

**THE INTERSTITIAL FAUNA IN THE INTERTIDAL SANDS OF  
ANDAMAN AND NICOBAR GROUP OF ISLANDS\***

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ABSTRACT

The paper deals with one hundred and ninety-nine species of diverse invertebrate groups of interstitial fauna collected during a survey of the Andaman and Nicobar group of Islands undertaken by the Zoological Survey of India in February-April, 1969. All these species have been recorded for the first time from the Islands. The occurrence of the fauna in relation to relative abundance, localities from where they have been recorded, the level of intertidal zone, nature of the substrate, etc., are given. The percentage composition and the distribution of the fauna in relation to the physiography of the islands have also been discussed.

INTRODUCTION

HARDLY anything is known of the interstitial fauna from intertidal area of the Andaman and Nicobar Islands. During a brief faunistic survey of these islands undertaken by the Zoological Survey of India in February-April 1969, the author had an opportunity to examine intertidal sands on North Andaman, Middle Andaman, South Andaman, Little Andaman and Car Nicobar Islands. Analysis of the sand samples has revealed the presence of diverse invertebrate groups of animals, typical of this habitat. It is to be hoped that further work will be undertaken on this archipelago, to augment our knowledge of this interesting faunal realm on the Indian Coast.

The present paper deals with a preliminary list of 199 identified species with notes on their ecological distribution. All the species recorded are new record from these islands, while those marked with an asterisk are new to Indian Coast. Several species collected during the survey still remain to be identified and will be reported in due course, as and when their study is complete.

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MATERIAL AND METHODS

Sampling was made during low tides, mostly near the half-tide level, where bulk of the fauna is normally distributed. The sand was dug out with the help of a shovel to a depth of 40-50 cm and transported to the field laboratory in open poly-

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these jars. After allowing bulk of the fauna to migrate to top layers of sand within a day or two, small quantities of the sample were placed in a beaker and vigorously swirled with 6% magnesium chloride solution. The supernatant water was decanted off into a petri dish and examined under microscope. The soft fauna was studied in fresh condition, while the hard fauna preserved in 5% neutral formalin for subsequent analysis. They were measured by visual observation based upon personal experience. A graduated eye-piece was, however, used in the estimation of the approximate limits of the texture of substrate.

#### AREA INVESTIGATED

*North Andaman* - (1) *Mayabunder*: The beach slopes gently down to the low water mark and an extensive intertidal zone is exposed during low tides. The sediment consists of silicious sand, varying from fine sand to coarse shell gravel. In most places, dense growth of mangroves is found along the shore. In some sheltered areas, finer sands between mangrove and other plant roots are dark coloured, indicating the presence of hydrogen sulphide. The organic detritus appeared rich in finer substrates. (2) *Sound Islands*: The coast is mostly rocky with boulders in the intertidal zone. The width of the beach is narrow, with a steep slope. The sand is clean, with very little organic detritus. The particles are angular and mostly calcareous. Texture of the substrate is mostly coarse and medium. Fine and medium shell gravel occurs near the low water level. (3) *Rahil Island*: The coast is also rocky, with boulders and pebbles in the intertidal zone. The beach slope is low, with a wide area exposed during low tide. The sand is heterogeneous, with a large percentage of fine particles and little organic detritus. The grains are angular and silicious. (4) *Aves Island*: Due to the presence of rich coral growth around the island, the sediment is exclusively coralline and white. The beach slopes gently, with a wide intertidal zone. The bulk of the beach sand is fine and clean, although the grain size tends to increase with depth. A small percentage of broken shells occur near the water mark. The sand grains are mostly spherical and the compactness of beach is low.

*Middle Andaman* - (5) *Rangat Bay*: Dense growth of mangroves occurs along the shore. The beach slope is moderate, with a wide intertidal zone interspersed with rocks and pebbles. The sand is mostly silicious with a high percentage of fine shell gravel and organic detritus. The sands are heterogeneous, although the texture of substrate is mostly medium. In some sheltered areas, the sand is fine with rich detritus.

*South Andaman* - (6) *Wandur*: The slope is gradual, with a wide intertidal zone exclusively sandy. The particle size is mostly fine and medium, with a high percentage of silt and clay. Muddy sand beaches are encountered in sheltered areas and in the vicinity of mangrove swamp located at the mouth of a nearby brook. (7) *Chiriatapu*: The sandy beach is limited to patches between cliffs. The beach is steep, with a narrow intertidal belt. The sediment is homogeneous, consisting of medium and coarse sand, well sorted and silicious. The sand is clean with very little organic matter. Muddy sand flats are present in a few sheltered areas. (8) *Rose Island*: The coast is rocky and well exposed, with a few sandy patches in the intertidal zone. The sand is mostly coarse and medium, with a large percentage of coarse and medium shell gravel near the low water level. The sand is silicious, with very little organic detritus.

*Little Andaman* - (9) *Hut Bay*: The coast is sandy, with batteries of rocks in the intertidal zone. The beach slope is moderate, with a wide area exposed at low

tide. The sand is mostly fine and medium, the grain size tending to increase with depth. The substrate is silicious, with rich particulate organic matter. A small percentage of fine shell gravel is seen near the water's edge.

*Car Nicobar:* The coast is mostly sandy with extensive beaches, except for some batteries of rocks in the intertidal zone. The coastal waters harbour a rich coral growth and consequently, the substrate is exclusively coralline and white. The grains are mostly spherical. The compactness of the beach is low due to the lightness of grains and lack of cohesion between particles. (10) *Sawai Bay:* The width of the intertidal zone is narrow and the texture of substrate is largely fine. The

sand contains much coralline powder and organic detritus. Fine shell gravel occurs near the low water mark. (11) *East point:* The width of the beach is narrow, with a few rocks and pebbles in the intertidal zone. The sand is mostly coarse and medium, with a small percentage of coarse shell gravel and detritus. (12) *West Point:* The beach is sheltered, with a low slope and a wide sandy substratum interspersed with rocks and pebbles. The texture of substrate is largely fine and medium, with considerable amount of clay, silt and coral debris.

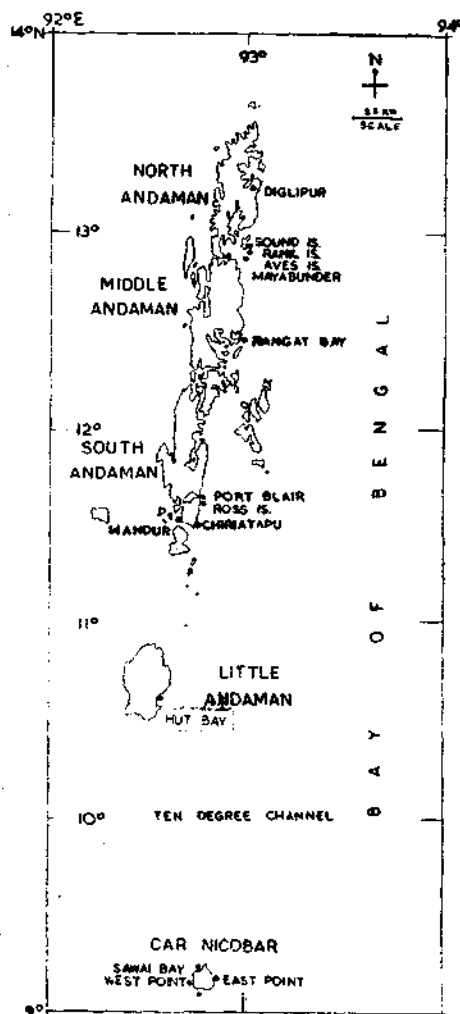


Fig. 1. Map showing the location of collection centres on the islands.

#### FAUNAL LIST

The distribution of the fauna at various stations is referred by number of stations as indicated in the map (Fig. 1). Abbreviations LWL, MWL and HWL are used for low - water, mid-water and high water - levels respectively. The sign  $\frac{1}{2}$  indicates the collection made between the two levels mentioned. Except where stated, specimens were collected at different depths in sand. The following terminology is used in the text to express the texture of substrate. Fine sand  $< 300 \mu$ ; Medium sand  $300-500 \mu$ ; Coarse sand  $> 500 \mu$ ; Fine shell gravel  $< 500 \mu$ ; Medium shell gravel  $500-1000 \mu$ ; and Coarse shell gravel  $> 1000 \mu$ .

## CILIATA

## HOLOTRICHA

- Coleps tessellatus* Kahl, 1930. 1, 2, 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus, 7 specimens.  
*Coleps* sp. 12, MWL, fine and medium sand with coral debris, several specimens.  
*Coleps* sp. 1, 6, LWL  $\frac{1}{2}$  MWL, fine sand with rich detritus, 3 specimens.  
*Geleia fossata* Kahl, 1933. 7, MWL, medium sand 40 cm below surface, 2 specimens.  
*Lacrymaria elar* O. F. Muller 1776. 2, 11, 12, LWL  $\frac{1}{2}$  MWL, coarse sand with fine shell gravel and little detritus, 4 specimens.  
*Pleuronema coronatum* Kent, 1881. 6, 12, LWL  $\frac{1}{2}$  MWL, fine sand with rich detritus, 5 specimens.  
*Prorodon* sp. 5, MWL, medium sand with fine shell gravel and little detritus, 2 specimens.  
*Remanella* sp. 7, 11, LWL  $\frac{1}{2}$  MWL, medium and coarse sand with medium shell gravel and detritus 20 cm below surface, 6 specimens.  
*Trachelocerca* sp. 1, 6, 7, 12, LWL, all sand grades, detritus sand, 12 specimens.  
*Tracheloraphis phoenicopterus* (Cohn, 1866). 1-12, LWL  $\frac{1}{2}$  MWL, all sand grades, detritus sand, several specimens.  
*Tracheloraphis* sp. 3, 5, 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus, 6 specimens.

## SPIROTRICHA

- Aspidisca* sp. 6, LWL  $\frac{1}{2}$  MWL, fine sand with rich detritus 20 cm below surface, 2 specimens.  
*Condylostoma patens* (O. F. Muller, 1786). 1, 3, 6, 8, fine and medium sand with little detritus, 13 specimens.  
*Diophrys appendiculata* (Ehrenberg, 1838). 1, 2, 4, 5, 6, 12, LWL  $\frac{1}{2}$  HWL, all sand grades, detritus and clean sand, several specimens.  
*Diophrys* sp. 6, LWL  $\frac{1}{2}$  MWL, fine sand with detritus, 4 specimens.  
*Euplotes vannus* O. F. Muller, 1786. 1, 2, 3, 6, 7, 12, LWL  $\frac{1}{2}$  HWL, all sand grades, clean and detritus sand, several specimens.  
*Euplotes* sp. 3, 5, 6, 7, 9, 10, LWL  $\frac{1}{2}$  HWL, all sand grades with fine shell gravel and little detritus, 11 specimens.  
*Metopus vestitus* Kahl, 1932. 6, LWL  $\frac{1}{2}$  MWL fine sand with silt and little detritus 10 cm below surface, 2 specimens.  
*Oxytricha marina* Kahl, 1932. 12, MWL, fine and medium sand with rich detritus, 3 specimens.

## CNIDARIA

- Halammohydra octopodides?* Remane, 1927. 1, 3, 6, 7, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with medium shell gravel and detritus, several specimens.  
*Halammohydra* sp. 2, 5, 6, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and little detritus 10 cm below surface, several specimens.

## TURBELLARIA

- \* *Acanthomacrostomum gerlach* Ax, 1971. 1, 2, 5, 6, 7, LWL  $\frac{1}{2}$  HWL, coarse and medium sand with fine shell gravel and detritus, several specimens.  
*Breslauilla* sp. 7, LWL  $\frac{1}{2}$  MWL, fine and medium sand with fine shell gravel and little detritus, 4 specimens.  
*Cheliplana vestibularis* Beauchamp, 1927. 1, 2, 5, 7, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine and medium shell gravel, detritus sand, 7 specimens.  
*Cicerina* sp. 1, 2, 7, MWL, coarse and medium sand with fine shell gravel and detritus 20-40 cm below surface, 4 specimens.  
*Coelogyropora* sp. 1, 2, 7, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel, 6 specimens. 3, 5, 6, LWL, fine with rich sand detritus, 15 specimens.  
*Coelogyropora* sp. 12, LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus 10 cm below surface, 2 specimens.  
*Convoluta* sp. 6, LWL  $\frac{1}{2}$  MWL, medium sand with rich detritus, 3 specimens.  
*Diascorhynchus* sp. 2, MWL  $\frac{1}{2}$  HWL, coarse and clean sand 30 cm below surface, 1 specimen.  
*Gyatrix hermaphroditus* Ehrenberg, 1831. 2, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with medium shell gravel and little detritus 15 cm below surface, 3 specimens.  
*Macrostomum* sp. 6, MWL, coarse and medium sand with little detritus 40 cm below surface, 1 specimen.

- Minona* sp. 8, LWL  $\frac{1}{2}$  HWL, coarse and clean sand with medium shell gravel 10 cm below surface, 8 specimens.  
*Monocelis lineata* (O. F. Müller, 1774). 7, 11, LWL  $\frac{1}{2}$  MWL, coarse and fine sand with medium shell gravel and little detritus 20 cm below surface, 4 specimens.  
*Nematoplana* sp. 3, 4, MWL, fine and medium sand 10-30 cm below surface, 3 specimens.  
*Otoplana* sp. 1, 2, 8, LWL  $\frac{1}{2}$  MWL, all grades of sand with fine shell gravel, 7 specimens.  
*Plagiostomum* sp. 5, MWL, medium sand with fine shell gravel and rich detritus, several specimens.  
*Plagiostomum* sp. 10, 12 LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus, 11 specimens.  
*Polycystis* sp. 5, LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus, 8 specimens.  
*Promesostoma* sp. 1, 2, 6, 12, LWL  $\frac{1}{2}$  MWL, medium and fine sand with fine shell gravel and little detritus, 7 specimens.  
*Promesostoma* sp. 9, MWL, fine and medium sand 10-20 cm below surface, several specimens.  
*Rogneda* sp. 5, LWL  $\frac{1}{2}$  MWL, medium sand with rich detritus 10 cm below surface, 1 specimen.  
*Schizochilus* sp. 6, 8, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine and medium shell gravel, 5 specimens.  
*Utelga* sp. 5, 9, LWL, fine and medium sand with detritus, several specimens.  
*Vejdovskya pellucida* (M. Schultze, 1851). 6, LWL  $\frac{1}{2}$  MWL, fine sand with rich detritus 15 cm below surface, 2 specimens.

## NEMATODA

## ENOPLOIDEA

- Anticoma arctica* Steiner, 1916. 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with rich detritus 10 cm below surface, 1 specimen.  
*Dolicholaimus benepapillosus* (Schulz, 1935). 11, MWL, coarse and medium sand with fine shell gravel and little detritus 20 cm below surface, 2 specimens.  
*Enoploides* sp. 1, 2, 4, LWL  $\frac{1}{2}$  MWL, coarse and medium sand fine shell gravel, several specimens.  
*Enoploides* sp. 8, LWL, coarse sand with coarse shell gravel, 10 cm below surface, 1 specimen.  
*Halalaimus supercirrhatus* Gerlach, 1955. 6, 7, LWL  $\frac{1}{2}$  MWL, fine and medium with rich detritus, 2 specimens.  
*Halalaimus* sp. 2, 3, 5, 6, 7, 12, LWL  $\frac{1}{2}$  MWL, fine and medium sand with detritus, several specimens.  
*Mesacanthion* sp. 3, 4, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel, 6 specimens.  
*Oncholaimus brachycercus* de Man, 1889. 1, 4, 8, 9, LWL  $\frac{1}{2}$  MWL, all sand grades, 8 specimens.  
*Syringolaimus striaticauda* de Man, 1888. 6, LWL, fine and muddy sand 10 cm below surface, 1 specimen.  
*Viscosia* sp. 12, LWL  $\frac{1}{2}$  MWL, fine and medium sand with coral debris, 4 specimens.

## CHROMADOROIDEA

- Bathepsilonema* sp. 9, MWL, medium sand 20 cm below surface, 6 specimens.  
*Ceramonema* sp. 5, MWL  $\frac{1}{2}$  HWL, medium sand 40 cm below surface, 2 specimens.  
*Chromadora vulgaris* Bastian, 1865. 5, 6, 12, LWL, fine and medium sand with rich detritus, 9 specimens.  
 \* *Chromaspirina indica* Gerlach, 1963. 5, MWL, fine and medium sand with rich detritus, 4 specimens.  
 \* *Desmadora brevicollis* (Cobb, 1920). 1, 3, 6, 7, LWL  $\frac{1}{2}$  MWL, all sand grades, several specimens.  
*Eubostriechus exilis* (Cobb, 1920). 9, MWL, medium sand 20 cm below surface with little detritus, 2 specimens.  
*Gammanema* sp. 4, MWL, medium sand 20 cm below surface, 1 specimen.  
*Halichoanolaimus* sp. 8, LWL  $\frac{1}{2}$  MWL, coarse and clean sand with medium shell gravel, 5 specimens.  
*Microlaimus* sp. 9, LWL  $\frac{1}{2}$  MWL, fine and medium sand with detritus, 6 specimens.  
*Monoposthia costata* (Bastian, 1865). 6, LWL  $\frac{1}{2}$  MWL, fine detritus sand 20 cm below surface, 1 specimen. 7, MWL  $\frac{1}{2}$  HWL, medium sand with fine shell gravel 20 cm below surface, 3 specimens.  
*Sabattiera jubata* (Cobb, 1898). 2, LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus 2 specimens.  
*Sabattiera* sp. 1, 3, 5, 7, LWL  $\frac{1}{2}$  MWL, fine and medium sand with detritus, several specimens.  
*Synonchium obtusum* Cobb, 1920. 11, 12, LWL  $\frac{1}{2}$  MWL, medium sand with fine shell gravel 30 cm below surface, 5 specimens.

*Tricoma* sp. 5, LWL, medium detritus sand 10 cm below surface, 1 specimen.

## AXONOLAIMOIDEA

*Araeolaimus* sp. 12, MWL, fine and medium sand with coral debris 10 cm below surface, 2 specimens.

*Bathylaimus* sp. 8, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel, 1 specimen.

*Camacolaimus prytherchi* Chitwood, 1935. 7, LWL  $\frac{1}{2}$  MWL, medium sand with fine shell gravel 10 cm below surface, 4 specimens.

*Procamacolaimus* sp. 12, MWL, fine detritus sand, 20 cm below surface, 1 specimen.

## MONHYSTEROIDEA

*Monhyстера parva* (Bastian, 1865). 7, 9, LWL  $\frac{1}{2}$  MWL, medium sand with fine shell gravel 10 cm below surface, 3 specimens.

*Rhynchonema cinctum* Cobb, 1920. 11, MWL, medium sand 30 cm below surface, 1 specimen.

*Sphaerolaimus* sp. 6, MWL, fine detritus sand, 6 specimens.

*Steineria pilosa* (Cobb, 1914). 1, 3, LWL  $\frac{1}{2}$  MWL, medium and fine sand with little detritus, 4 specimens.

*Steineria* sp. 11, LWL, coarse and with medium shell gravel and little detritus, 1 specimen.

*Theristus* sp. 1, 2, 3, 6, 7, 10, 11, LWL  $\frac{1}{2}$  MWL, all sand grades, several specimens.

*Theristus* sp. 7, MWL, medium sand with fine shell gravel 20 cm below surface, 1 specimen.

## GASTROTRICHA

## MACRODASYIDA

*Acanthodasyis aculeatus* Remane, 1927. 11, MWL, coarse and medium sand 20 cm below surface, 1 specimen.

*Cephalodasyis* sp. 4, MWL, clean medium sand 20 cm below surface, 7 specimens.

*Dactylopodalia indica* Rao and Ganapati, 1968. 9, MWL, medium sand with little detritus, 20 cm below surface, 3 specimens.

*Macrodasys* sp. 7, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and little detritus, 5 specimens.

*Paraturbanella boadeni* Rao and Ganapati, 1968. 5, MWL, medium sand with little detritus, 20 cm below surface, 4 specimens.

*Paraturbanella* sp. 1, 2, 4, 5, 7, 9, 10, 11, LWL  $\frac{1}{2}$  MWL, medium sand with little detritus, 10 cm below surface, several specimens.

\* *Pseudostomella malayica* Renaud-Mornant, 1967. 11, MWL, medium sand with rich detritus 30 cm below surface, 1 specimen.

*Pseudostomella* sp. 2, 5, 6, 7, 9, LWL  $\frac{1}{2}$  MWL, medium sand 10 cm below surface, several specimens.

*Tetranchyroderma* sp. 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with rich detritus, 2 specimens. 7, MWL, coarse and medium sand 40 cm below surface, 1 specimen.

*Tetranchyroderma* sp. 9, MWL, medium sand with rich detritus 29 cm below surface, 1 specimen.

*Thaumastoderma heideri* Remane, 1926. 9, LWL  $\frac{1}{2}$  MWL, medium sand with little detritus 30 cm below surface, 3 specimens.

*Turbanella* sp. 5, 6, 7, 9, 10, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with detritus 10 cm below surface, several specimens.

*Urodasyis viviparus* Wilke, 1954. 1, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and little detritus, 2 specimens.

## CHAETONOTIDA

*Aspidophorus marinus* Remane, 1926. 7, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel, 3 specimens.

*Chaetonotus* sp. 6, 7, LWL  $\frac{1}{2}$  MWL, fine and medium sand with rich detritus, several specimens.

*Chaetonotus* sp. 6, 7, 9, LWL  $\frac{1}{2}$  MWL, fine and medium sand with fine shell gravel and little detritus, several specimens.

*Xenotrichula velox* Remane, 1927. 5, MWL, medium sand with detritus 30 cm below surface, 11 specimens.

*Xenotrichula* sp. 6, 7, 8, LWL  $\frac{1}{2}$  MWL, all sand grades with little detritus, several specimens.

## KINORHYNCHA

*Pycnophyes* sp. 5, LWL  $\frac{1}{2}$  MWL, fine and medium sand rich in detritus, 2 specimens.

## NEMERTINA

*Otocyphlonemertes* sp. 2, 5, 7, 8, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with medium and fine shell gravel, several specimens.

*Sacconemertes* sp. 11, LWL  $\frac{1}{2}$  MWL, coarse sand with fine shell gravel and little detritus, 7 specimens.

## ROTIFERA

*Encentrum* sp. 6, 7, LWL  $\frac{1}{2}$  MWL, fine and medium sand rich in detritus, 5 specimens.

*Encentrum* sp. 1, 3, 5, 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand rich in detritus, several specimens.

*Proales* sp. 6, MWL, fine and medium detritus sand 20 cm below surface, 2 specimens.

## ARCHIANNELIDA

*Dinophilus* sp. 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with detritus, 3 specimens.

*Diurodrilus benazzii* Gerlach, 1952. 9, MWL, medium sand with little detritus, 30 cm below surface, 8 specimens.

*Diurodrilus* sp. 5, 7, LWL  $\frac{1}{2}$  MWL, medium sand with fine shell gravel and little detritus, 3 specimens.

*Nerilla antennata* Schmidt, 1863. 1, 5, 7, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and rich detritus, several specimens.

*Nerilla* sp. 2, 3, 5, 6, 10, LWL  $\frac{1}{2}$  MWL, fine and medium sand with little detritus, several specimens.

*Polygordius* sp. 1, 2, 3, 6, 7, 8, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with medium shell gravel and little detritus, several specimens.

*Polygordius* sp. 5, 6, 7, 8, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with coarse and medium shell gravel, several specimens.

*Polygordius* sp. 1, 2, 3, 4, LWL  $\frac{1}{2}$  MWL, coarse sand with fine shell gravel and little detritus, several specimens.

*Protodrilus indicus* Aiyar and Alikunhi, 1944. 1, 2, 3, 6, 7, 8, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and little detritus, several specimens.

*Protodrilus* sp. 1, 2, 3, 4, 5, 8, LWL  $\frac{1}{2}$  MWL, medium sand with detritus, several specimens.

*Protodrilus* sp. 10, 11, 12, MWL, medium sand 10-20 cm below surface, several specimens.

*Protodrilus* sp. 6, 7, 8, LWL  $\frac{1}{2}$  MWL, all sand grades with fine shell gravel and little detritus, 16 specimens.

\* *Saccocirrus major* Pierantoni, 1906. 8, LWL, coarse sand with coarse shell gravel, 20 cm below surface, 2 specimens.

*Saccocirrus minor* Aiyar and Alikunhi 1944. 1, 2, 3, 7, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with medium shell gravel, several specimens.

*Saccocirrus* sp. 11, LWL  $\frac{1}{2}$  MWL, coarse sand with fine shell gravel 10 cm below surface, 1 specimen.

*Trilobodrilus* sp. 5, 6, MWL  $\frac{1}{2}$  LWL, medium sand with rich detritus, 4 specimens. 7, MWL  $\frac{1}{2}$  HWL, coarse sand with fine shell gravel 30 cm below surface, specimen.

## POLYCHAETA

*Eteonides elongata* (Southern, 1914). 7, 11, LWL, coarse and medium sand with fine shell gravel, 6 specimens.

*Eusyllis homocirrata* Hartmann-Schroder, 1958. 1, 2, 4, 5, 8, MWL, coarse and medium sand with fine shell gravel and little detritus, many specimens.

*Exogone* sp. 6, LWL  $\frac{1}{2}$  MWL, fine sand with rich detritus 10 cm below surface, 2 specimens.

*Goniadides aciculata* Hartmann-Schroder, 1960. 1, 2, 5, 7, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine and medium shell gravel, several specimens.

*Goniadides* sp. 2, 4, 5, 6, 7, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine medium shell gravel and detritus, several specimens.

*Hesionides arenaria* Friedrich, 1937. 1, 2, 5, 6, 7, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with medium shell gravel and detritus, many specimens.

*Hesionides gohari* Hartmann-Schroder, 1960. 1, 2, 5, 6, 7, 8, 9, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with little detritus, several specimens.

*Hesionides* sp. 2, 3, 5, 6, LWL  $\frac{1}{2}$  MWL, all sand grades with little detritus, several specimens.

*Microphthalmus urofimbriatus* Alikunhi, 1948. 7, LWL, coarse sand with coarse shell gravel 20 cm below surface, 1 specimen.

*Ophryotrocha* sp. 9, LWL  $\frac{1}{2}$  MWL, medium sand with little detritus 20 cm below surface, 3 specimens.

*Pettia amphophthalma* Siewing, 1955. 1, 2, 5, 6, 11, 12, LWL  $\frac{1}{2}$  MWL, all sand grades with rich detritus, many specimens.

\**Pionosyllis subterranea* Hartmann-Schroder, 1956. 1, 2, 3, 5, 6, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and detritus, several specimens.

\**Pionosyllis oculata* Hartmann-Schroder, 1960. 2, 4, 5, 6, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and detritus, many specimens.

*Pistone complexa* Alikunhi, 1947. 7, 8, LWL, coarse sand with medium shell gravel, several specimens.

*Pistonidens indica* Aiyar and Alikunhi, 1940. 1, 2, 5, 8, 11, LWL  $\frac{1}{2}$  HWL, all sand grades with fine and medium shell gravel, many specimens.

\**Plakosyllis brevipes* Hartmann-Schroder, 1956. 6, LWL  $\frac{1}{2}$  MWL, medium sand with detritus 10 cm below surface, 2 specimens.

*Sphaerosyllis bengalensis* Rao and Ganapati, 1966. 1, 3, 5, 6, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and little detritus, several specimens.

*Sphaerosyllis* sp. 2, 7, 11, MWL, coarse and medium sand 10-30 cm below surface, 7 specimens.

*Trypanosyllis* sp. 2, 4, 5, 6, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with little detritus, several specimens.

#### OLIGOCHAETA

*Aeolosoma* sp. 2, 5, 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with detritus 10 cm below surface, several specimens.

*Enchytraeoides* sp. 6, 9, 11, 12, LWL  $\frac{1}{2}$  HWL, all sand grades with little detritus, several specimens.

*Fridericia bulbosa* (Rosa, 1887). 1, 2, 5, 6, LWL  $\frac{1}{2}$  HWL, all sand grades with rich detritus, 7 specimens.

*Marionina* sp. 2, 5, 6, 7, 9, 11, LWL  $\frac{1}{2}$  HWL, all sand grades with detritus, several specimens.

\**Phalodrilus monospermathecus* (Knöllner, 1935). 6, LWL  $\frac{1}{2}$  MWL, fine and medium sand with rich detritus, 12 specimens.

#### OSTRACODA

*Cythereis* sp. 1, 2, 7, 9, 12, LWL n MWL, coarse and medium sand with little detritus, several specimens.

*Cytheridea papillosa* Bosquet, 1851. 6, LWL  $\frac{1}{2}$  MWL, fine detritus sand 10 cm below surface, 3 specimens. 11, MWL  $\frac{1}{2}$  HWL, coarse sand 20 cm below surface, 1 specimen.

*Cytheridea* sp. 2, 4, 6, 8, 12, LWL  $\frac{1}{2}$  HWL, all sand grades with little detritus, several specimens.

*Microcythere subterranea* Hartmann, 1954. 1, 7, 11, MWL, medium sand with fine shell gravel and little detritus 10-40 cm below surface, several specimens.

*Microloxoconcha compressa* Hartmann, 1954. 1, 5, 11, MWL, medium sand with little detritus 10-40 cm below surface, several specimens.

*Polycope* sp. 2, 4, 5, 7, 8, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with fine and medium shell gravel, several specimens.

*Polycope* sp. 11, LWL, coarse sand with fine shell gravel, 5 specimens.

*Xestoleberis* sp. 5, 6, 7, 9, 12, LWL  $\frac{1}{2}$  HWL, coarse and medium sand with little detritus, several specimens.

#### COPEPODA

\**Ameira Parvula* (Claus, 1866). 12, LWL  $\frac{1}{2}$  MWL, fine and medium sand with coral debris, 2 specimens.

*Ameira* sp. 1, 2, 4, 5, 7, LWL  $\frac{1}{2}$  HWL, all sand grades with fine shell gravel and little detritus, several specimens.

*Amphiascus* sp. 6, 7, LWL  $\frac{1}{2}$  MWL, fine and medium sand with detritus, 8 specimens.

*Apodopsyllus depressus* (Krishnaswamy, 1957). 6, LWL  $\frac{1}{2}$  MWL, fine detritus sand, 3 specimens. 9, 12, MWL, medium sand 10-30 cm below surface, 7 specimens.

*Arenopontia indica* Rao, 1967. 5, 6, 7, 9, 11, MWL, coarse and medium sand 10-40 cm below surface, several specimens.

*Arenopontia subterranea* Kunz, 1937. 6, 9, LWL  $\frac{1}{2}$  MWL, medium sand with rich detritus 20 cm below surface, 3 specimens.



*Arenopontia* sp. 1, 2, 4, 5, 7, 9, 11, LWL  $\frac{1}{2}$  HWL, coarse and medium sand with fine shell gravel and little detritus, several specimens.

*Arenosetella germanica* Kunz, 1937. 7, LWL  $\frac{1}{2}$  MWL, coarse and clean sand with fine shell gravel 10 cm below surface, 4 specimens.

\**Ectinosoma melaniceps* Boeck, 1864. 5, LWL  $\frac{1}{2}$  MWL, medium and fine sand with detritus, 2 specimens.

*Hastigerella setosus* (Rao and Ganapati, 1969). 2, 6, 7, 10, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with medium and fine shell gravel, little detritus, several specimens.

*Hastigerella* sp. 2, 8, 12, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with little detritus, several specimens.

*Klieonychocamptoides remanei* Noodt, 1958. 10, MWL, coarse and medium sand with fine shell gravel, 2 specimens.

*Kliopsyllus wilsoni* Krishnaswamy, 1957. 9, MWL, medium sand with little detritus, 20 cm below surface, 6 specimens.

*Kliopsyllus* sp. 2, 5, 9, LWL  $\frac{1}{2}$  HWL, coarse and medium sand several specimens.

*Laophonte* sp. 1, 2, 7, 11, LWL  $\frac{1}{2}$  MWL, all sand grades with little detritus, 9 specimens.

\**Leptastacus constrictus* Lang, 1965. 5, MWL, medium sand with rich detritus 20 cm below surface, 1 specimen.

*Leptopsyllus* sp. 3, 4, 5, LWL  $\frac{1}{2}$  MWL, medium sand with little detritus, several specimens.

*Nitocra affinis rijekana* Petkovski, 1954. 8, LWL, coarse sand with medium shell gravel 10 cm below surface, 2 specimens.

*Nitocra* sp. 1, 2, 3, 5, 7, LWL  $\frac{1}{2}$  MWL, all sand grades with detritus, several specimens.

\**Noodtiella intermedia* Wells, 1967. 2, 5, 8, LWL  $\frac{1}{2}$  HWL, coarse and medium sand with little detritus, 5 specimens.

\**Paraleptomesochra minima* Wells, 1967. 6, MWL, medium sand with fine shell gravel and little detritus, 20 cm below surface, 3 specimens.

*Paramesochra* sp. 9, MWL, medium sand with little detritus 30 cm below surface, 1 specimen.

*Phyllapodopsyllus* sp. 1, 2, 6, 8, 9, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and rich detritus, several specimens.

*Psammastacus spinicaudatus* Rao and Ganapati, 1969. 5, 6, 7, 9, 11, MWL, coarse and medium sand 10-40 cm below surface, several specimens.

*Psammopsyllus operculatus* Nicholls, 1945. 7, MWL, medium sand with fine shell gravel 20 cm below surface, 2 specimens.

*Schizopera* sp. 1, 2, 5, 8, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with fine and medium shell gravel, several specimens.

*Sicameira* sp. 1, 2, 5, LWL  $\frac{1}{2}$  MWL, coarse sand with fine shell gravel and little detritus, 4 specimens.

#### ISOPODA

*Angeliera* sp. 1-12, LWL  $\frac{1}{2}$  HWL, coarse and medium sand 5-50 cm below surface, several specimens.

*Angeliera* sp. 2, 4, 7, 8, 9, 11, LWL  $\frac{1}{2}$  HWL, coarse sand with fine shell gravel and little detritus, several specimens.

*Microcerberus* sp. 1-12, LWL  $\frac{1}{2}$  HWL, coarse and medium sand 5-50 cm below surface, several specimens.

#### AMPHIPODA

*Bogidiella* sp. 1, 2, 4, 5, 6, 7, 8, 11, 12, LWL  $\frac{1}{2}$  MWL, all sand grades with rich detritus, several specimens.

*Ingolfiella* sp. 1, 3, 4, 5, 6, 7, 11, 12, coarse and medium sand with fine and medium shell gravel, several specimens.

*Ingolfiella* sp. 1, 2, 4, 6, 8, 11, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and rich detritus, several specimens.

#### TARDIGRADA

\**Batillipes mirus* Richters 1909. 9, MWL, medium sand with little detritus 20 cm below surface, 7 specimens.

*Batillipes* sp. 8, MWL, medium sand with little detritus 30 cm below surface, 5 specimens.

\**Parastygarcus higginsii* Renaud - Debyser, 1965. 6, 9, MWL, medium sand with rich organic detritus 30 cm below surface, 3 specimens.

*Stygarcus bradypus* Schulz, 1951. 6, 8, MWL, medium and fine sand with detritus 30-40 cm below surface, 10 specimens.

## ACARINA

*Actacarus* sp. 1, 3, 4, LWL  $\frac{1}{2}$  HWL, all sand grades with little detritus, 8 specimens.

*Copidognathus* sp. 1, 2, 4, 5, 6, 7, 8, 9, 11, LWL  $\frac{1}{2}$  HWL, coarse and medium sand with shell gravel and detritus, several specimens.

*Copidognathus* sp. 2, 3, 5, 6, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and little detritus, many specimens.

*Halacarus anomalus* Trouessart, 1894. 1, 5, 7, 9, 11, LWL  $\frac{1}{2}$  HWL, medium and coarse sand, several specimens.

*Halacarus* sp. 2, 3, 4, 5, 6, 7, 9, 11, LWL  $\frac{1}{2}$  HWL, coarse and medium sand with little detritus, several specimens.

## COLLEMBOLA

*Isotoma* sp. 1, 3, 5, 11, 12, LWL  $\frac{1}{2}$  HWL, all sand grades, several specimens.

## MOLLUSCA

\**Caecum glabrum* (Montagu, 1849). 1, 2, 5, LWL  $\frac{1}{2}$  MWL, coarse and medium sand with fine shell gravel and rich detritus, 5 specimens.

*Microhedyle* sp. 1, 2, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with medium shell gravel and little detritus 20 cm below surface, 7 specimens.

*Pseudovermis* sp. 2, 11, LWL  $\frac{1}{2}$  MWL, coarse sand with fine shell gravel 10 cm below surface, 8 specimens.

## ECHINODERMATA

*Leptosynapta* sp. 1, 2, 3, 5, 6, 7, LWL  $\frac{1}{2}$  MWL, coarse sand with fine and medium shell gravel, detritus sand, several specimens.

## GENERAL REMARKS ON DISTRIBUTION

The general distribution of fauna in the intertidal zone shows more or less the same pattern as reported elsewhere. The largest number of species and individuals was found in the detritus sands with sufficient coarse particle size. The bulk of the fauna occurred near half-tide level 10-40 cm below surface. Samples taken from surface and with greater distances from low water mark, were without well represented fauna. Beaches with very fine or muddy sand yielded poor collections of interstitial meiofauna. A critical level has reached in some of these areas, the interstices being literally choked with fine sand, mud, detritus or coralline powder, resulting in inhospitable conditions for faunal proliferation and distribution.

The present investigation on the archipelago has shown the occurrence of rich and varied fauna of all major invertebrate groups characteristic of the habitat. A quantitative estimation of the relative density of the different groups has indicated that bulk of the fauna (nearly 80%) consists of Copepoda, Isopoda, Polychaeta and Archiannelida, the abundance of the fauna being in their order (Ciliata indeterminate). The Amphipoda, Turbellaria and Nematoda nearly comprise 10% of the fauna. Other groups of animals are represented by small numbers. The Turbellaria, Nematoda and Gastrotricha, normally constituting bulk of the fauna, are poorly represented on the archipelago. The total number of animals collected in a unit volume of sand is also relatively low compared to the figures obtained on the Indian mainland. In certain areas of the islands with detritus sands of sufficient coarse particle size, a 100 cc sand sample yielded a greatest number of 600-800 specimens of diverse groups, compared to 900-1200 specimens on the mainland. The relative paucity of fauna on the archipelago is probably due to the absence of extensive sandy beaches, exposure to severe wave action during monsoon months, finer nature of substrata, etc., influencing the degree of colonization of

the fauna. The intertidal and vertical distribution of different groups of fauna in general, has indicated nearly the same pattern as reported for the Orissa coast on the mainland (Rao, 1969).

The qualitative study of the fauna has shown that Copepoda, Ciliata, Nematoda, Polychaeta, Turbellaria, Gastrotricha and Archiannelida, in their order comprise majority of the species. Other groups are represented only by a few species. Many species recorded in the present survey have already been reported from distant parts of the world, throwing valuable light on the geographical distribution of the interstitial meiofauna.

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