

# Polychaetes from Maharashtra and Goa

BY

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(With a map and four plates)

A collection, of polychaetes from the intertidal region of 16 localities of the coast of Maharashtra and Goa, is described. For each species, the habit and preferred habitat, size, coloration, distinguishing external features, association and distribution are given. Out of 54 species, 11 are new records for West Coast and 4 new records for India.

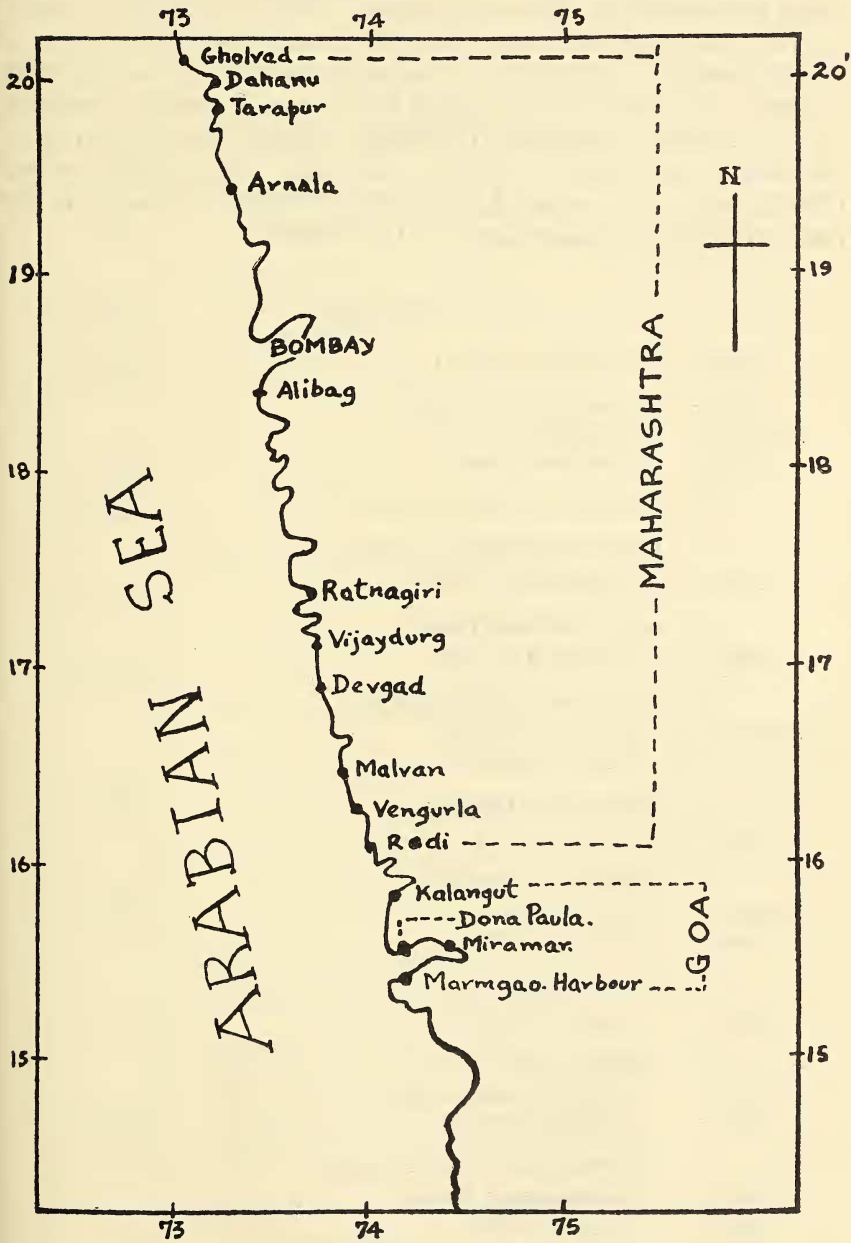
In course of studies on the 'Sea Anemones of Maharashtra and Goa' during 1965-68, a number of polychaetes were collected from the intertidal region of this part of the West Coast of India. The localities (*see* map) of collection were Gholvad, Dahanu, Tarapur, Arnala, Bombay, Alibag, Ratnagiri, Vijaydurg, Devgad, Malvan, Vengurla and Redi in Maharashtra State and Kalangut, Miramar, Dona Paula and Marmgao Harbour in the Union territories of Goa. These localities represent different ecological habitat, such as, sandy beaches, rocky foreshores, mud flats, marshes, mangrove swamps, etc.

Fauvel (1932, 1940 and 1953) has reported 14 species from Bombay and Marmgao Bay. Bhatt (1959) recorded 35 species and 4 varieties from 9 localities within the Bombay City limit. The collection of polychaetes, in this study, is quite rich, both in quantity and quality. It consists of 54 species and 8 varieties, belonging to 36 genera and 16 families. The group-wise composition is 43 species and 8 varieties of Errant polychaetes from 9 families and the remaining 11 species are sedentaria from 7 families. In fact the present collection consists of many more species, some of which may prove to be new.

Eleven out of 54 species, described here, are recorded from West Coast of India for the first time. *Nereis talehsapensis* Fauvel; *Nereis (Ceratonereis) costae* Grube; *Eunice savignyi* Grube and *Spirographis spallanzanii* Viviani, are first records for India. *Nereis burmensis* Monro, recorded by Fauvel (1932, 1953) from this part of the West Coast, is not represented in the present collection.

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Map of Maharashtra and Goa Coast showing localities of Collection.

As Fauvel (1953) remarks, many of the Polychaeta are really cosmopolitan and most of the species are common to the Indo-Pacific Coasts. Many forms have a world-wide distribution and the intertropical species are the same in all the Oceans. Thus the distribution of Polychaetes is mainly limited by temperature. The distribution is also not regulated by depth or pressure as many abyssal forms found in deep-sea dredgings are also collected between the tide-marks. *Leanira japonica* McIntosh, *Panthalis oerstedii* Kinberg, *Chloeia rosea* Potts, and *Leocratides ehlersi* (Horst), were so far recorded from deep-sea but were obtained in the intertidal region of Maharashtra and Goa Coast.

## LIST OF SPECIES

## Group I— POLYCHAETA ERRANTIA

- Family :       APHRODITIDAE Savigny  
 Subfamily :   POLYNOINAE Grube  
 Genus :       *Lepidonotus* Leach
1. *Lepidonotus carinulatus* Grube
  2. *Lepidonotus tenuisetosus* (Gravier)
- Genus :       *Gattyana* McIntosh
3. *Gattyana deludens* Fauvel
- Genus :       *Harmothoe* Kinberg
4. *Harmothoe ampullifera* (Grube)
- Subfamily :   SIGALIONINAE Grube  
 Genus :       *Sthenelais* Kinberg
5. *Sthenelais boa* (Johnston)
- Genus :       *Leanira* Kinberg
6. *Leanira japonica* McIntosh
- Subfamily :   ACOETINAE Grube  
 Genus :       *Polyodontes* Renier
7. *Polyodontes melanonotus* (Grube)
- Genus :       *Panthalis* Kinberg
8. *Panthalis oerstedii* Kinberg
- Family :       CHRYSOPTALIDAE Ehlers  
 Genus :       *Bhawania* Schmarda
9. *Bhawania cryptocephala* Gravier
- Family :       AMPHINOMIDAE Savigny  
 Genus :       *Eurythoe* Kinberg
10. *Eurythoe complanata* (Pallas)
  11. *Eurythoe parvecarunculata* Horst
- Genus :       *Chloeia* Savigny

12. *Chloeia rosea* Potts  
 Family : HESIONIDAE Grube  
 Genus : *Hesione* Savigny
13. *Hesione pantherina* Risso  
 Genus : *Leocrates* Kinberg
14. *Leocrates claparedii* (Costa)  
 Genus : *Leocratides* Ehlers
15. *Leocratides ehlersi* (Horst)  
 Genus : *Podarke* Ehlers
16. *Podarke angustifrons* (Grube)  
 Family : PHYLLODOCIDAE Grube  
 Subfamily : PHYLLODOCINAE  
 Genus : *Phyllodoce* Savigny  
 Subgenus : *Anaitides* Czerniavsky
17. *Phyllodoce (Anaitides) madeirensis* Langerhans  
 Family : SYLLIDAE Grube  
 Genus : *Syllis* Savigny  
 Subgenus : *Haplosyllis*
18. *Syllis (Haplosyllis) spongicola* Grube  
 Subgenus : *Syllis* s.str.
19. *Syllis (Syllis) gracilis* Grube  
 Subgenus : *Typosyllis*
20. *Syllis (Typosyllis) variegata* Grube
21. *Syllis (Typosyllis) closterbranchia* Schmarda  
 Family : NEREIDAE Johnston  
 Genus : *Dendronereides* Southern
22. *Dendronereides heteropoda* Southern  
 Genus : *Nereis* Cuvier  
 Subgenus : *Nereis* s.str. Kinberg
23. *Nereis (Nereis) chingrighattensis* Fauvel
24. *Nereis (Nereis) talehsapensis* Fauvel
25. *Nereis (Nereis) chilkaensis* Southern
26. *Nereis (Nereis) zonata* var. *persica* Fauvel  
 Subgenus : *Ceratonereis* Kinberg
27. *Nereis (Ceratonereis) costae* Grube
28. *Nereis (Ceratonereis) mirabilis* Kinberg  
 Genus : *Perinereis* Kinberg
29. *Perinereis vancaurica* (Ehlers)  
 a. var. *typica* Fauvel  
 b. var. *indica* Bhatt



30. *Perinereis cultrifera* Grube  
 a. var. *typica* Grube  
 b. var. *helleri* Grube
31. *Perinereis aibuhitensis* Grube
32. *Perinereis nigro-punctata* Horst
33. *Perinereis nuntia* (Savigny)  
 a. var. *typica* (Savigny)  
 b. var. *brevicirris* (Grube)  
 c. var. *vallata* Grube  
 d. var. *bombayensis* Bhatt
- Family : EUNICIDAE Grube  
 Subfamily : EUNICINAE Kinberg  
 Genus : *Eunice* Cuvier
34. *Eunice tentaculata* Quatrefages
35. *Eunice savignyi* Grube
36. *Eunice antennata* Savigny  
 Genus : *Marphysa* Quatrefages
37. *Marphysa sanguinea* Montagu
38. *Marphysa mossambica* Peters  
 Subfamily : ONUPHIDINAE Levensen  
 Genus : *Diopatra* Aud. & M. Edw.
39. *Diopatra neapolitana* Delle Chiaje  
 Genus : *Onuphis* Aud. & M. Edw.
40. *Onuphis* sp.  
 Subfamily : LUMBRICONEREINAE Grube  
 Genus : *Lumbriconereis* Blainville
41. *Lumbriconereis heteropoda* Marenzeller  
 Genus : *Arabella* Grube
42. *Arabella iricolor* (Montagu)  
 Family : GLYCERIDAE Grube  
 Subfamily : GLYCERINAE Arwidsson  
 Genus : *Glycera* Savigny
43. *Glycera alba* Rathke
- GROUP II—POLYCHAETA SEDENTARIA
- Family : SPIONIDAE Sars  
 Genus : *Polydora* Bosc  
 Subgenus : *Polydora* Bosc
44. *Polydora (Polydora) coeca* Oersted  
 Family : CIRRATULIDAE Carus  
 Genus : *Cirriformia* Hartman (*Audouinia* Quatrefages)
45. *Cirriformia limnoricola* Kirkegaard & Santhakumaran  
 Family : CHAETOPTERIDAE Aud. & M. Edw.  
 Genus : *Phyllochaetopterus* Grube

46. *Phyllochaetopterus socialis* Claparède  
 Family : SABELLARIIDAE Johnston  
 Genus : *Sabellaria* Lamarck
47. *Sabellaria* sp.  
 Family : TEREBELLIDAE Grube  
 Subfamily : AMPHITRITINAE Malmgren  
 Genus : *Pista* Malmgren
48. *Pista* sp.  
 Family : SABELLIDAE Malmgren  
 Genus : *Spirographis* Viviani
49. *Spirographis spallanzanii* Viviani  
 Genus : *Dasychone* Sars
50. *Dasychone cingulata* Grube
51. *Dasychone serratibranchis* Grube  
 Genus : *Potamilla* Malmgren
52. *Potamilla leptochaeta* Southern  
 Family : SERPULIDAE Burmeister  
 Genus : *Vermiliopsis* Saint-Joseph
53. *Vermiliopsis glandigerus* Gravier  
 Genus : *Spirobis* Daudin
54. *Spirobis foraminosus* Moore

## DESCRIPTION OF SPECIES

## Group I: POLYCHAETA ERRANTIA

1. *Lepidonotus carinulatus* Grube (Plate I: Fig. 1A & B)

*Occurrence* : Found in sand between rocks, or crevices of rock at Alibag, Malvan and Dona Paula.

*Remarks* : Elytra round to oval, fringed and covered with carinulate tubercles. Slender, spinulose dorsal setae ; stout, bidentate ventral setae (Fig. 1 A & B). Length : 10-22 mm. Uncommon to rare.

*Distribution* : Red Sea, Persian Gulf, Madagascar, Ceylon, Indian Ocean, Philippines, and Japan.

INDIA : Pamban bridge, Shingle Is., Tuticorin, Kilakarai (Tamil Nadu); Alibag and Malvan (Maharashtra); Dona Paula (Goa).

2. *Lepidonotus tenuisetosus* (Gravier) (Plate I: Fig. 2 A & B)

*Occurrence* : In sand or from crevices of rocks at almost all the localities of this study, except Dahanu and Miramar,

*Remarks*: Elytra oval, slightly reniform, with a small fringe and few large and many small rounded papillae. Slender, spinulose dorsal setae (Fig. 2A) and unidentate ventral setae (Fig. 2B). Length: 5-12 mm. Common.

*Distribution*: Red Sea, Persian Gulf, Jack & Una Is., Madagascar, Indian Ocean, Mergui Archipelago.

INDIA: Tamil Nadu; Port Canning; Orissa; Maharashtra and Goa Coast.

3. *Gattyana deludens* Fauvel (Plate I: Fig. 3)

*Occurrence*: Generally found under stones in rocky and sandy areas. Also, present in the apical whorl of a gastropod shell (*Babylonia spirata*), inhabited by a hermit-crab (*Diogenes custos*) with a sea Anemone (*Neoaip-tasia commensali*) on the outer surface of the shell. Collected from Bombay, Ratnagiri and Malvan. Uncommon to rare.

*Remarks*: Much flattened body, tapering posteriorly and fully covered by elytra. The first elytron is orbicular while the others, reniform. Elytra divided into polygonal areas (Fig 3). Size: 10-20 × 6-7 mm.

*Distribution*: Annam, Poulo Condore, Mergui Archipelago.

INDIA: Gangetic Delta, Ghandipore; Pondicherry, Madras (Tamil Nadu); Balasore (Orissa); Bombay, Ratnagiri, Malvan (Maharashtra).

4. *Harmothoe ampullifera* (Grube) (Plate I: Fig. 4)

*Occurrence*: Found in rock pools or undersurface of rock or from dead corals. Almost all localities except, Gholvad, Tarapur and Miramar.

*Remarks*: Largest and commonest polynoid, found associated with *Diodora* sp. and chitons on dead corals. Elytra, fringed with conical tubercles and large posterior vesicles, not divided into polygonal areas (Fig. 4). Numerous verticillate and spinulose dorsal setae. Size: 10-30 × 1-10 mm.

*Distribution*: Red Sea, Persian Gulf, Singapore, Camorta Is., Philippines, Annam.

INDIA: Rameswaram, Pamban, Coral reefs (Tamil Nadu); Maharashtra and Goa.

5. *Sthenelais boa* (Johnston) (Plate I: Fig. 5)

*Occurrence*: Burrowing in sand, also on the undersurface of rock. Rarely observed in soft mud. Collected at Gholvad, Bombay, Alibag, Malvan and Miramar.

*Remarks* : Rusty black elytra, convex dorsally, are reniform, fimbriated with numerous minute papillae (Fig. 5). Uncommon to rare. Size : 40-70×3-8 mm.

*Distribution* : Indian and Atlantic Oceans, Mediterranean Sea, Israel, English Channel, Ceylon, Dry Tortugas (Florida), Amiranti Is.

INDIA : Cape Comorin, Krusadai Is. (Tamil Nadu) ; Maharashtra and Goa.

#### 6. *Leanira japonica* McIntosh

*Occurrence* : Usually a deep-sea inhabitant, but the specimens, in the present collection are from intertidal area of Bombay, Malvan, Vengurla and Kalangut.

*Remarks* : Body very long and slender. Prostomium with four black eyes. Elytra variable in shape, unfimbriated, and overlapping. Size : 30-54×2-3 mm. Uncommon to rare.

*Distribution* : Gulf of Oman, Indian Ocean. Ceylon, Japan, Annam, Malay seas, Mergui.

INDIA : Bay of Bengal ; Arabian Sea ; Andamans ; Gulf of Mannar ; Bombay, Malvan, Vengurla (Maharashtra) ; Kalangut (Goa).

#### 7. *Polyodontes melanonotus* (Grube)

*Occurrence* : Deep-sea inhabitant, but two specimens, one each from Bombay and Malvan, respectively, were collected between tide-marks. Burrowing in admixture of sand and mud.

*Remarks* : Large first pair of elytra, crossing and overlapping in front, flat, smooth without fringe or pouch. Pigmented spots on tentacles and palps. Size : 50×9 mm. Rare.

*Distribution* : Philippine Is., Malay Archipelago, Ceylon, Gulf of Oman, Madagascar, Jamaica, Burma, off Tenasserim and Arakan Coast, Indian Ocean.

INDIA : Andamans ; Rameswaram (Tamil Nadu) ; Bombay and Malvan (Maharashtra).

#### 8. *Panthalis oerstedii* Kinberg (Plate I : Fig. 6A, B, C & D)

*Occurrence* : Collected from muddy sand at Bombay, Malvan, Dona Paula, and Marmgao Harbour.

*Remarks* : First elytron large, rounded, smooth and unfringed. Posterior elytron (Fig. 6A), having margin folded in a pocket-like manner,

Branchia absent. Ventral setae of three different kinds : (1) Bipennatopencillate (Fig. 6B) ; (2) Aristate bristles (Fig. 6C) and (3) Serrulate Sub-spiral setae (Fig. 6D). Size : 40-50×2-5 mm. Rare.

*Distribution* : Pacific, Indian and Atlantic Oceans, Mediterranean and Arabian seas, off Burma, Laccadive sea.

INDIA : Bay of Bengal; Andamans ; Maharashtra and Goa.

9. **Bhawania cryptocephala** Gravier (Plate II : Fig. 7)

*Occurrence* : A single specimen, associated with sponges, was collected at Malvan in April 1967.

*Remarks* : Elongated and slightly twisted body, measuring 70×3 mm. in size. Light-yellow in colour. Body fully covered by dense transverse rows of brown palae (Fig. 7). Rare.

*Distribution* : Red Sea, Indian Ocean, Philippine Is., Pacific Ocean, New Caledonia, Laccadive and Maldivé Archipelago, Burma Coast, Camorta Is., Ceylon.

INDIA : Port Blair (Andamans) ; Nankauri Harbour (Nicobar Is.) ; Malvan (Maharashtra).

10. **Eurythoë complanata** (Pallas)

*Occurrence* : A number of specimens were collected among rocks, from almost all the localities, of the present study.

*Remarks* : Branchiae commencing on 2nd Segment. Dorsal setae, finely serrated, calcareous and very brittle. Light-red in life. Size : 80-100×5-10 mm. Common.

*Distribution* : Tropical waters of Pacific, Indian and Atlantic Oceans, Mergui, Ceylon, Arabian Sea, Red Sea, Mediterranean Sea, Persian Gulf, Karachi, Great Barrier Reef, Florida, West Indies, Australia, Zanzibar.

INDIA : Andaman and Nicobar Is. ; Kilakarai, Cape Comorin, Turicorin, Krusadai, Pamban (Tamil Nadu) ; Maharashtra and Goa Coast.

11. **Eurythoë parvecarunculata** Horst (Plate II : Fig. 8)

*Occurrence* : A single specimen was collected from Bombay in February 1968. Burrowing in sand.

*Remarks* : Branchiae beginning on the third segment. Rounded cephalic lobe, with a large heart-shaped palpar and a long unpaired antenna, posteriorly (Fig. 8). Two types of dorsal setae. Size : 40×3 mm,



*Distribution* : Malay Archipelago, Bay of Bengal, Atlantic Ocean, Cameroon, Guiana, Red Sea, Maldives.

INDIA : Off Chilka Lake (Orissa) ; Port Blair (Andamans) ; Bombay (Maharashtra).

## 12. *Chloeia rosea* Potts

*Occurrence* : This species which has so far been recorded only from deep-seas, is represented in the present collection, by a single specimen, found in the intertidal mud, at Malvan.

*Remarks* : Moderately elongated worm, having uniform reddish pink colour. This species closely resembles, *C. fusca* but differs in coloration, structure and arrangement of branchiae (Potts 1909). Size : 10×4 mm. Rare.

*Distribution* : Amirante Is., Persian Gulf, Bay of Bengal, Arabian Sea, Burma.

INDIA : Malvan (Maharashtra).

## 13. *Hesione pantherina* Risso

*Occurrence* : One specimen each from Dahanu and Malvan, respectively. Worms found on the undersurface of rocks, in association with a sea anemone (*Anthopleura midori*).

*Remarks* : When alive, the specimen has black transverse bands on a yellowish-white body. Number of brown spots in the anterior region. Moderately elongated with slight posterior tapering. Long dorsal cirri. Size : 10×3 mm. Uncommon.

*Distribution* : Atlantic, Pacific and Indian Oceans, Mediterranean Sea, Ceylon, Banka Strait.

INDIA : Andamans ; Nankauri Harbour (Nicobar Is.) ; Chilka Lake (Orissa) ; Krusadai, Rameswaram (Tamil Nadu) ; Dahanu and Malvan (Maharashtra).

## 14. *Leocrates claparedii* (Costa) (Plate II : Fig. 9)

*Occurrence* : Collected from gravel and sandy mud at Bombay, Ratnagiri, Malvan and Dona Paula.

*Remarks* : Lateral tentacles longer than the palps. Biramous parapodia (Fig. 9), with a long articulate, dorsal cirrus. Dorsal ramus simple, capillary dorsal setae are reduced. Well developed ventral ramus. Size : 15-22×2-4 mm. Uncommon to rare.



*Distribution* : Japan, Indo-China, Singapore, Ceylon, Persian Gulf, Red Sea, Mediterranean Sea, Indian Ocean.

INDIA : Andaman and Nicobar Is.; Bay of Bengal; Gulf of Mannar; Maharashtra and Goa Coast.

15. **Leocratides ehlersi** (Horst) (Plate II : Fig. 10)

*Occurrence* : Found among loose rocks and boulders at Gholvad, Bombay, Ratnagiri and Malvan.

*Remarks* : Proboscis armed. Parapodia (Fig. 10) sesquiramous, the dorsal lobe reduced to an aciculum only at the base of the dorsal cirrus. Size  $20 \times 2$  mm. Uncommon to rare.

*Distribution* : Saleh Bay, Sumbawa, Andaman Sea and Maharashtra Coast.

16. **Podarke angustifrons** (Grube)

*Occurrence* : A single specimen, associated with a sea cucumber was collected from Malvan in April 1967.

*Remarks* : Width of the body more than three times the length. Brown with white rings, when alive. Prostomium almost rectangular. Dorsal cirri, long, smooth or faintly ringed. Short, subulate ventral cirrus. Furcate setae. Rare.

*Distribution* : Philippine Is., Celebes, Bay of Bengal, Ceylon, Persian Gulf, Red Sea, Australia, New Zealand.

INDIA : Pamban (Tamil Nadu); Nicobar Island; Malvan (Maharashtra).

17. **Phyllodoce (Anaitides) madeirensis** Langerhans (Plate II : Fig. 11)

*Occurrence* : One specimen among the green alga *Cladopora* sp. from Bombay, in December 1966. Two more specimens, from rocks covered with unidentified green algae at Alibag in February 1966.

*Remarks* : Worm brilliantly iridescent green in life. Tentacles and tentacular cirri, subulate. Dorsal cirri (Fig. 11) very variable in shape, usually lanceolate-falcate. Rare.

*Distribution* : Pacific, Atlantic and Indian Oceans, Red and Mediterranean Seas, Persian Gulf, China, Annam, Philippine Is., Australia, W. Mexico, Bermuda, Malay Archipelago, Malacca Strait, Mergui, Ceylon.

INDIA : Andaman Is.; Laccadive Sea; Bombay and Alibag (Maharashtra).

**18. Syllis (Haplosyllis) spongicola** Grube

*Occurrence* : Only four specimens, one each from Ratnagiri and Dona Paula and two from Malvan, collected from the undersurface of rocks.

*Remarks* : Elongated, slender body with short, cylindrical dorsal cirri and compound anterior and posterior setae. Reddish-brown in colour. Size :  $9-17 \times 2-3$  mm.

*Distribution* : Cosmopolitan. Atlantic, Pacific and Indian Oceans, Mediterranean and Red Seas, Ceylon, Maldivian Archipelago.

INDIA : Tuticorin (Tamil Nadu); Ratnagiri and Malvan (Maharashtra); Dona Paula (Goa).

**19. Syllis (Syllis) gracilis** Grube

*Occurrence* : Collected from all localities, in rock crevices. Occasionally associated with *Dasychone* or *Membranipora*.

*Remarks* : Short, cylindrical or fusiform dorsal cirri. Compound anterior and posterior setae. Dirty-brown in colour. Size  $8-21 \times 1-3$  mm. Common.

*Distribution* : Cosmopolitan. Indian, Pacific and Atlantic Oceans, Persian Gulf, Maldivian Archipelago, Israel, Ceylon and Marshall Is.

INDIA : Andamans; Gulf of Mannar, Tuticorin (Tamil Nadu); Maharashtra and Goa Coast.

**20. Syllis (Typosyllis) variegata** Grube

*Occurrence* : Very common, as it was collected from all the localities except Redi and Marmgao Harbour.

*Remarks* : Elongated and slender form. Pharynx very long, with an anterior tooth. All compound setae alike, with a falcate bidentate terminal piece. Size :  $8-17 \times 1-3$  mm.

*Distribution* : Indian, Atlantic and Pacific Oceans, Persian Gulf, Mediterranean and Arabian Seas, Israel, Ceylon, Dry Tortugas (Florida), South Africa, New Zealand and Marshall Is.

INDIA : Gulf of Mannar; Maharashtra and Goa Coast.

**21. Syllis (Typosyllis) closterbranchia** Schmarda

*Occurrence* : Common form, generally found in rock pools or under rocks and boulders at all the localities, except Gholvad, Tarapur and Marmgao Harbour.

*Remarks* : Short, fusiform dorsal cirri. Reddish-brown with black spots in the anterior part of the body. Size : 5-9 × 1-3 mm.

*Distribution* : Japan, Australia, New Zealand, New Caledonia, Indian Ocean, Red Sea.

INDIA : Diamond Is.; Andamans; Gulf of Mannar; Maharashtra and Goa Coast.

22. **Dendronereides heteropoda** Southern

*Occurrence* : Two specimens, one each from Tarapur and Bombay, respectively. Found in soft mud in March 1966.

*Remarks* : Quite elongated, with broad prostomium and tapering posterior part. Blunt, ovoid palps and four eyes. Black spots on a yellowish-white body. Size 28-34 × 1 mm. Rare.

*Distribution* : Indian Ocean and Persian Gulf.

INDIA : Calcutta (West Bengal); Tarapur and Bombay (Maharashtra).

23. **Nereis (Nereis) chingrighattensis** Fauvel (Plate II : Fig. 12 A & B).

*Occurrence* : A single, intact, specimen and a few, cut off, segments were collected from Malvan in April 1968.

*Remarks* : Numerous, very slender and transparent, spinigerous setae (Fig. 12 A & B) on a brownish body. Size : 40 × 12 mm. Rare.

*Distribution* : INDIA : Chingrighatta and Maharashtra (Malvan).

24. **Nereis (Nereis) talehsapensis** Fauvel (Plate II : Fig. 13)

*Occurrence* : Bhatt (1959) has recorded this species from Bombay. In the present collection, there are specimens from Bombay, Ratnagiri, Vijaydurg and Devgad. Generally found in rocks, along with Oysters and barnacles. Occasionally in loose sand.

*Remarks* : Small, thin worms, tapering posteriorly. Anterior feet (Fig. 13) with a long dorsal cirrus and three dorsal ligules, the inferior two borne on a common elongated base. Acicula, black in colour. Size : 30 × 2 mm. Uncommon.

*Distribution* : Taleh-sap (Gulf of Siam).

INDIA : Bombay, Ratnagiri, Vijaydurg and Devgad (Maharashtra).

25. **Nereis (Nereis) chilkaensis** Southern

*Occurrence* : Common on the southern part of this coast, especially at Vijaydurg, Devgad, Malvan, Vengurla, Kalangut, Miramar and Marmgao Harbour. Found burrowing in sand,

*Remarks* : Dorsum deeply coloured with purplish brown pigment, dark in front and pale behind. Head narrower in front than behind. Large and stout palps. Size : 50-80×2-4 mm.

*Distribution* : INDIA : Madras Coast, Ennur Backwaters, Pamban, (Tamil Nadu); Chilka Lake, Travancore, Maharashtra and Goa Coast.

26. *Nereis (Nereis) zonata* var. *persica* Fauvel

*Occurrence* : Five specimens, one each from Miramar, and Dona Paula, and three from Marmgao Harbour, respectively.

*Remarks* : Body rounded. Proboscis: Groups—I, 0-1; II-IV, crescentic clusters ; III, transverse cluster of 2-3 rows; V, 0; VI, a rounded or oval cluster 6-10, on each side ; VII-VIII, an anterior row of rather large denticles and 2-5 irregular rows of small and numerous denticles. Size : 15×2 mm. Rare.

*Distribution* : Red Sea, Persian Gulf, New Caledonia, Indo-China, Indian Ocean.

INDIA : Pamban (Tamil Nadu), Miramar, Dona Paula and Marmgao Harbour (Goa).

27. *Nereis (Ceratonereis) costae* Grube (Plate III : Fig. 14)

*Occurrence* : Two specimens, one each from Bombay and Malvan, respectively. Burrowing in mud.

*Remarks* : Prostomium not cleft (Fig. 14). Proboscis : Groups—I, 0; II, 2 crescentic rows; III, 3 set in a triangle; IV, square clusters. Three dorsal ligules, with the median one shorter, in the anterior feet. Dorsal cirrus long and ventral short. Falcigerous bristles present, throughout. Colour Pink. Size : 50×2 mm. Rare.

*Distribution* : Australia, Philippine Islands, Indo-China, Malay Archipelago, Indian and Atlantic Oceans, Red Sea, Persian Gulf, Ceylon, Israel, Marshall Is.

INDIA : Bombay and Malvan (Maharashtra).

28. *Nereis (Ceratonereis) mirabilis* Kinberg (Plate III ; Fig. 15)

*Occurrence* : Collected from localities Gholvad, Arnala, Bombay, Ratnagiri, Malvan, Miramar and Marmgao Harbour.

*Remarks* : Prostomium, deeply cleft (Fig. 15). Proboscis : Groups—I, 0 ; II & IV, triangular clusters ; III, a transverse cluster of several rows. Dorsal ramus, with two long, slender, subequal ligules. Colour white with rounded black dots. Size : 40×2 mm. Common.

*Distribution* : Red Sea, Persian Gulf, Indian and Atlantic Oceans, Amboina, New Caledonia, New Zealand, Honolulu, Australia, Brazil, West Indies.

INDIA : Krusadai and Shingle Is., Pamban, Kilakarai (Tamil Nadu) ; Andamans ; Maharashtra and Goa Coast.

29 (a). **Perinereis vancaurica** (Ehlers) var. **typica** Fauvel

*Occurrence* : Commonly found in the crevices of rock at all the localities, except Dahanu and Kalangut.

*Remarks* : Yellowish-brown body with a brown prostomium. No dark stripes on the anterior segments. Proboscis : Groups I, 1-2; II, crescentic clusters; III, a square cluster, with sometimes, 2-4 teeth in a vertical line; IV, a cluster of small denticles; V, 3 large teeth, set in a triangle; VI, two transverse, broad, flattened and elongated paragnaths on each side; VII-VIII, 3 rows, first row regular and made up of large teeth. Size : 57-72 × 2-3 mm.

*Distribution* : Philippines, Indo-China, Great Barrier Reef, New Zealand, Singapore, Mergui, Red Sea, Atlantic Ocean, French Guiana.

INDIA : Nankauri (Nicobar Is.) ; Maharashtra and Goa Coast.

29 (b). **Perinereis vancaurica** (Ehlers) var. **indica** Bhatt

*Occurrence* : Bhatt (1959) has described this new variety from Bombay. In the present collection, there are a number of specimens obtained from crevices of rocks as well as from mud, at all the localities, except Dahanu, Tarapur and Kalangut.

*Remarks* : Proboscis : Groups—I, 4; II, in crescentic clusters; III, square or rectangular patch, generally with many denticles on either side; IV, triangular clusters; V, 3 big denticles, arranged in a triangle; VI, two transverse, broad and flattened paragnaths on either side, the outer being noticeably shorter than the two inner ones, which are elongated; VII-VIII, 3 rows. Size : 40 × 2 mm. Common.

*Distribution* : Bombay. Coast of Maharashtra and Goa.

30 (a). **Perinereis cultrifera** Grube var. **typica** Grube

*Occurrence* : Found among stones at Arnala, and Bombay.

*Remarks* : Tentacular cirri, reaching back to 5th-6th segment. Groups—I, 2 in a line (1-3); V, a triangle of 3 paragnaths. Size: 27-32 × 1-2 mm. Uncommon to rare.

*Distribution* : Cosmopolitan. Indian, Pacific and Atlantic Oceans, Mediterranean Sea, Israel, Japan, Burma, Diamond Is., Carmorta Is.



INDIA : Nicobar and Andaman Is.; Travancore; Cape Comorin (Tamil Nadu); Maharashtra.

30 (b). *Perinereis cultrifera* Grube var. *helleri* Grube

*Occurrence* : Collected, along with *P. cultrifera* var. *typica*, from the same localities.

*Remarks* : Tentacular cirri, reaching back to 7th-9th segment. Groups—I, normally there are 2 teeth, one behind the other, but in a few specimens, only one tooth was noticed; V, a triangle of 3 paragnaths. Size :  $40 \times 3.5$  mm. Uncommon to rare.

*Distribution* : Pacific and Atlantic Oceans, Philippine Is., Mergui Archipelago, Great Barrier Reef, New Zealand and Costa Rica.

INDIA : Gulf of Mannar and Maharashtra.

31. *Perinereis aibuhitensis* Grube (Plate III : Fig. 16)

*Occurrence* : Common at most of the localities. Found in mud, rock crevices, undersurface of stones or cement structures.

*Remarks* : Proboscis (Fig. 16) : Groups—I, 2 in a longitudinal line (rarely three); II, a cluster of 6-7 teeth; III, a rectangular patch with 1-4 in a line on each side; IV, a cluster of 8-10 teeth; V, 3 in a triangle; VI, two stout, obtusely conical narrow teeth, on each side; VII-VIII, 3 rows, the anterior teeth, being smaller. Size :  $80 \times 4$  mm.

*Distribution* : Philippines, Batavia, China, Macassar.

INDIA : Andamans; Vishakhapatnam (A.P.); Maharashtra; Goa.

32. *Perinereis nigro-punctata* Horst (Plate III : Fig. 17)

*Occurrence* : Common at all the localities. Found among barnacles and Oysters, also in rock crevices at ebb-tide.

*Remarks* : Proboscis (Fig. 17) : Groups—I, 5-12 paragnaths in a cluster; II & IV, clusters; III, a rectangular cluster; V, 3 large denticles in a triangle; VI, one flat and semi-circular tooth on each side; VII-VIII, two rows. Greatly enlarged dorsal ligule in the posterior feet. Size :  $50 \times 2$  mm.

*Distribution* : Malay Archipelago, Great Barrier Reef.

INDIA : Andaman and Nicobar Is.; Chilka Lake (Orissa); Cape Comorin (Tamil Nadu), Maharashtra; Goa Coast.

33 (a). *Perinereis nuntia* (Savigny) var. *typica* (Savigny)

*Occurrence* : Commonly found in sand at almost all the localities, except, Gholvad, Devgad, Redi and Dona Paula.



*Remarks* : Proboscis: Groups—I, 0, 1 or 2; II-IV, clusters; III rectangular patch; V, 3 set in a triangle; VI, on each side, a curved row of 5-12, conical; VII-VIII, 2 anterior rows of large ones and 2-3 rows of smaller ones. Tentacular cirri and dorsal cirri, long. Size 60-210×3-6 mm.

*Distribution* : Red Sea, Persian Gulf, Indian Ocean.

INDIA : Tuticorin, Pamban Backwaters (Tamil Nadu); Chandipore (Orissa); Nankauri Is. (Nicobars); Maharashtra and Goa Coast.

33 (b). *Perinereis nuntia* (Savigny) var. *brevicirris* (Grube)

*Occurrence* : Largest and the commonest nereid worm, observed at all the localities of the present study. Always found in coarse sand.

*Remarks* : Proboscis : Groups—I, 1-3; but in a few specimens 4 teeth are present; II-IV, crescentic and triangular clusters; III, a rectangular patch, often with 2-3 on each side; V, 3 in a triangle; VI, 8-10 flattened or mixed teeth, arranged transversely; VII-VIII, 3 irregular rows. Tentacular cirri are short, reaching only up to 5th-8th segment.

*Distribution* : Japan, Australia, New Zealand, New Caledonia, Malay Archipelago, Indian Ocean, Saint Paul Is., Red Sea.

INDIA : Gulf of Mannar, Tuticorin, Cape Comorin (Tamil Nadu); Nankauri (Nicobar Is.); Maharashtra and Goa Coast.

33 (c). *Perinereis nuntia* (Savigny) var. *vallata* Grube

*Occurrence* : Two epitokous specimens were collected from Bombay in March 1966. Few more specimens were obtained from Ratnagiri, Malvan and Miramar in April-May 1968. Found in sand, under rocks.

*Remarks* : Proboscis: Groups—I, 1 to 3; II-III-IV, clusters; V-1, set far back; VI, 8-15 (in the present specimens, 11 on each side); VII-VIII, 5 to 6 irregular rows of small teeth (3 rows, according to previous description). Tentacular cirri reaching to 3rd-6th segments. Size: 22×2 mm. Rare.

*Distribution* : Chile, New Zealand, Australia, Philippines, Red Sea, Madagascar, Cape of Good Hope.

INDIA : Maharashtra and Goa Coast.

33 (d). *Perinereis nuntia* (Savigny) var. *bombayensis* Bhatt

*Occurrence* : This new variety has been described by Bhatt (1959) from Bombay. In the present collection there are two atokous speci-

mens one each from Bombay and Alibag. Found in crevices of trachyte rocks.

*Remarks* : Proboscis: Groups—I, 2 or 3, one behind another; II, oblique close-set clusters; III, square patch of 12 teeth; IV, round cluster of many teeth; V, 0; VI, 4 conical teeth on each side; VII-VIII, 2 rows, the anterior of large teeth. Size : 45-52 × 3-4.5 mm. Rare.

*Distribution* : INDIA : Bombay and Alibag (Maharashtra).

#### 34. *Eunice tentaculata* Quatrefages

*Occurrence* : Only two specimens, one each from Gholvad and Malvan, respectively. Found in mud.

*Remarks* : Long, annulated tentacles, with articulated cirri. Black acicula and acicular setae. Branchiae, begin about 3rd-6th segment, and continue to the hind part of the body. Colour brown with black spots. Size : 18 × 2 mm. Rare.

*Distribution* : Australia, New Zealand, Malay Sea, Indian Ocean, Ceylon.

INDIA : Laccadive Is. ; Nankauri Harbour (Nicobars); Port Blair (Andamans); Tuticorin, Krusadai, Pamban (Tamil Nadu); and Maharashtra.

#### 35. *Eunice savignyi* Grube

*Occurrence* : Only one specimen from Bombay. Found in a tube of mud. Bhatt (1959) has also recorded it from the same locality.

*Remarks* : Tentacles articulate. Gills beginning on the 3rd or 4th feet and disappear from about 80th segment. Yellow, bidentate acicular setae. Size : 23 × 1.5 mm. Rare.

*Distribution* : Philippines, Ceylon, Persian Gulf, Agulhas current and Cape Town (S. Africa).

INDIA : Bombay (Maharashtra).

#### 36. *Eunice antennata* Savigny

*Occurrence* : Three specimens, two from Malvan and one from Bombay. Found in coarse mud tubes.

*Remarks* : Deeply annulated tentacles. Branchiae beginning about 4th-6th feet and continued to near the anus. Yellow, tridentate acicular setae. Size : 20 × 2 mm. Rare.

*Distribution* : Red Sea, Persian Gulf, Indian Ocean, Philippine Islands, Pacific Ocean, Indo-China, Ceylon.

INDIA : Pamban, Krusadai and Shingle Is., Tuticorin (Tamil Nadu); Andamans; and Maharashtra Coast.

37. *Marphysa sanguinea* Montagu (Plate III : Fig. 18)

*Occurrence* : Two specimens collected from Marmgao Harbour in April 1967. One more specimen obtained at Malvan in March 1968. Found in admixture of sand and mud or in association with a sea Anemone, *Paracondylactis indicus*.

*Remarks* : Bilobed prostomium. Tentacles shorter than head.

Presence of compound ventral setae (Fig. 18). Size : 18×5 mm. Rare.

*Distribution* : Indian and Atlantic Oceans, Mediterranean and Red Sea, Australia, New Caledonia.

INDIA : Krusadai Island, Pamban Backwaters, Pondicherry, Tuticorin, Gulf of Mannar (Tamil Nadu); Travancore; Marmgao Bay (Goa); Malvan (Maharashtra); Vishakapatnam (A.P.).

38. *Marphysa mossambica* Peters

*Occurrence* : Only one specimen, from Bombay, burrowing in sand.

*Remarks* : Body flattened, with a rounded anterior end. Tentacles longer than head. Absence of compound setae. Size : 80×4.5 mm. Rare.

*Distribution* : Philippines, Australia, Singapore, Red Sea, East Africa.

INDIA : Nankauri (Nicobar Is.); Pondicherry, Kilakarai (Tamil Nadu); Bay of Bengal; Gulf of Mannar; Bombay (Maharashtra).

39. *Diopatra neapolitana* Delle Chiaje

*Occurrence* : Commonly found on the sandy parts of the shore of all the localities.

*Remarks* : Large-sized (100-250 mm.), iridescent worms, living in membranous tubes, partly buried in sand. Most abundant in a substratum of mixed sand and mud.

*Distribution* : Pacific, Atlantic and Indian Oceans, Gulf of Oman, Gulf of Siam, Persian Gulf, China, Arabian, Red and Mediterranean Seas, Japan, Australia, Burma, Mergui, Ceylon, Maldivé Archipelago.

INDIA : Chilka Lake (Orissa); Madras Coast (Tamil Nadu); Maharashtra and Goa Coast.

**40. Onuphis sp.**

*Occurrence* : Found living in association with a sea anemone, *Anemonia indicus* at Bombay, Ratnagiri, Malvan, Vengurla and Redi.

*Remarks* : So far, seven species have been recorded from India, however, it is not possible to assign the forms, from the present collection, to any of the seven species. Worms attain a maximum length of 60 mm., resemble *Diopatra neapolitana* in appearance but are smaller. Their tubes are also similar and are found in mud deposited between the rocks.

**41. Lumbriconereis heteropoda Marenzeller**

*Occurrence* : Fauvel (1932) has reported this species from Chaupatty, Bombay. Specimens, in the present collection, are from Bombay as well as from all other localities, except, Vijaydurg, Redi, Kalangut and Miramar. Found in sand, mud or crevices of rock.

*Remarks* : Small, thin and cylindrical worms, with feet increasing in length, posteriorly. Size : 14-50 × 1-3 mm. Common.

*Distribution* : Red Sea, Persian Gulf, Indo-China, Japan, California.

INDIA : Marmgao Bay (Goa); Doorakara (Sunderbans); Chaupatty, Bombay (Maharashtra); and Goa Coast.

**42. Arabella iricolor (Montagu) (Plate III : Fig. 19 A & B).**

*Occurrence* : Common, in mud, at Arnala, Bombay, Alibag, Ratnagiri, Malvan, Vengurla and Marmgao Harbour.

*Remarks* : Blunt, conical proboscis with four eyes (Fig. 19 A). Parapodia (Fig. 19 B) with dorsal cirrus reduced to a bent knob. Seta simple, stout and geniculate. Size : 32-57 × 1-4 mm. Common.

*Distribution* : Pacific, Atlantic and Indian Oceans, Japan, Marshall Is., Samoa, W. Indies, Mediterranean Sea, British Channel.

INDIA : Nicobar; Vishakapatnam (A.P.); Madras Coast, Gulf of Mannar, Krusadai, Pamban, Shingle Is. (Tamil Nadu); Maharashtra and Goa Coast.

**43. Glycera alba Rathke (Plate III : Fig. 20)**

*Occurrence* : Found in mud at Gholvad, Bombay, Alibag, Ratnagiri, Vijaydurg, Malvan, Dona Paula and Marmgao Harbour. Previously recorded from Marmgao Bay (1932).

*Remarks* : Body rounded, tapering at both the ends. Simple, long branchiae inserted on the dorsal edge of the foot. Feet with acute lobes

(Fig. 20). Colour red in life, dark-brown or black in spirit. Size :  $150 \times 4$  mm.

*Distribution* : Indian and Atlantic Oceans, Red Sea.

INDIA : Ganjam Coast (Orissa); Cochin Backwaters (Kerala); Marmgao Bay (Goa); Maharashtra.

#### Group II : POLYCHAETA SEDENTARIA

##### 44. *Polydora (Polydora) coeca* Oersted (Plate III : Fig. 21)

*Occurrence* : Found in mud or attached to stones, at Arnala, Bombay, Alibag, Ratnagiri, Devgad, Malvan, Vengurla, Miramar and Marmgao Harbour.

*Remarks* : Prostomium, deeply notched and prolonged backwards over the first two segments (Fig. 21). Long slender tentacles. Though this species is mentioned as eyeless, but in majority of the specimens, four eyes are noticed. Size :  $10 \times 1$  mm. Common.

*Distribution* : Atlantic and Indian Oceans, Mediterranean, Arctic and North Seas.

INDIA : Gulf of Mannar; Krusadai, Shingle Is. (Tamil Nadu); Maharashtra and Goa Coast.

##### 45. *Cirriformia limnoricola* Kirkegaard & Santhakumaran

*Occurrence* : Recently, Kirkegaard & Santhakumaran (1967) have described this worm from Bombay Harbour. A number of specimens, always found in the tunnels of the wood-borer, *Limnoria (Limnoria) bombayensis* Pillai, were collected from Arnala, Bombay, Ratnagiri, Malvan, Vengurla and Marmgao Harbour.

*Remarks* : Slender, Cylindrical body with a long, cone-shaped prostomium. Gills from 1st-29th setigerous segments. Colour : Reddish-brown, when alive, and dark brown to black, in formalin preserved specimens. Size :  $10-15 \times 1-1\frac{1}{2}$  mm. Common.

*Distribution* : INDIA : Maharashtra and Goa Coast.

##### 46. *Phyllochaetopterus socialis* Claparède

*Occurrence* : Single specimen from Malvan. Fauvel (1932) has recorded this species from Bombay. Found in horny tubes.

*Remarks* : Worm, having slender body, divided into three regions. Two long palps anteriorly and two small posterior tentacles. Middle region with numerous segments fitted with biramous feet. Size :  $30 \times 3$  mm.



*Distribution*: Atlantic and Indian Oceans, Mediterranean and Arabian Seas, Australia, Falkland Is., Gulf of Oman.

INDIA: Hooghly River (W. Bengal); Chandipore (Orissa); Bombay and Malvan (Maharashtra).

47. *Sabellaria* sp.

*Occurrence*: Commonly found at Arnala, Bombay, Alibag, Ratnagiri, Devgad, Malvan, Vengurla and Dona Paula. The tubes built by these worms are of firmly cemented sand grains and small shell pieces, forming dense reef-like masses on the stones. Occasionally found on the surface of oysters and barnacles.

*Remarks*: Outer palae, without spines. Dorsal acicular setae with a peduncle. Size: 10-30 mm.

48. *Pista* sp.

*Occurrence*: Occasionally found in coarse mud or sand, below gravel or stones at Bombay, Ratnagiri, Malvan, Dona Paula and Marmgao Harbour.

*Remarks*: Short, stout body with swollen anterior end. Two branchiae and 6 ventral scutes. Size: 20-50 × 5-12 mm.

49. *Spirographis spallanzanii* Viviani (Plate IV: Fig. 22 A & B)

*Occurrence*: Bhatt (1959) recorded the worm for the first time in India, from Chaupatty Rocks and Cuffe Parade, Bombay. In addition to the above mentioned localities, specimens were also collected from Dahanu, Arnala, Alibag, Ratnagiri, Devgad, Malvan, Kalangut and Marmgao Harbour. These worms live in long tubes embedded in soft mud, near or in between rocks in sheltered or semi-sheltered areas.

*Remarks*: Moderately elongated worm abruptly tapering behind. Two dorsal and two ventral lobes of the collar. Intermittent brown streaks on the branchial filaments. Abdomen with only dorsal uncini (Fig. 22 A) and ventral winged capillary setae (Fig. 22 B). Tube of the worm, tough, erect and mud-coloured. Size: 35-50 × 2-3.5 mm. Common.

*Distribution*: Indo-China, Malay Archipelago, Ceylon, Indian and Atlantic Oceans, Mediterranean Sea.

INDIA: Maharashtra and Goa Coast.

50. *Dasychone cingulata* Grube (Plate IV: Fig. 23)

*Occurrence*: Few tubes, of these worms, were collected from Malvan in April 1967. Tubes found attached to rocks,



*Remarks* : Presence of long slender dorsal stylodes (Fig. 23). Dark scattered spots on the body. Size :  $40 \times 3$  mm. Rare.

*Distribution* : Red Sea, Arabian Sea, Burma Coast, Mergui, Persian Gulf, Indian and Pacific Oceans.

INDIA : Madras, Gulf of Mannar, Pamban (Tamil Nadu); Andamans; Malvan (Maharashtra).

51. *Dasychone serratibranchis* Grube (Plate IV : Fig. 24)

*Occurrence* : Found in sheltered parts of the coast of Bombay, Ratnagiri, and Malvan. Tubes, attached to rocks, in association with Oysters, Polyzoans or rarely attached to the shell of *Placenta placenta*.

*Remarks* : Dorsal stylodes (Fig. 24), small, short and oppressed, giving a serrated appearance to the gill filaments. Bands of white, purple or yellow colour on the gill filaments. Size :  $15.50 \times 1.5$  mm. (excluding gill-tuft). Uncommon to rare.

*Distribution* : Mergui, Philippines, Indo-China, New Zealand, Australia.

INDIA : Andaman ; Pamban (Tamil Nadu); Maharashtra Coast.

52. *Potamilla leptochaeta* Southern (Plate IV : Fig. 25 A, B & C)

*Occurrence* : This species was so far known from brackish-water only but in the present study, specimens were collected during low ebb-tides, at Arnala, Bombay and Miramar. These small worms are found together with *Dasychone* and *Polyzoa*.

*Remarks* : Thorax with dorsal spatulate (Fig. 25a) and limbate setae and ventral pick-axe-shaped setae (Fig. 25b) and hooks (Fig. 25c). Size : 5-9 mm. Rare.

*Distribution* : Malay Archipelago.

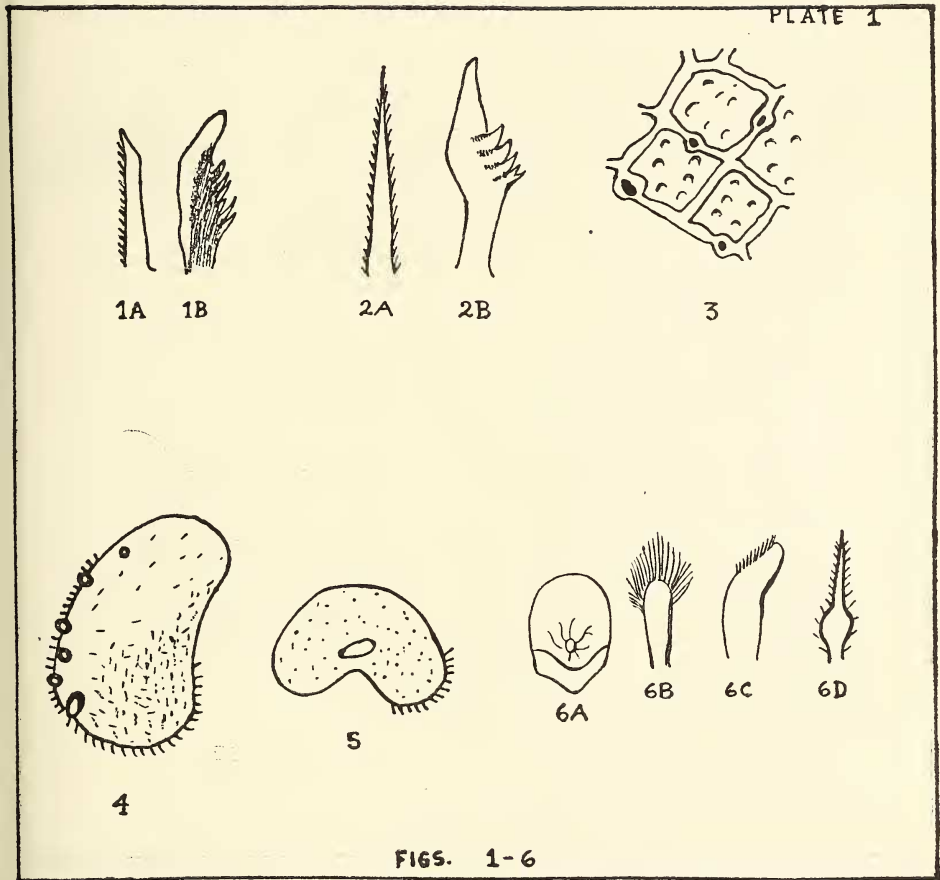
INDIA : Chingrighatta (near Calcutta); Vishakapatnam, Port Canning (A.P.), Arnala and Bombay (Maharashtra), Miramar (Goa).

53. *Vemiliopsis glandigerus* Gravier (Plate IV : Fig. 26)

*Occurrence* : Collected from Bombay and Malvan. Found attached to the underside of stones. Tubes pink in colour.

*Remarks* : Tube of the worm is wrinkled, with 4-5 long keels and peristomial ridges. Operculum (Fig. 26) having a wrinkled stalk and is divided into partitions. Size :  $20 \times 1.5$  mm. Rare.

Parulekar : Polychaetes



FIGS. 1-6

Figs. 1. *Lepidonotus carinulatus* Grube : A—dorsal seta; B—Ventral seta ; 2. *Lepidonotus tenuisetosus* (Gravier) : A—dorsal seta; B—Ventral seta ; 3. *Gattiana deludens* Fauvel : elytra ; 4. *Harmothoe ampullifera* (Grube) : elytra ; 5. *Sthenelais boa* (Johnston) ; elytra ; 6. *Panthalis oerstedii* Kinberg ; A—elytra; B, C & D—seta