution : India : Andaman and Nicobar Islands.

Elsewhere : Maldives, Singapore and Tropical, Indo-Pacific.

28. *Terebra cingulifera* Lamarck

(Pl. II, Fig. 28)

1822. *Terebra cingulifera* Lamarck, *Hist. nat. Anim. Sans. Vert.*, **10** : p. 247.
 1825. *Terebra punctulata* Sowerby, *Tank. Cat. App.*, p. 25.
 1859. *Terebra columnaris*, Deshayes, *Proc. zool. Soc. Lond.*, p. 310.
 1860. *Terebra cingulifera* : Reeve, *Conch. Icon*, **12** *Terebra* : sp. no. 44a and b, pl. 11.
 1898. *Terebra cingulifera* : Melvill and Skyes, *Proc. malac. Soc.*, London, **3** : 42.
 1986. *Terebra cingulifera* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, *Zool. Surv. India*, p. 174.
 1967. *Terebra cingulifera* : Cernohorsky, *Marine Shells of the Pacific*, **1** : 198, pl. 49, fig. 358.
 2000. *Terebra cingulifera* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 172.

Material examined : Andamans (13 exs).

Measurements (mm) : Length : 62.00-80.00, Width : 12.30-13.40. Aperture length : 12.40-12.50.

Description : Shell large, up to 80 mm in height, pointed spire, whorls smooth, about 18-20, Aperture small and oval, outer lip thin, columella straight and slightly recurved at base. Sculptured with a deep groove below suture: sutural band spirally grooved and sutural margin superficially crenulated, each whorl has 3 fine spiral linings, axial ribs finely striated.

Remarks : Shell yellow whitish, encircled with minutely punctured grooved striae and finely, densely crenulated at the sutural margin in an oblique manner. This species has no other specific markings.

Distribution : India : Andamans islands.

Elsewhere : Indo-West Pacific, Mauritius, Tuamotu Archipelago. (Bratcher & Cernohorsky, 1987).

29. *Terebra columellaris* (Gray)

(Pl. II, Fig. 29)

1834. *Terebra columellaris* Gray, *Proc. zool. Soc.*, London, **1834** : 151.
 1844. *Decorihastula columellaris* Hinds, *Proc. zool. Soc. Lond.*, p. 151.
 1860. *Terebra columellaris*, Reeve, *Conch. Icon.*, **6** : pl. 22, sp. no. 113.
 1869. *Terebra propinqua*, Pease, *Amer. J. Conch.*, 5(2) : 66.
 1908. *Terebra carnicolor*, Preston, *Rec. Indian Mus.*, 2(2) : 189, pl. 17, fig. 63.
 2003. *Terebra columellaris* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper No.* **192** : 338, pl. 89, fig. 2.

Material examined : Andaman (4 exs) N. Caledonia (3 exs) Tahiti (9 exs) unknown location (5 exs).

Measurements (mm) : Length : 33.20-39.40, Width : 6.30-7.40, Aperture length : 6.20-7.00.

Description : Shell medium in size, up to 40 mm in height, whorls 18-20. Aperture small, outer lip thin and constricted posteriorly, columella rather straight, anterior canal curved towards left. Color light orange-brown. Sculptured with a row of white beads and punctuate spiral groove at sutures, curved axial ribs with deep groove bearing dark brown colour in the interstices.

Remarks : This species is remarkable from its great similarity to *T. undulata* which itself is a peculiar species. The grounds of distinction are its decidedly cylindrical shape, different distribution of colors, and its short, abrupt, rounded and banded last whorl. This shell has shiner pattern of ivory rectangle at periphery of the body whorl.

Distribution : India : Andaman Islands, not common.

Elsewhere : Tropical Pacific.

30. *Terebra commaculata* Gmelin

(Pl. II, Fig. 30)

1791. *Buccinum strigillatum* Gmelin *Syst. Nat. ed.*, **13**, (Nec. Linn).
 1822. *Terebra myuros*, Lamarck, *Hist. nat. Anim. Sans. Vert.*, **10** : 247.
 1822. *Terebra scabrella* Lamarck, *Hist. nat. Anim. Sans. Vert.*, **10** : 248.
 1834. *Terebra myuros* Gray *Proc. Zool. Soc. Lond. No.*, **60**, p. 163.
 1860. *Terebra commaculata*, Reeve, *Conch. Icon.*, **6**, pl. 8, sp. no. 31.
 1898. *Terebra myuros* : Melvill and Skyes, *Proc. malac. Soc.*, London, **3** : 42.
 1906. *Terebra myuros* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.
 1940. *Terebra commaculata* : Crichton, *J. Bombay nat. Hist. Soc.*, **42** : 335, pl. 4, fig. 6.
 1986. *Terebra commaculata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, *Zool. Surv. India*, p. 174.
 1990. *Terebra commaculata* : Pinn, *Sea Shells of Pondicherry*, *Nehru Science Centre*, p. 109, fig. 197.
 2003. *Terebra commaculata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 172.

Material examined : Andaman (26 exs).

Measurements (mm) : Length : 62.00-95.00, Width : 8.60-11.40, Aperture length : 7.70-12.50.

Description : Shell large, up to 95 mm in height, about 25 flattened whorls. Aperture small, rectangular with twisted columella. Shell scabrous latticed, with two spiral bands of nodules divided by a groove below the suture, often the nodules fused together to form a single raised band, fine spiral ridges crossed by axial rib lets. Color white ornamented by rather rectangular brown blotches bordered by a white ridge with brown dashes, about six per whorl, blotches extend length-wise.

Remarks : It can be differentiated from other species by its length, breadth and continuity of its brown markings and the early whorls have slightly concave sides.

Distribution : India : Andhra Pradesh : Visakhapatnam; Tamil Nadu : Madras; Pondicherry, Andaman Islands, rare.

Elsewhere : South East Asia.

31. *Terebra crenulata* (Linnaeus)

(Pl. II, Fig. 31)

1758. *Buccinum crenulatum* Linnaeus, *Syst. Nat.*, **10** : 741.
 1857. *Terebra fimbriata* Deshayes, *Proc. zool. Soc. Lond.*, p. 276.

1859. *Terebra interlineata* Deshayes, *Proc. zool. Soc. Lond.*, p. 277.
1935. *Terebra crenulata* var. *fimbriata*, Deshayes, *Proc. zool. Soc. Lond.*, p. 276.
1898. *Terebra crenulata* : Melvill and Skyes, *Proc. malac. Soc.*, London, **3** : 42.
1906. *Terebra crenulata* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.
1986. *Terebra crenulata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.
2000. *Terebra crenulata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 172.
2003. *Terebra crenulata* : Subba Rao, *Rec. zool. Surv. Ind. Occ. Paper No.*, **192** : 336, pl. 88, fig. 3.

Material examined : Andamans (6 exs) Port Blair, Rangachanga, Nicobar : Car Nicobar Marine Survey station. 628. (2 exs). Marine Survey station. 659. (2 exs). Goa (3 exs).

Measurements (mm) : Length : 64.00-105.50, Width : 15.70-20.00, Aperture length : 15.00-20.40.

Description : Shell large, up to 115 mm in height, solid, with broad body whorl gradually tapering into the apex; about 28 rounded whorls. Aperture broad, columella rather smooth, short but strong fasciole. Sculptured with small nodules just below the suture on each whorl, a small constriction below the nodules; early whorls with axial plicae, only growth lines on the latter whorls. Color yellowish-brown, with white nodules, three or four spiral rows of reddish-brown dots on the body whorl, two on the other whorls, small fine streaks of reddish-brown between the nodules.

Remarks : Color creamy-pink, it possesses sharp white tubercles separated by narrow clear brown axial lines. It has two spiral alignments of brown spots equally distant and very far away from each other. It lives in the shallow water on sand. Variation in the tubercles has given rise to several forms of this species.

Distribution : India : Andaman and Nicobar Islands.

Elsewhere : Tropical, Indo-Pacific, Moderately common.

32. *Terebra deshayesi* Reeve (Pl. II, Fig. 32)

1822. *Terebra babylonia* Lamarck, *Hist. nat. Anim. Sans. Vert.*, **10** : 247.
1860. *Terebra deshayesi*, Reeve, *Conch. Icon*, **12** : Pl. 11; fig. 45.
1898. *Terebra deshayesi* : Melvill and Sykes, *Proc. malac. Soc.* London, **3** : 41.
1986. *Terebra deshayesi* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.

1990. *Terebra babylonia* : Pinn. *Sea Shells of Pondicherry*, Nehru Science Centre, p. 109, fig. 198.
2000. *Terebra deshayesi* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 173.

Material examined : Andamans (1).

Measurements (mm) : Length : 35.00, Width : 6.20, Aperture length : 4.50.

Description : Shell solid, moderate in size up to 37 mm whorls about 14, flat, encircled with thick conspicuously prickled granules. Aperture rather narrow, columella straight, reflected, twisted recurved at the base. Sculptured with fine ribs of inter section. Each whorl is encircled with 3 distinct linear grooves which are prickled throughout, suture with crenulations.

Remarks : Each whorl is encircled with 3 distinct linear grooves which are prickled throughout, sutural margin crenulated.

Distribution : India : Andaman Islands, Pondicherry.

Elsewhere : China, Viti Island.

33. *Terebra dimidiata* Linnaeus (Pl. II, Fig. 33)

1758. *Buccinum dimidiatum* Linneus, *Syst. Nat.*, **10** : 742.
1839. *Terebra dimidiata* : Kiener, *Icon, Des Coq. Viv.* p. 6, No. 3, pl. 2, fig. 2.
1859. *Terebra splendens* var. Deshayes, *Proc. zool. Soc. Lond.*, No. 31, p. 281
1860. *Terebra dimidiata* : Reeve, *Conch. Icon*, **12** : Pl. 7; fig. 27.
1986. *Terebra dimidiata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.
2000. *Terebra dimidiata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 173.
2003. *Terebra dimidiata* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper*, **192**; 336, pl. 88, fig. 4.

Material examined : (18), Andamans Carbyn's cove, Long Islands, Port Blair.

Measurements (mm) : Length : 83.00-142.00, Width : 16.40-23.00, Aperture length : 18.80-29.00

Description : Shell very large, up to 142 mm in height, solid with about 20 rounded straight sided whorls. Early whorls have a weak vertical ridge and later ones with growth lines Aperture broadly oval, outer lip a little flared at the base, columella rather straight, with a weak plait, fasciole strong. Surface smooth and shining, a slight constriction below the suture dividing each whorl into a narrow upper one third and a broad lower two third. Color orange-red with wavy white streaks often bifurcating at the top.

Remarks Each whorl is divided by a spiral platform, lower two thirds of whorl slightly convex, white streaks poorly developed on the upper third.

Distribution : Andaman and Nicobar Islands, Lakshadweep.

Elsewhere : Tropical Indo Pacific-Common.

34. *Terebra durgella* Ray

(Pl. II, Fig. 34)

1968. *Terebra durgella* Ray, *Bull. Indian. Mus.*, 3(1 & 2) : 28, text fig. 26.

1991. *Terebra durgella* : Rao, Rao and Maitra, *Fauna of Orissa State Fauna series*, 1(3) : 89. Zool. Surv. India.

1992. *Terebra durgella* : Subba Rao, Dey and Barua, *Fauna of West Bengal. State Fauna series*, 3(9) : 200. Zool. Surv. India.

Material examined : 4 exs., West Bengal (Digha).

Measurements (mm) : Length : 4.00-7.85, Width : 1.15-2.45, Aperture length : 1.00-2.00.

Description : Shell small up to 7 mm in height, apex narrowly tapering which gives the turreted appearance to the shell. Spire longer than the body whorl. Whorls 9-10 separated from one another by very impressed and oblique sutures. Shell sculptured with narrow, strong, regular longitudinal ribs and as broad as interstices; aperture small and oblong, columella arched above; outer lip thin.

Remarks : This species can be identified with the turreted appearance. Impressed suture and the sculpture with narrow, strong, regular longitudinal ribs and as broad as interstices.

Distribution : India : Orissa, West Bengal : Medinipur.

Elsewhere : Indian Ocean.

35. *Terebra felina* (Dillwyn)

(Pl. II, Fig. 35)

1817. *Buccinum felinum* Dillwyn, *Catalogue of Recent shells* : 644 (Type locality not given).

1844. *Terebra tigrina* Hinds, *Proc. Zool. Soc. Lond. No.*, 12 : 160.

1860. *Terebra tigrina* : Reeve, *Conch. Icon*, 12, *Terebra* sp. no. pl. 3; fig. 8.

1898. *Terebra tigrina* : Melvill and Skyes, *Proc. malac. Soc.*, London, 3 : 43.

1982. *Terebra felina* : Abbot and Dance, *Compendium of sea shells* : p. 273.

1991. *Terebra felina* : Rao and Rao, *Fauna of Lakshadweep, State Fauna series*, 2 : 341. Zool. Surv. India.

Material examined : Andaman (5), Goa (2 exs), Lakshadweep (7 exs), Maharashtra (2 exs), Marine Survey Station. 655. 1 (ex). Marine Survey station. 659. (8 exs).

Measurements (mm) : Length : 41.50-63.10, Width : 10.80-14.20, Aperture length : 9.60-11.00.

Description : Shell solid, up to 65 mm in height, aperture small, columella strong and straight, shell white, with a single row of chestnut spots just above the suture, two rows on the last whorl, of which the lower one near the base is smaller, surface smooth, an unornamented band below the suture is divided by an impressed line, spiral whorls plicate body whorl with additional row of the fine brown spots at its base.

Remarks : It can be recognized by the presence of a single row of brown spots on lower part of each whorl just above the suture help to easily separate this species from the others; shell smooth and narrower than that of *T. maculata*.

Distribution : India : Lakshadweep, Andaman Islands.

Elsewhere : West Indies, Sri Lanka, Singapore, Seychelles. Sandwich Island, Central Polynesia throughout Indo-Pacific (Cernohorsky, 1967).

36. *Terebra fenestrata* Hinds

(Pl. II, Fig. 36)

1843. *Terebra fenestrata* Hinds, *Proc. zool. Soc. Lond.*, No. 12, p. 153.

1850. *Terebra caelata* Adams & Reeve, *Voy. De. Samarang*, 3 : 30, pl. 10, fig. 22.

1850. *Terebra torquata* Adams & Reeve, *Voy. De. Samarang*, 6 : 30, pl. 10, fig. 13.

Material examined : Andamans (5).

Measurements (mm) : Length : 8.90-11.30, Width : 2.00-2.50, Aperture length : 1.70-2.20.

Description : Shell long and slender, up to 12 mm in height, shell cream to light fawn in color, aperture small, columella constricted, keeled, twisted recurved, ornamented with axial streaks; whorls number about 17-19. Sculptured with about 22 axial ribs and two rows of beads at suture which are separated by a deep groove; whorls concavely flattened, interstices with 3-4 overriding spiral ridges. Sutural margin crenulated.

Remarks : Very elaborately latticed shell, semi transparent yellow or fulvous purple subsuture, elongate turreted throughout.

Distribution : Andaman and Nicobar Islands, Lakshadweep.

Elsewhere : Tropical, Indo-Pacific common.

37. *Terebra funiculata*. Hinds

(Pl. II, Fig. 37)

1844. *Terebra funiculata* Hinds, *Proc. zool. Soc. Lond.*, No. 12 : p. 153.

1859. *Terebra archimides* Deshayes, var *Proc. zool. Soc. Lond.*, p. 314, No. 218.

1921. *Terebra langfordi* Pilsbry, *Proc. Acad. Nat. Sci. Phila.*, **72** : 296-326.

Material examined : Andamans (5 exs), Mauritius (8 exs), Sri Lanka (4 exs), Seychelles (6 exs), Bay of Bengal (3 exs).

Measurements (mm) : Length : 27.10-59.10, Width : 5.00-8.00, Aperture length : 6.40-7.30.

Description : Shell large and solid, up to 59 mm in height, aperture small, outer lip thin, columella short and strongly twisted; about 17 whorls, whorls are spirally ribbed, the deeply incised suture gives the spire a slightly turreted appearance, interstices deeply excavated, the upper part of the whorl is slightly broader than the lower, and a spiral groove divide them into lower small and upper broader part.

Remarks : This species can be identified with its screw like succession of strong and arched ribs, the interstices between the ribs are finely pricked. The ribs are frequently smooth and shining strong out in conspicuous relief.

Distribution : India : Andaman Islands.

Elsewhere : Japan, Marquises Island, Mauritius, Seychelles, Sri Lanka.

38. *Terebra guttata* (Roeding)

(Pl. II, Fig. 38)

1798. *Cymbium guttata* Roeding, *Mus. Bolten.*, p. 152.

1817. *Buccinum oculatum*, Dilwyn : *John and Arthur Arch.* Vol. **1** & **2**, pp. 1-1090.

1834. *Terebra lavéis*, Gray, *Proc. zool. Soc. Lond.*, p. 61.

1859. *Terebra loroisi* Deshayes, *Proc. zool. Soc. Lond.*, p. 307, no. 173.

1860. *Terebra oculata* Lamarck : Reeve in *Conch. Icon*, **12**, *Terebra*, pl. 5 sp. no. 18.

1906. *Terebra oculata* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.

1967. *Terebra guttata* : Cernohorsky, *Marine Shells of the Pacific*, **1** : 202, pl. 50, fig. 3790.

2000. *Terebra guttata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper No.*, **187** : 173.

2003. *Terebra guttata* : Subba Rao, *Rec. zool. Surv. India, Occ. Paper*, **192** : 337, pl. 88, fig. 6.

Material examined : Andamans (5 exs), Maldives (3 exs), Marine survey (2 exs).

Measurements (mm) : Length : 92.00-115.40, Width : 18.20-21.80, Aperture length : 17.40-20.15.

Description : Shell large, up to 115 mm in height, about 21 whorls. Aperture small and rectangular, outer lip thin and columella straight, fasciole rather weak

anterior canal broad and recurved to the left. Sculptured with obsolete growth lines, area below the suture slightly raised. Color orange-brown ornamented with one row of large white spots just below the suture on the raised surface of spire whorls, and two rows on the body whorl.

Remarks : It can be differentiated from other speices by its ornage brown color, with one row of large white spots below the suture on the raised surface on spire whorls and two rows on body whorl.

Distribution : India : Andaman Islands.

Elsewhere : Tropical, Indo-Pacific common.

39. *Terebra laevigata* Gray

(Pl. II, Fig. 39)

1834. *Terebra laevigata* Gray, *Proc. zool. Soc. Lond.*, **2** : 62. (Type locality Ceylon).

1967. *Terebra laevigata* : Cernohorsky, *Marine Shells of the Pacific*, **1** : 202, pl. 51, fig. 373.

1986. *Terebra laevigata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, *Zool. Surv. Idnai*, p. 174.

2000. *Terebra laevigata* : Subba Rao and Dey, *Rec. zool. Surv. India, Occ. Paper*, **187** : p. 173.

Material examined : Andamans (14 exs).

Measurements (mm) : Length : 45.00-53.50, Width : 5.30-6.50, Aperture length : 6.00-6.50.

Description : Shell large and slender, up to 53 mm in height, with pointed spire; Aperture small, outer lip thin, columella short and strongly twisted. Whorls about 19-26, concave and flattened, smooth divided at the upper part by a groove. Shell light yellowish in colour. Sculptured with two spiral cords at sutures, separated by a deep spiral groove. 3-8 fine spiral and axial growth lines on whorls.

Remarks : Very slender shell with light yellowish in colour. It can be identified by presence of two spiral cord separated by the deep spiral groove.

Distribution : India : Andaman Islands.

Elsewhere : South Africa, Fiji, uncommon.

40. *Terebra macandrewii* Smith

(Pl. IV, Fig. 40)

1877. *Terebra macandrewii* Smith, *Ann. Mag. Nat. Hist. (ser. 4)*, **19** : 224.

1995. *Terebra macandrewii* Smith : Bosch, *Sea shell of Eastern Arabia No.*, **770**, p. 171.

Material examined : Andaman (7 exs).

Measurements (mm) : Length : 10.20-15.30, Width : 4.70-5.50, Aperture length : 4.70-5.50.

Description : Shell solid, moderately glossy, up to 15 mm in height, about 10 rounded whorls, slightly convex, last whorl gradually rounded below; Aperture wide, columella smooth and strong. Suture deep, sculptured with sharp, axial, slightly sinuous ribs, indented below suture, fine spiral striae between the ribs. The basal ridge reaches the columella. Whitish below suture. Whorls ornamented with two reddish brown spiral bands.

Remarks : The pretty shell can be identified with the aid of well marked axial ribs and reddish brown spiral bands on whorls.

Distribution : Andaman and Nicobar Islands.

Elsewhere : Pakistan.

41. *Terebra maculata* (Linnaeus)

(Pl. IV, Fig. 41)

1758. *Oxymoris maculata* Linnaeus, *Syst. Nat.*, ed. 10 : 741, sp. 415, (Type locality : OAfricae' asiae).
1822. *Terebra maculate* Lamarck : *Hist. Des Animaux. Sans. Vert.*, Vol. 7 : p. 283.
1844. *Terebra maculata* : Hinds *Proc. zool. Soc. Lond.*, sp. no. 1; p. 159.
1906. *Terebra maculata* : Comber, *J. Bombay nat. Hist. Soc.*, 17 : 212.
1967. *Terebra maculata* : Cernohorsky, *Marine shells of the Pacific*, 1 : 204, pl. 51, fig. 376.
1986. *Terebra maculata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.
1991. *Terebra maculata* : Rao and Rao, *Fauna of Lakshadweep, State Fauna series*, 2 : 342. Zool. Surv. India.
1995. *Terebra maculata* Bosch *et al.*, *Sea shell of Eastern Arabia*, No. 771, p. 171.
2000. *Terebra maculata* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper*, 187 : p. 174.
2003. *Terebra maculata* : Subba Rao, *Rec. zool. Surv. Ind. Occ. Paper*, 192 : 337, pl. 88, fig. 5.
2007. *Terebra maculata* : Ramkrishna, Dey, Barua and Mukhopadhyaya, *Fauna of Andhra Pradesh, State Fauna series*, 5(7) : 134, Zool. Surv. India.

Material examined : Andaman (9 exs), Lakshadweep (9 exs), Karnataka (4 exs).

Measurements (mm) : Length : 48.05-137.80, Width : 15.38-36.05, Aperture length : 10.50-15.30.

Description : Largest shell of the genus, up to 140 mm in height, stout and heavy with about 18 rounded whorls, broader than other species. Aperture rather wide, columella smooth except for a weak parietal fold, fasciole small but strong with a central groove. Surface smooth except for weak axial plications on the early

whorls and growth lines on the latter whorls. Color very distinct, white, ornamented with two spiral rows of irregular purple brown blotches on each whorl and on the upper part of the body whorl, the latter with about five pale tan rectangular blotches on the body whorl.

Remarks : It is one of the largest species of the genus and can be distinguished by its ornamentation, two rows of dark brown blotches/maculation below the suture and another on the lower part of the whorl just above suture, earlier one broader than the latter; body whorl with three brown transverse bands; earlier whorls plicated axially.

Distribution : Andaman and Nicobar, Lakshadweep Islands.

Elsewhere : Maldives, Singapore, throughout tropical Indo-Pacific.

42. *Terebra nebulosa* Sowerby

(Pl. IV, Fig. 42)

1825. *Terebra nebulosa* Sowerby, *Tank. Cat. App.*, p. 25.
1844. *Terebra nebulosa* : Hinds *Thes. Conch.* p. 162. No. 33, pl. 43, fig. 51.
1858. *Terebra nebulosa* Lorois, (Nec. Sow. Nec. Kiener) *Journ. De Conch.*, p. 90-91, fig. 4.
1986. *Terebrae nebulosa* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.
1995. *Terebra nebulosa* : Bosch., *Sea shell of Eastern Arabia*, No., 773, p. 172.
2000. *Terebra nebulosa* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper*, 187 : p. 174.
2003. *Terebra nebulosa* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper*, 192 : 337, pl. 88, fig. 8.

Material examined : Andamans (10 exs).

Measurements (mm) : Length : 24.50-71.60, Width : 6.50-12.10, Aperture length : 5.00-6.50.

Description : Shell large, up to 75 mm in height, about 20 whorls. Aperture small and rectangular with almost straight outer lip constricted at the upper end, columella in line with the lip at the base. Sculptured with 18-25 broad, close set and curved axial ribs with the spiral grooves in interstices and minutely pitted spiral groove at the suture, Color white, ornamented with large, irregular, orange-red blotches, and band of same color at the base of the body whorl.

Remarks : Shell bears some resemblance to that of *T. undulata* but can be differentiated by color pattern.

Distribution : India : Andaman Islands.

Elsewhere : Tropical Indo-Pacific.

43. *Terebra pertusa* (Born)

(Pl. IV, Fig. 43)

1778. *Buccinum pertusa* Born. *Ind. Test. Mus. Cae. Vindob.*, 1 : 162.
 1844. *Terebra pertusa* : Hinds *Proc. zool. Soc. Lond.*, (1844) 9 : 162.
 1898. *Terebra andamanica* Melvill and Sykes. *Proc. malac. Soc.*, London, 3 : 41, pl. 3, fig. 3.
 1967. *Terebra pertusa* : Cernohorsky, *Marine Shells of the Pacific*, 1 : 205, pl. 52, fig. 384.
 1986. *Terebra andamanica* : Tikader, Daniel and Subba Rao. *Sea shore animals of Andaman and Nicobar Islands*. Zool. Surv. India, p. 174.
 2000. *Terebra petrusa* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper*, 187 : p. 174.

Material examined : Andamans (1 ex).

Measurements (mm) : Length : 37.00, Width : 7.20, Aperture length : 5.60

Description : Shell moderate in size, 37 mm in length, whorls about 17, whorls flatly convex; aperture small and rectangular with almost straight outer lip constricted at the upper end, columella straight. Sculptured with 25-30 close set of axial ribs with interstices minutely pitted and pricked throughout. Orange-amber in colour. Ornamented with reddish purple spotted next the suture.

Remarks : Shell with delicate orange amber colour, painted next the suture in a very characteristic manner in the interstices between the folds with reddish purple.

Distribution : India : Andaman Islands, Lakshadweep.

Elsewhere : Australia, Jukes Draney Island; Andaman to Hawaiian Island. Rare.

44. *Terebra polygyrata* Deshayes

(Pl. IV, Fig. 44)

1859. *Terebra polygyrata*, Deshayes, *Proc. zool. Soc. Lond.*, p. 301, sp. no. 138.
 1860. *Terebra polygyrata* : Reeve, *Conch. Icon*, 12 : *Terebra* sp. no. 146, pl. 7.
 1898. *Terebra polygyrata* : Melvill and Skyes, *Proc. malac. Soc.*, London, 3 : 42.
 1995. *Terebra ambrosia* : Bosch *et al.*, *Sea shell of Eastern Arabia* No. 774, p. 172.

Material examined : Chennai coast (1 exs), Malabar coast (10 exs).

Measurements (mm) : Length : 16.00-20.70, Width : 2.30-4.10, Aperture length : 2.50-4.40.

Description : Shell solid, up to 20 mm in height, about 11 slightly convex whorls, stepped at sutures, base gently rounded; Purplish brown to golden brown

color: aperture very small, columella constricted and twisted. Sculptured with prominent sub-sutural groove cuts through sharp, slightly curved axial ribs, coarse spiral threads between ribs: thin basal ridge continuous with outer lip.

Remarks : An elegantly convoluted species in which the whorls are numerous and rounded their upper and lower divisions are marked by a striking contrast of dark orange and white.

Distribution : India : Tamil Nadu : Chennai coast, West coast of India.

Elsewhere : Pakistan, Philippines, Japan.

45. *Terebra punctostriata* Gray

(Pl. IV, Fig. 45)

1834. *Terebra punctostriata* Gray, *Proc. zool. Soc. Lond.*, p. 61.
 1857. *Terebra (Perirhoe) pallida* Deshayes, *Proc. zool. Soc. Lond.*, p. 310.

Material examined : Andamans (13 exs).

Measurements (mm) : Length : 58.00-69.20, Width : 8.80-11.00, Aperture length : 8.20-10.60.

Description : Shell long and slender, up to 69 mm in height, light yellowish in colour, whorls smooth, spirally superficially groove striated, striae finely punctuated, sutural margin closely obliquely crenulated, aperture small columella straight, a little recurved at the base.

Remarks : A plain yellow whitish shell, encircled with minutely punctured grooved striae and finely, densely crenulated at the sutural margin in an oblique manner.

Distribution : India : Andaman Islands.

Elsewhere : Mauritius, Seychelles, Tuamotu Archipelago.

46. *Terebra quoygaimardi* Cernohorsky

(Pl. IV, Fig. 46)

1833. *Terebra monile* Quoy & Gaimard, *Voy, L'Astrolabe, Zool*, 2; 467, pl. 36, fig. 21, 22.
 1834. 1838, Kuester, *Syst. Conch. Cab*, ed, 2, 5(2) : 29, pl. 6, fig. 10 (Non *Buccinum monile* Linnaeus, 1771 = *Terebra*).
 1844. *Terbra monilis* Quoy & Gaimard, Hinds, *Proc. zool. Soc. Lond.* pt. 11 : 163; 1844 Hinds in Sowerby, *Thes. Conchyl* 1 : 168 pl. 43, fig. 65, 66; 1844. Deshayes & Edwards, *His. Nat., anim. S. vert.*, Ed. 2. 10 : 258.
 1859. *Terbra monilis* Deshayes, *Proc. zool. Soc. Lond.*, Pt. 27 : 312. 1860 Reeve, *Conch. Icon*, 12 : pl. 11, fig. 42 a : 1885 Tryon, *Man. Conch*, 7 : 28, pl. 8, fig. 47, 48 (In synonymy of *T. straminea* Gray); 1967 Cernohorsky, *marine shells, Pacific* 1 : 204, pl. 51, fig. 377.

1964. *Terebra (Cinguloterebra) monilis* Quoy & Gaimard, *Shukama. select. Shells world* col. 2: pl. 69, fig. 19.
 1966. *Cinguloterebra monilis* (Quoy & Gaimard), Habe & Kosuge, *shell world* col. 2 : 99, pl. 39, fig. 14.
 1967. *Dimidiacus monilis* (Quoy & Gaimard), Habe & Kosuge, *Stand. Book, Jap. Shell* col. 3 : 102, pl. 40, fig. 17.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 50.50-53.00, Width : 7.30-8.20, Aperture length : 6.40-7.70.

Description : Shell large, slender with pointed spire, up to 53 mm in height, aperture small, columella reflected and twisted, recurved. Dark orange in colour, whorls flattened, divided at the upper part by a groove, crenulated at the margin, ornamented with, close set of white nodules at suture, interstices with white tubercles.

Remarks : It is characterized by a coronation of white tubercles on a dark orange ground. The tubercles become indistinct in the case of *T. cingulifera*.

Distribution : India : Andaman Island.

Elsewhere : Marquesas Island.

47. *Terebra subulata* (Linnaeus)
(Pl. IV, Fig. 47)

1767. *Buccinum subulatum* Linnaeus, *Syst. Nat.* Ed. 12 : 176.
 1839. *Buccinum subulatum* : Kiener *Icon des q.*, p. 10. (6) fig. 6. (Ocean Indien, Madagascar, Iles de la sea).
 1906. *Terebra subulata* : Comber, *J. Bombay nat. Hist. Soc.*, 17 : 212.
 1952. *Terebra subulata* : Satyamurti, *Bull. Madras Govt. Mus. New Ser. (Nat. Hist.)*, 1(2) : 215, pl. 21, fig. 4.
 1992. *Terebra subulata* : Dance, *Shells Eye witness hand book*, p. 195.
 2000. *Terebra subulata* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper*, 187 : p. 174.
 2003. *Terebra subulata* : Subba Rao, *Rec. zool. Surv. Ind., Occ. Paper*, 192 : 337, pl. 88, fig. 7.

Material examined : Andamans (9 exs).

Measurements (mm) : Length : 94.00-115.00, Width : 13.20-16.20, Aperture length : 13.60-16.30.

Description : Shell large, up to 115 mm in height, slender with about 25 whorls and pointed spire. Aperture very small, outer lip thin and columella twisted, fasciole small, anterior canal truncated and curved. Sculptured with fine axial threads and irregular weak spiral grooves, the area below the suture raised into a spiral band. Color very distinct, cream ornamented with two rows of dark brown square blotches on the early whorls and three rows on the body whorl.

Remarks : Body whorl has three rows of blotches, where as the spire whorls have two rows of blotches and the top of each whorl is well rounded.

Distribution : India : Lakshadweep, Tamil Nadu : Madras, Gulf of Mannar (Krusadai Islands), Andamans, moderately common.

Elsewhere : Indo-Pacific.

48. *Terebra succincta* Boss
(Pl. IV, Fig. 48)

1801. *Terebra succincta* Boss, *Deterville ed Buffon Moll.*, 4 : 17.
 1833. *Terebra cancellata* Quoy and Gaimard, *Voy. De P Astr. T ii* p. 471, pl. 36, fig. 27-28.
 1859. *Terebra undatella* Deshayes. *Proc. zool. Soc. Lond.* p. 307, No. 157.
 1898. *Terebra succinata* : Melvill and Skyes, *Proc. Malac. Soc.*, London, 3 : 42.
 1899. *Terebra cancellata* Quoy and Gaimard : Melvill and Sykes. *Proc. Malac. Soc. Lond.*, 3 : 42.
 1967. *Terebra succincta* : Cernohorsky, *Marine Shells of the Pacific*, 1 : 206, pl. 52, fig. 387.
 1986. *Terebra succinata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, Zool. Surv. India, p. 174.
 2000. *Terebra succincta* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper*, 187 : p. 175.
 2007. *Terebra succinata* : Ramkrishna, Dey, Barua and Mukhopadhyaya, *Fauna of Andhra Pradesh, State Fauna series*, 5(7) : 135. Zool. Surv. India.

Material examined : Andamans (1 ex).

Measurements (mm) : Length : 19.00-28.00, Width : 2.10-4.40, Aperture length : 3.00-4.50.

Description : Shell sharply turreted, dark grey in colour, whorls 14-17, flatly convex, divided by a groove at the upper part, closely regularly sculptured with obliquely crenulated ribs. Crenulated at the margin, interstices cancellated with fine raised lines, aperture small, columella nearly straight.

Remarks : Presence of a curved axial ribs sculpture does not look like any other species. The suture is characterized by a band of compact clear nodules and a highly marked sub-sutural groove. Subba Rao and Dey (2000) mentioned about this species but efforts were made to identify this species from NZC which went futile. It may be *T. textilis* which is creamy white in colour, sculptured with 16-22 curved axial ribs.

Distribution : India : Andamans Islands.

Elsewhere : Tropical Pacific.

49. *Terebra textilis* Hinds
(Pl. IV, Fig. 49)

1844. *Terebra textilis* Hinds, *Proc. zool. Soc. Lond.*, p. 156.
 1850. *Terebra roseata* Adams & Reeve, *Voy, de, Samarang*, p. 30(1), pl. 10, f. 24.

1859. *Terebra textilis* Deshayes, *Proc. zool. Soc. Lond.*, pl. 5, fig. 89.
1873. *Myurella macgillivrayi* Smith, *Ann. Mag. Nat. Hist., Lond.*, xi, p. 267.
1879. *Terebra subtextilis* Smith, *Proc. zool. Soc. Lond.*, p. 185, t. 19, fig. 3.
1967. *Terebra textilis* : Cernohorsky, *Marine Shells of the Pacific*, **1** : p. 206, pl. 52, fig. 388.
2000. *Terebra exigua* : Subba Rao and Dey, *Rec. zool. Surv. Ind., Occ. Paper*, **187** : p. 173.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 26.80-33.90, Width : 5.00-6.00, Aperture length : 1.90-2.70.

Description : Shell acicular, turreted, up to 40 mm in height, whorls about 12-18 convexly flattened, divided and punctuate at the upper part of a groove, aperture small, some what obliquely contracted, columella twisted and recurved. Sculptured with 20-23 curved axial ribs, interstices with 8-9 spiral cords and a row of oblique beads at sutures : pre-sutural groove is prominent; Shell light brown in colour throughout.

Remarks : A small livid brown or chestnut shell of varying regular growth closely latticed throughout.

Distribution : India : Andaman Islands.

Elsewhere : New Guinea, Fiji. Rare.

50. *Terebra tricineta* Smith

(Pl. IV, Fig. 50)

1877. *Terebra tricineta* Smith, *Ann. Mag. Nat. Hist. Mus.*, (4) 19 : 225.
1968. *Terebra (Strioterebrum) tricineta* : Ray, *Bull. Indian Mus.*, **3**(1 & 2) : 27, text fig. 25.
1991. *Terebra (Strioterebrum) tricineta* : Rao, Rao and Maitra, *Fauna of Orissa, State Fauna series*, **1**(3) : 89. *Zool. Surv. India*.
1992. *Terebra tricineta* : Subba Rao, Dey and Barua, *Fauna of West Bengal, State Fauna series*, **3**(9) : 201. *Zool. Surv. India*.

Material examined : Digha (3 exs).

Measurements (mm) : Length : 4.80-6.10, Width : 1.30-1.50, Aperture length : 0.80-0.90.

Description : Shell small, up to 6 mm in height, slender, spire pointed, with about 9-12 whorls, arranged like a pyramid; whorls medially constricted deep; sculptured with node like radial fine lines, these are very prominent and strong throughout the whorls.

Distribution : India : West Bengal : Medinipur; Maharastra, Orissa, Tamil Nadu.

Elsewhere : Persian Gulf, Pakistan coast, Singapore, Indonesia.

51. *Terebra triseriata* Gray

(Pl. IV, Fig. 51)

1834. *Terebra triseriata* Gray, *Proc. zool. Soc. Lond.*, p. 61.
1940. *Terebra triseriata* : Crichton, *J. Bombay nat. Hist. Soc.*, **42** : 335.
1844. *Terebra triseriata* : Hinds, *Thes. Conch. P.* 171(59); pl. 45, fig. 119.
1859. *Terebra praelonga* Deshayes, *Proc. zool. Soc. Lond.*, p. 315.
1990. *Terebra triseriata* : Pinn, *Sea Shells of Pondicherry*; Nehru Science Centre, p. 109, fig. 199.
1995. *Terebra triseriata* : Bosch, *Sea shell of Eastern Arabia* No. 774 p. 172.

Material examined : Andamans (5 exs).

Measurements (mm) : Length : 45.00-76.00, Width : 13.40-15.60, Aperture length : 4.70-5.60.

Description : Shell solid, moderately glossy, up to 76 mm in height; very long and narrow with about 32-41 straight sided whorls, early whorls broken, deep suture, small aperture with strongly twisted and recurved columella; Sculptured with two rows of beads at sutures, separated by a smooth spiral groove. Whorls bear 4-6 spiral cords and curved growth lines and weak axial ribs, last whorl more or less angled at the base.

Remarks : More delicate and slender in growth, more concavely flattened, with granulated sculpture.

Distribution : India : Andaman Islands.

Elsewhere : Isles of Ticao, Philippines Port Curtis, Australia.

52. *Terebra undulata* Gray

(Pl. IV, Fig. 52)

1834. *Terebra undulata* Gray, *Proc. zool. Soc. Lond.*, (1834) 11 : 60.
1859. *Terebra approximata* Deshayes, *Proc. zool. Soc. Lond.*, (1859) p. 299.
1906. *Terebra undulata* : Comber, *J. Bombay nat. Hist. Soc.*, **17** : 212.
1908. *Terebra cornicolor* Preston. *Rec. Indian Mus.*, **2** : 189. pl. 17, fig. 63.
1967. *Terebra undulata* : Cernohorsky, *Marine Shells of the Pacific*, **1** : 208, pl. 52, fig. 391.
1986. *Terebra undulata* : Tikader, Daniel and Subba Rao, *Sea shore animals of Andaman and Nicobar Islands*, *Zool. Surv. India*, p. 174.
2000. *Terebra undulata* : Subba Rao & Dey, *Rec. zool. Surv. Ind., Occ. Paper*, **187** : p. 175.

Material examined : Andamans (8 exs).

Measurements (mm) : Length : 30.00-46.30, Width : 6.10-7.70, Aperture length : 4.30-7.40.

Description : Shell cylindrically elongated, apex of the shell terminates in a point, polished, shining light

orange brown in colour. About 12-18 whorls, Aperture small, narrow; columella descending rather obliquely; outer lip simple; sculptured with close set longitudinal ribs crossed near the upper end by a slight spiral groove, thus forming an infra sutural crenulated band, the interstices between the ribs spirally and minutely pitted, the punctuation of the upper row being coarse than the rest. Base of shell marked with three minutely pitted grooves.

Remarks : Shell marked with three revolving punctuated grooves.

Distribution : India : Andamans Islands.

Elsewhere : Philippines, Singapore, Tropical Pacific, Viti Island.

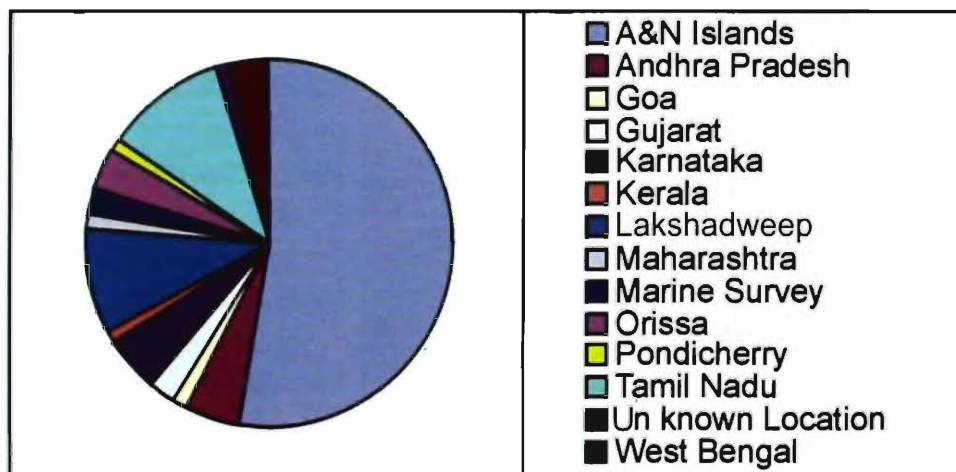
SUMMARY AND DISCUSSION

When we enumerate the number of species of *Terebra* in the last century, we are astonished at the smaller number. In the 12th edition of the "Systema Nature" Linnaeus (1758) had put together only 10 species in the 7th section of his genus *Buccinum*, which includes only *Terebra*. Martini and Chemnitz (1788) in their great work added few species, Schroeter having observed in the old plates a considerable number of figures that had been over looked, separated them carefully from each other, and placed them in the genus after Linnaeus species. The number of species was considerably increased as many as 43 by Gmelin in the

13th edition of 'Systema Nature' Lamarck has doubled the number of the species of Linnaeus in his *Histoire Naturelle des Animaux Sans Vertebres*'

Quoy and Gaimard (1836) contributed a few of them collected during the voyage of the 'Astrolabe' Kiener (1839-40) added some other in thier '*Species generales at Iconographic des Coquilles vivantes*' and carried up to 35 of the number figures and described. Shortly afterwards Gray described summering in Proceedings of Zoological Society London in 1834, twenty new species among which some of them are doubtful. At last Hinds (1843) described about 50 new species coming almost all from Cuming Ian collection, gave a complete monograph of the genus, and rose to other number of species known to 109. This way considerable number was still further augmented by Adams and Reeve (1850), who described 10 more species.

The species of the Genus *Terebra* were ably monographed by Hinds (1846), but many new ones having been accumulated since that period, the genus was again monographed by at Cuming's suggestion by Deshayes (1857-59), indeed to undertake the investigation of the genus under circumstances hardly favourable to the proper discrimination of the species. Again in 1860 Reeve reviewed the monograph of Deshayes and reported that out of 221 species cited by Deshayes, Reeve could get 214 original Types and series of types, and he reduced the number in to 149



Distribution species recorded among states of India of Family Terebridae

rejecting about 65 species as synonyms and he himself described about 6 species making the total into 155 species. In this manner the genus *Terebra* under went for addition or deletion of species. Till date there are about 412 species of Terebrids reported globally, but the authentication of the number and species name is still doubtful. The number of species may come hardly about 270 globally. In Indo Pacific region about 90 species were reported under five genera, viz., *Terebra*, *Diplomeriza*, *Hastula*, *Imphuges* and *Subula*.

The family Terebridae is widely distributed in Indo Pacific region, about 68 species of Terebrids were reported from Indian water by different authors, but we could find out only 52 species present in NZC, which were dealt comprehensively. The genus *Torenella* reported from Indo Pacific region by Hinds could not be ascertained due to lack of representative collection from Indian waters.

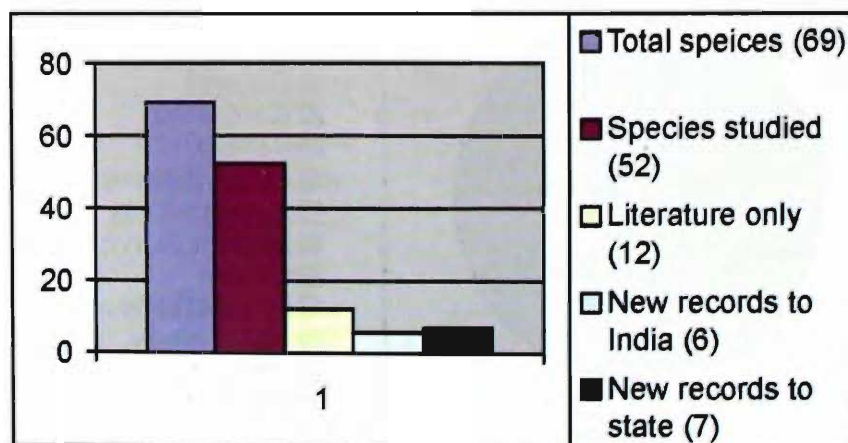
Out of 52 species reported in the present work *Terebra amoena*, *Terebra amanda*, *Terebra anilis*, *Terebra macandrewii*, *Terebra quoygaimardi* and *Hastula solida* which is a uncommon species from Tropical pacific are reported for the first time from India. Of the species reported, majority of species from Andaman Islands only. *Hastula tenera*, *Terbra maculata*, from Karnataka, *Diplomeriza raphanula* from Kerala and Karnataka, *Terebra crenulata*, *Terebra*

anilis from Goa, *T. felina* from Goa and Maharastra; *Dipomeriza duplicata* from Tamil Nadu are also recorded for the first time as new distributional records.

The taxonomy of the family Terebridae is remain unsatisfactory, due to the fact that it is mainly hurdle is non-availability of operculum and protoconch of the shell which may through some light on distinguishing the species as well other anatomical parts are essential to strengthen the taxonomic characters for classification. The polymorphic nature of the family Terebridae is due to geographical differences among the morphological features in different species. Since the study is based upon only the dry shell collected from various sources, still its collection methods are not so clear, and they might be collected through beach wash ups apart from some dredged materials. From the present study it is evident that only few species are reported apart from Andaman Islands, therefore efforts could be made to collect these species from other coastal areas.

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Status of species studied of Family Terebridae

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PLATE I



Fig. 1 Ventral View of *Diplomeriza anomala*; Fig. 2 *D. duplicata*; Fig. 3 *D. raphanula*; Fig. 4 *D. speciabilis*; Fig. 5 *D. straminea*; Fig. 6 *D. tricolor*; Fig. 7 *Hastula albula*; Fig. 8 *H. hacillus*; Fig. 9 *H. cinerea*; Fig. 10 *H. hastata*; Fig. 11 *H. inconstans*; Fig. 12 *H. lauta*; Fig. 13 *H. matherionana*; Fig. 14 *H. strigilata*; Fig. 15 *H. solida*; Fig. 16 *H. stylata*; Fig. 17 *H. tenera*; Fig. 18 *H. trailli*; Fig. 19 *Impages hectica*.

PLATE II

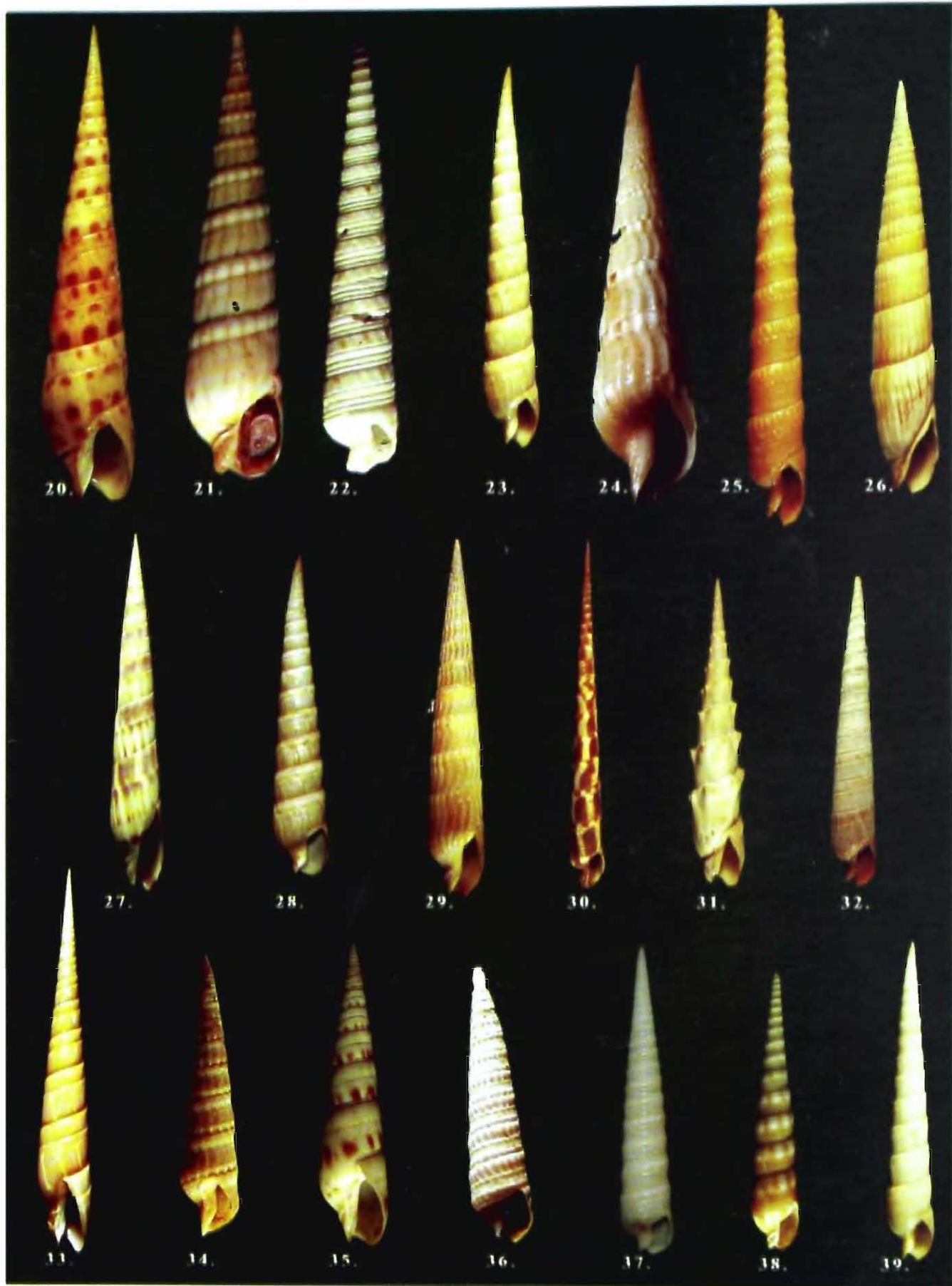


Fig. 20 *Terebra aerolata*; Fig. 21 *T. affinis*; Fig. 22 *T. alveolata*; Fig. 23 *T. amanda*; Fig. 24 *T. amoena*; Fig. 25 *T. anilist*; Fig. 26 *T. cerithina*; Fig. 27 *T. chlorata*; Fig. 28 *T. cingulifera*; Fig. 29 *T. Columellaris*; Fig. 30 *T. commaculata*; Fig. 31 *T. creulata*; Fig. 32 *T. deshayesi*; Fig. 33 *T. dimidata*; Fig. 34 *T. durgella*; Fig. 35 *T. felina*; Fig. 36 *fenestrata*; Fig. 37 *T. funiculata*; Fig. 38 *T. guttata*; Fig. 39 *T. laevigata*

PLATE III

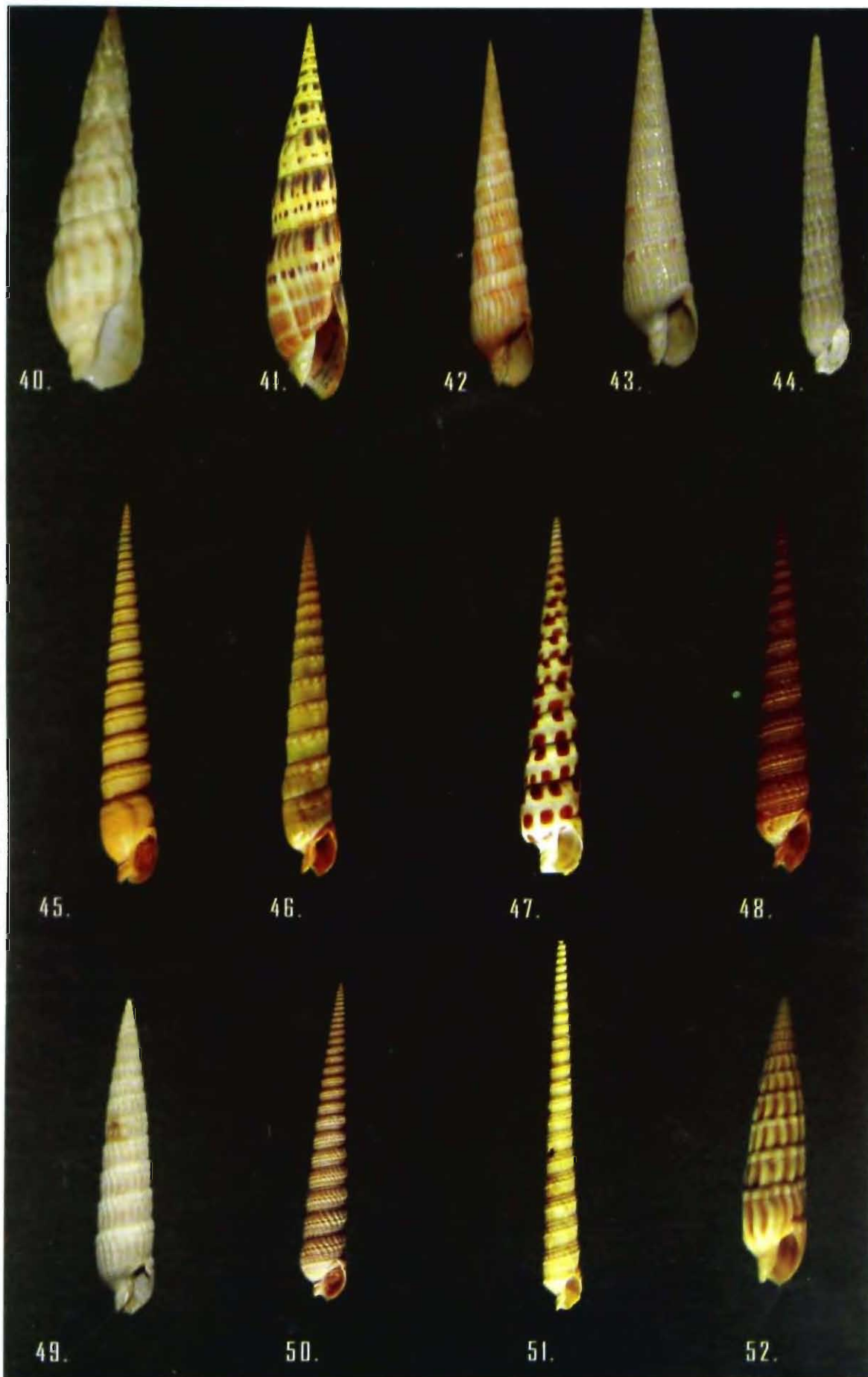


Fig. 40 *Terebra macandrewae*; Fig. 41 *Terebra nebulosa*; Fig. 42 *Terebra pertusa*; Fig. 43 *Terebra polygyrata*; Fig. 44 *Terebra punctatostriata*; Fig. 45 *Terebra quoygaimard*; Fig. 46 *Terebra roseata*; Fig. 47 *Terebra subulata*; Fig. 48 *Terebra succincta*; Fig. 49 *Terebra textiles*; Fig. 50 *Terebra tricincta*; Fig. 51 *Terebra triseriata*; Fig. 52 *Terebra undulata*.