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**Termite Fauna (Isoptera) of the Andaman &
Nicobar Islands, Indian Ocean**

**P. K. MAITI
and
S. K. CHAKRABORTI**

Zoological Survey of India

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INTRODUCTION

(a) *General* : Termites or white-ants belonging to the Order Isoptera, are one of the most fascinating group of insects due to many fold reasons. They have got polymorphic caste system, social organization, superb architectural ability, symbiotic relations with different microorganisms and cryptobiotic mode of life. Economically, these insects are well known to cause considerable damage to wood-works in buildings, to dry seasoned timbers in human use, to agriculture and forest plants, to books, clothes and many other store articles. They are found in their greatest abundance in the tropics including the tropical and subtropical islands in the different parts of the world.

The islands of Andaman and Nicobar situated in the Bay of Bengal and Indian Ocean, with its characteristic physiography, climate, vegetation, etc., offer an ideal condition to support fairly rich termite fauna. But, the real faunal magnitude in these insular areas is known far less than our expectation. Whatever fauna known, is mainly based on collections made by the non-specialists. Many gaps in our knowledge still exist due to manifold reasons. Uptil now, no serious attempt has been made to explore these insects even in the accessible islands. The lack of communication, difficult terrain, impenetrable forest, etc., posed problems in negotiating the entire insular chain in the past, which are becoming easier now-a-days with the steady progress of the overall development of the area.

Keeping this in view, an attempt has been made to explore the termite fauna of the Bay Islands thoroughly under a special D.S.T. project entitled "Investigation on the ecological interaction and economic status of the xylophagous insects of the islands of Andaman and Nicobar" under the supervision of the senior author during the period 1978-'81. Prior to this, several survey trips had also been conducted to study and collect these insects particularly from the South Andamans and Great Nicobar.

The present monograph is mainly based on the collections contained in more than 700 vials collected from numerous new localities during the period from 1975-1982. It deals with 38 species of termites from the area with regard to their taxonomic status, list of synonymy, measurements, distributional records, taxonomic remarks, etc. Out of 38 species, some 14 species are new addition to the fauna, of which nine species are new to science. Five known species are morphologically defined in considering their poor morphological description. Taxonomic key has been formulated for easy recognition of different taxa. A brief zoogeographical analysis has also been incorporated in the monograph to understand the faunal composition and their affinities with the fauna of the adjoining land masses of the Oriental Region.

(b) *Physiography, climate, Vegetation, etc.* : The islands of Andaman and Nicobar are in fact, the summits of a long submarine mountain range (ca., 1125 km long)

in the Bay of Bengal and Indian Ocean, having a contiguity with the Cape Negrais in continuation with the Arakan Yomah Range of Burma in the north to the Achin Head (the Metawaii groups) of Sumatra in the south. About 324 islands in the north situated between latitude $10^{\circ}31'$ and $13^{\circ}41'N$ and longitude $92^{\circ}11'$ and $93^{\circ}07' E$, constitute the Andaman group covering an areas of about 6332 sq. km. On the other hand, only 24 islands in the south situated between latitude $6^{\circ}40'$ and $0^{\circ}30' N$ and longitude $92^{\circ}30'$ and $94^{\circ}10' E$ constitute the Nicobar group with a land area of about 1961 sq. km.

Geologically, this submarine mountain range is formed on the ocean bed at the expense of a narrow, but deep oceanic furrow (geosyncline) sometimes during the Cretaceous period (ca. 110 million years ago) of the Mesozoic Era. Then through further evolution, including elevation and partial submergence for several times, a few peaks in the South Andaman and Great Nicobar appear on the scene sometimes in the Upper Oligocene (c.a. 30 million years ago) (Karunakaran, 1962) Most of these islands support low ranges of hills enclosing narrow valleys. The Saddle peak (ca. 732 m) in the North Andaman is the highest mountain peak of the Andaman group and the Mt. Jhullier (c.a. 700m) of the Great Nicobar in the Nicobar group.

The climate in these islands, like that of the other tropical islands on the same latitude, is warm and humid. The maximum temperature usually ranges between $70^{\circ}C$ (January) and $34^{\circ}C$ (April), while the minimum between $16^{\circ}C$ (January) and $23^{\circ}C$ (April-June) and the mean deurnal range is about $11^{\circ}C$. The relative humidity varies from 66 to 93 percent, being maximum during the months of May to November. These islands receive the rainfall with an annual average of 323 cm under the influence of both the South-West (May to September) and North-East (October to December) monsoons, and January and April are the dry months.

The soil varies from sandy to heavy clayey loam from the coastal to interior of islands. although in most of the area, it is a admixture of alluvial, light clay and sandy loam.

The islands support different categories of forests, of which the major types are as follows : (i) Tropical evergreen forest occupying mostly the hill tops; (ii) Deciduous forest on the slopes; (iii) Semi-evergreen forests in the main valleys; (iv) Tidal and Swamp forests along the creeks, and (v) Beach forests. However, the vegetation of the Andaman group is mostly of Burmese type, while that of the Nicobars is of Malayan type.

HISTORICAL ACCOUNT

(a) *Literature Review* : The historical account of the termite fauna of the islands of Andaman and Nicobar goes back to 1885, when Braüer reported two undetermined species from the Nicobars. Out of these species, one was described by the same author (1886) as *Termes longirostris* (current name,

Schedorhinotermes longirostris (Brauer) from the Kondul Island. The other species were left undetermined until 1913, when Holmgren described it as *Nasutitermes matangensisiformis* from the Nancowri Island which was subsequently treated as a subspecies of *N. matangensis* (Haviland) by Roonwal and Sen Sarma (1956). Later on Snyder (1933) described a new species *Neotermes andamanensis* based only on imagos from North Andamans, whose soldiers were recently described by Bose (1980). Snyder (1934) also described one more species, *Odontotermes latigula* from North Andaman which was earlier reported by Annadale (1923) as *Odontotermes obesus* (Rambur) from the South Andaman on the authority of Silvestri's identification.

In their respective catalogue, Snyder (1949), Rattan Lal and Menon (1953), and Roonwal and Pant (1953) hardly could list not more than four species already known from the areas as mentioned above.

Afterwards, Roonwal and Sensarma (1956) described a new species, *Hospitalitermes blairi* from Port Blair, South Andaman and also recorded *Nasutitermes matangensis matangensisiformis* (Holmgren) from Kamorta in addition to its old record from Nancowri Island. Both these species were once again dealt by Prashad and Sensarma in their revisions of Indian species of the genus *Nasutitermes* Banks in 1959 and *Hospitalitermes* Holmgren in 1960. Further, Roonwal and Sensarma (1960), in the revision of the Oriental Kalotermitidae, dealt with *Neotermes andamanensis* (Snyder) based on its old record. Subsequently, two more rhinotermitid species, namely, *Prorhinotermes shiva* and *Schedorhinotermes tiwarii* have been described by Roonwal and Thakur (1963) from the Andamans, of which the former one has been synonymised by Roonwal and Chhotani (1989). Krishna (1956) also discovered a new species, *Nasutitermes fabricii* from Little Nicobar based on the collection made during the Galathea Expedition by Royal Danish Corvette from 1845 to 1847 and deposited with Zoologisk Museum, Copenhagen. Thus, upto the year 1965, only eight species were known from the area of which five species from the Andamans and three from the Nicobars as follows :

From Andamans—

1. *Neotermes andamanensis* (Snyder)
2. *Schedorhinotermes tiwarii* Roonwal and Thakur
3. *Prorhinotermes shiva* Roonwal and Thakur
4. *Odontotermes latigula* (Snyder)
5. *Hospitalitermes blairi* Roonwal and Sensarma

From Nicobars—

6. *Schedorhinotermes longirostris* (Brauer)
7. *Nasutitermes matangensis matangensisiformis* (Holmgren)

8. *Nasutitermes fabricii* Krishna

Recently, the most substantial contribution to the knowledge of the termite fauna of these islands was made by Roonwal and Bose (1970) mainly based on the collections made by the survey parties from the Zoological Survey of India. For the first time, they added ten species to the existing fauna, of which four species were new to science and six species were new addition. The new species were as follows :

Schedorhinotermes eleanorae Roonwal and Bose, *Microcerotermes danieli* Roonwal and Bose, *Microcerotermes nicobarensis* Roonwal and Bose, and *Nasutitermes krishna* Roonwal and Bose.

However the newly added species were as follows:

Cryptotermes dudleyi Banks, *Cryptotermes havilandi* (Sjostedt), *Coptotermes heimi* (Wasmann), *Coptotermes travians* (Haviland), *Prorhinotermes flavus* (Bugnion and Popoff), *Schedorhinotermes medioobscurus* (Holmgren). Thus upto the year 1970, the faunal magnitude stands upto a total of 18 species which was also referred by Roonwal and Bose (1970). The species *Nasutitermes fabricii* Krishna certainly escaped their notice.

During the last decade, the progress of termite studies was also continued quite steadily. While discussing some highlights of the entomological exploration of the Great Nicobar Island, Maiti and Mondal (1977) referred to the occurrence of some 12 species without mentioning their specific identity. In a latter publication, Maiti (1977) discussed in details the faunal composition and geographical origin of the termites including the problems of their colonization in the Great Nicobar Island. He reported for the first time some 12 species from this island, of which three are undescribed new species and three others, namely, *Glyptotermes caudomunitus* Kemner, *Coptotermes gaurii* Roonwal and Krishna, and *Nasutitermes johoricus* John, are first record from the area. In addition, the genus *Glyptotermes* is also reported for the first time from these islands. Further addition of two more species, namely, *Nasutitermes triloki* Bose from South Andaman and *Odontotermes paralatigula* Chatterjee and Sen-Sarma to the existing fauna, has been made by Bose (1980), in her contribution dealing with some 16 species. The latest addition of two more species, namely, *Calcaritermes krishnai* Maiti and Chakraborty and *Glyptotermes nicobarensis* Maiti and Chakraborty from the Great Nicobar, has been done by Maiti and Chakraborty (1981).

The foregoing review certainly exhausts our existing knowledge on the termite fauna of the islands of Andaman and Nicobar. Thus, to sum up, a total of 25 species belonging to 10 genera under three families are so far known to exist in these islands, of which 17 species occur in the Andamans and eight species in the Nicobars as listed below. *Prorhinotermes shiva* Roonwal and Thakur is now synonymised under *P. flavus* by Roonwal and Chhotani (1989) to make a total of 24 species all together.

1. *Neotermes andamanensis* Snyder

2. *Cryptotermes bengalensis* Snyder
3. *Cryptotermes dudleyi* Banks
4. *Glyptotermes caudomunitus* Kemner
5. *Glyptotermes nicobarensis* Maiti and Chakraborty
6. *Calcaritermes krishnai* (Maiti and Chakraborty)
7. *Coptotermes gaurii* Roonwal and Krishna
8. *Coptotermes heimi* (Wasmann)
9. *Coptotermes travians* (Haviland)
10. *Prorhinotermes flavus* (Bugnion and Popoff)
11. *Schedorhinotermes eleanorae* (Roonwal and Bose)
12. *Schedorhinotermes longirostris* (Brauer)
13. *Schedorhinotermes medioobscurus* (Holmgren)
14. *Schedorhinotermes tiwarii* Roonwal and Thakur
15. *Microcerotermes danieli* Roonwal and Bose
16. *Microcerotermes nicobarensis* Roonwal and Bose
17. *Odontotermes latigula* Snyder
18. *Odontotermes paralatigula* Chatterjee & Sen Sarma
19. *Nasutitermes fabricii* Krishna
20. *Nasutitermes johoricus* John
21. *Nasutitermes krishna* Roonwal and Bose
22. *Nasutitermes matangensis matangensisformis* (Holmgren)
23. *Nasutitermes triloki* Bose
24. *Hospitalitermes blairi* Roonwal and Sen Sarma

(b) *Present Faunal Status* : The above list shows that some 24 species were already known from these islands, belonging to 10 genera under three families. As a result of the present study, a total of 38 species has been recorded, of which 24 are already known, 9 species are new to science and 5 species are recorded for the first time from these insular areas. The new species are as follows :

1. *Neotermes blairi* sp. nov.
2. *Neotermes rhizophorae* sp. nov.
3. *Schedorhinotermes mancowriensis* sp. nov.

4. *Microcerotermes biswanathae* sp. nov.
5. *Microcerotermes insularis* sp. nov.
6. *Nasutitermes andamanensis* sp. nov.
7. *Nasutitermes devrayi* sp. nov.
8. *Hospitalitermes kali* sp. nov.
9. *Hospitalitermes nicobarensis* sp. nov.

The species recorded for the first time are as follows :

1. *Glyptotermes brevicaudatus* (Haviland)
2. *Coptotermes havilandi* Holmgren
3. *Coptotermes premrasmi* Ahmad
4. *Schedorhinotermes javanicus* Kemner
5. *Pericapritermes buitenzorgi* (Holmgren)

The distribution of species to different genera indicates that the maximum number of six species each belongs to the genera *Schedorhinotermes* and *Nasutitermes* followed by the decreasing number of four each to *Glyptotermes* and *Microcerotermes*, three each to *Neotermes* and *Hospitalitermes*, and one or two each to *Cryptotermes*, *Prorhinotermes* and *Odontotermes*. It is interesting to note that the genus *Odontotermes* represented by numerous species in the adjacent mainland of the Oriental Region, represented by only two species from these insular areas.

MATERIAL AND METHODS

Material : The monograph is mainly based on a large collection of termites collected under a project entitled "Investigation on Ecological interaction and economic status of Xylophagous insects of the islands of Andaman and Nicobar, India"; financed by the Department of Science and Technology, New Delhi, and supervised by the senior author during the period 1978-1981. This material was further augmented by a fairly large collection made by the senior author in 1975 and 1976 from the islands of South Andaman and Great Nicobar, prior to the initiation of the project work. Further a small collection made by the staff members of the Andaman and Nicobar Regional Station, Zoological Survey of India, was also incorporated in the present study. However, the study was based on all these collections contained in more than 700 vials and represented from almost all the accessible Bay islands.

Methods : All these collections preserved in 80 per cent alcohol were studied under a Stereoscopic Binocular. The imago worker mandibles and imago-wings were studied from the permanently mounted slides and drawn under camera lucida for illustrations.

TAXONOMIC ACCOUNT

(a) Key to families, genera and species based on Soldier Caste only *

- 1(18) Fontanelle absent Family (I) Kalotermitidae
- 2(7) Head highly phragmotic, short, thick and truncated in front; mandibles comparatively short.
- 3(6) Foretibiae with three spines of normal size.....Genus *Cryptotermes*
- 4(5) Larger species, head-length 1.48-1.63mm, head-width 1.20-1.34 mm; frontal ridge pushed back and with a median cleft; mandibles thinner and longer; left mandible with three marginal teeth.....*C. dudleyi* Bank
- 5(4) Smaller species, head-length 1.03-1.24 mm, head-width 1.00-1.23 mm; frontal ridge lying in front and without a median cleft; mandibles broader and shorter; left mandible with one marginal tooth.....*C. be galensis* Snyder
- 6(3) Foretibiae with a large, thick and conspicuous spur on outer side, much thicker and longer than two other inner ones.....Genus *Calcaritermes*
- 7(2) Head generally smooth and not sharply truncated in front; mandibles comparatively long.
- 8(13) Frons bilobed forming a V-or U-shaped depression, sloping in front and with distinct anterolateral prominences; mandibles relatively short; usually smaller species..... Genus : *Glyptotermes*
- 9(10) Larger species, head-length 1.43-1.96 mm, head-width 1.04-1.25 mm; Antero-dorsal prominences on forehead indistinct and with a few short hairs; antennae with 12 segments.....*G. brevicaudatus* (Haviland)
- 10(9) Smaller species, head-length 1.19-1.43 mm, head-width 0.86-1.03 mm
- 11(12) Larger species; head-length 1.34-1.43mm, head narrower in relation to its length, head index(width/length) 0.59-0.66; mandible less than half of the head-length; mandible-head index (mandible-length/head-length) 0.45-0.48; last abdominal tergite not strongly chitinized.....*G. nicobarensis* Maiti & Chakraborty.
- 12(11) Smaller species; head-length 1.19-1.29, head broader in relation to its length, head index 0.67-0.73; mandibles much less than one-third of the head-length; mandible-head index 0.22-0.27; last abdominal tergite strongly chitinized.....*G. caudomunitus* Kemner.

* The key for the identity of imagos has not been given since only one-third of the total species is represented by the imagos from these islands.

- 13(8) Frons not bilobed, rather weakly sloping in front and with indistinct antero-lateral prominences; mandibles relatively long; larger species Genus *Neotermes*
- 14(15) Larger species, head-length 2.58-3.26mm, head-width 2.02-2.42 mm.
Mandibles comparatively short; 4th and 5th marginal teeth of left mandible placed wide apart with a shallow concave margin between*N. andamanensis* Snyder
- 15(14) Smaller species, head-length 1.86-2.43 mm, head-width 1.48-1.76 mm
- 16(17) Comparatively large species, head-length 2.14-2.43 mm, head-width, 1.76 mm; 4th and 5th marginal teeth of left mandible closely placed; 3rd antennal segment not strongly chitinized and subequal to 2nd, 4th shortest; postmentum with a very weak notch on lateral margins on anterior third; minimum width almost half of the maximum width*N. rhizophorae* sp. nov.
- 17(16) Comparatively small species, head-length 1.86-2.14, head-width 1.48-1.63 mm; 4th and 5th marginal teeth of left mandible not closely placed, rather fairly widely separated; 3rd antennal segment strongly chitinized and one and a half times longer than 2nd, 4th subequal to 2nd; Postmentum without any notch on lateral sides on anterior third, minimum width almost one-third of the maximum width.....*N. blairi* sp. nov.
- 18(1) Fontanelle present.
- 19(41) Pronotum flat.....Family Rhinotermitidae
- 20(32) Inner margins of both the mandibles without any tooth, but with a few basal crenulations
- 21(30) Fontanelle opening large and placed much anteriorly near the frontoclypeal suture.....Genus *Coptotermes*
- 22(25) Head-capsule strongly converging anteriorly, minimum width of head at side base of mandibles almost half the maximum width, head contraction index (minimum width/maximum width) 0.50-0.55
- 23(24) Smaller species, head-length 1.00-1.15 mm, head-width 0.91-1.03; head elongately oval; mandibles short, length 0.57-0.63 mm; postmentum waist very wide; contraction index (minimum width/maximum width)0.75-0.89*C. gaurii* Roonwal and Krishna
- 24(23) Larger species, head-length 1.40-1.45 mm, head-width 1.40 mm; head almost round; mandible long, length 0.90 mm; postmentum waist much narrow, contraction index 0.65.....*C. premrasmii* Ahmed

- 25(22) Head-capsule weakly converging anteriorly, minimum width at side base of mandibles much more than half the maximum width, head contraction index 0.60-0.73
- 26(27) Mandibles longer in relation to head-length; mandible-head index(mandible length/head-length) 0.65-0.67; in profile,dorsal margin of head behind fontanelle straight, but not wavy.....*C. havilandi* Holmgren
- 27(26) Mandible short in relation to head-length; mandible-head index 0.62-0.64; in profile, dorsal margin of head behind fontanelle swollen and wavy.
- 28(29) Postmentum-waist narrow, minimum width 0.20-0.29 mm; contraction index (minimum width/maximum width) 0.57-0.69*C.travians* Haviland
- 29(28) Postmentum-waist broad, minimum width 0.25-0.34 mm, contraction index 0.63-0.76.....*C. heimi* (Wasmann)
- 30(21) Fontanelle opening very small, and placed almost at the middle or a little above on head dorsum.....Genus *Prorhinotermes*
- 31(-) Mandibles longer in relation to head-length, head-mandibular index..... *P. flavus* Bugnion and Popoff
- 32(20) Inner margins of mandibles with prominent teeth and without any basal crenulations on left mandible Genus *Schedorhinotermes**
- 33(34) Right mandible with two distinct teeth; largest species, head length 1.72-2.08mm, head-width 1.62-2.08 mm, head only slight longer than broad, much narrowed anteriorly; postmentum-waist almost half of the maximum width and constricted somewhat angularly.....*S. nancowriensis* sp. nov.
- 34(33) Right mandible with only one distinct tooth
- 35(36) Apical portion of right mandible very thick terminating into a blunt apex. Headsquarish, thick and stout; lateral sides of head below antennal flaveolae weakly depressed.....*S. medioobscurus* Holmgren.
- 36(35) Apical portion of right mandible not so thick, rather thin and terminating into a very pointed apex
- 37(40) Smaller species, head-length, 1.34-1.58mm, head-width 1.29-1.58mm.
- 38(39) Head almost as long as broad; lateral sides straight and subparallel; labrum with substraight apical margin; postmentum at waist strongly constricted.....*S. javanicus* Kemner.

* *S.eleanorae* Roonwal and Bose has not been incorporated in the key, since Soldier(major) of the species is unknown.

- 39(38) Head slightly longer than broad, lateral sides sub-straight and strongly converging anteriorly; labrum with weakly bifid apical margin; postmentum at waist not so strongly constricted.....*S. longirostris* (Brauer).
- 40(37) Larger species, head-length 1.68-1.72mm, head-width 1.53-1.63mm.
Head slightly longer than broad; anterior portion of postmentum above maximum width broad, waist less constricted
.....*S. tiwarii* Roonwal and Thakur
- 41(19) Pronotum strongly saddle-shaped.....Family (III) Termitidae
- 42(55) Head without any rostrum or nasute; mandibles well developed and easily visible.
- 43(54) Mandibles more or less symmetrical, non twisted.
- 44(5) Mandibles with inner margins either finely or coarsely serrated, but without any definite dentation Genus : *Microcerotermes*
- 45(48) Smaller species, head-length 1.17-1.23mm, head width 0.81-0.92 mm.
- 46(47) Mandibles with inner margin finely serrated and their outer margins uniformly and strongly outcurved almost at the middle, apices less incurved; very small species, head-length 1.17-1.18 mm, head-width 0.81-0.83 mm, Postmentum at waist strongly constricted*M. insularis* sp. nov.
- 47(46) Mandibles with inner margins somewhat coarsely and distinctly serrated and their outer margins not strongly outcurved, but with more incurved apices; moderately large species, head-length 1.23mm, head-width 0.92 mm; postmentum-waist less constricted.....*M. andamanensis* sp. nov.
- 48(45) Larger species, head-length 1.38-1.72 mm, head-width 0.88-1.05.
- 49(50) Labrum tongue-shaped with a broad anterior tip; mandibles thin, and long in relation to head-length, head-mandibular index (mandible-length/head-length) 0.64-0.66.....*M. danieli* Roonwal and Bose.
- 50(49) Labrum sub-pentagonal with a pointed tip; mandibles thick, and short in relation to head-length; head-mandibular index 0.52-0.56*M. nicobarensis* Roonwal & Bose.
- 51(42) Mandibles with inner margins not at all serrated, but with definite dentation, especially on the left mandible with a very prominent tooth.....Genus *Odontotermes*
- 52(53) Smaller species, head-length 1.14-1.30 mm, head-width 1.03-1.15 mm; mandibles comparatively thin at apices and weakly hooked; antennae with 16 segments.....*O. latigula* (Snyder)

- 53(52) Larger species, head-length 1.20-1.48 mm, head-width 1.10-1.18 mm; mandibles thick at spices and more strongly hooked; antennae with 17 segments.....*O. paralatigula* Chatterjee and Sensarma.
- 54(43) Mandibles distinctly as ymmetrical, left one twisted and right one sub-straight.....Genus *Pericapritermes*.
Anterolateral corners of labrum produced into short narrow processes, but anterior margin straight; left mandible with a point at the tip; head-length 2.10-2.43 mm and head-width 1.24-1.40 mm*P. buitenzorgi* (Holmg)
- 55(42) Head with prominent rostrum or nasute; mandibles not well developed, rather vestigial and not easily visible.
- 56(61) Head greatly produced behind and strongly constricted behind antennae, antennae long with longer segments Genus *Hospitalitermes*.
- 57(60) 3rd antennal segment more than two and a half times as long as 2nd; head-capsule blackish brown.
- 58(59) Larger species, head with rostrum 1.78-1.96 mm; maximum head-width 1.14-1.24 mm; rostrum comparatively thin; rostrum-head index(maximum width of rostrum/maximum width of head) 0.12-0.16; 3rd antennal segment more than two and a half times to 3 times as long as 2nd*H. nicobarensis* sp. nov.
- 59(58) Smaller species, head-length with rostrum 1.64-1.72 mm, maximum width of head 0.98-1.02 mm; rostrum thick; head-rostrum index 0.19-0.24; 3rd antennal segment more than two and a half times, but less than 3 times as long as 2nd.....*H. nancowriensis* sp. nov.
- 60(57) 3rd antennal segment two and a half times as long as 2nd; head-capsule reddish brown.....*H. blairi* Roonwal and Sen Sarma.
- 61(56) Head not greatly produced behind and either very weakly or not at all constricted behind antennae, antennae short with shorter segments....
.....Genus *Nasutitermes*.
- 62(65) Mandibles without any apical processes.
- 63(64) Smaller species, head-length with rostrum 1.16-1.24 mm; head with a dense coat of short hairs and with a few long bristles; head in profile, dorsal margin of rostrum more depressed than rest of the head and without rostral hump.....*N. fabricii* Krishna

- 64(63) Larger species, head-length with rostrum 1.32-1.36 mm; head only with a few scattered bristles; head in profile, dorsal margin of rostrum not depressed, rather straight with a weak basal hump *N. johoricus* (John)
- 65(62) Mandibles with distinct apical processes.
- 66(72) Smaller species, head-length with rostrum 1.35-1.52 mm, head-width 0.83-0.95 mm
- 67(69). Dorsal margin of head substraight, antennae with 13 segments.
- 68(-) Dorsal margin of head substraight with a distinct rostral hump; rostrum thick and conical; head-capsule devoid of any conspicuous hairs; head-length 1.45-1.52 mm..... *N. andamanensis* sp. nov.
- 69(67) Dorsal margin of head incurved, antennae with 12-segments.
- 70(71) Dorsal margin of head distinctly incurved specially in the rostral area; rostrum somewhat conical; much smaller species, head length with rostrum 1.24-1.32 mm..... *N. devrayi* sp. nov.
- 71(70) Dorsal margin of head shallowly incurved to substraight with a weak rostral hump; rostrum somewhat slender; head-capsule with numerous short hairs and 1-3 pairs of long bristles; larger species, head-length with rostrum 1.35-1.48 mm..... *N. triloki* Bose
- 72(66) Larger species, head-length 1.45-1.90 mm, head-width 0.98-1.30 mm...
- 73(74) Dorsal margin of head weakly sinuate, without any rostral hump; head with numerous short hair; antennae with 12 segments; smaller species, head with rostrum 1.45-1.63 mm..... *N. krishna* Roonwall and Bose.
- 74(73) Dorsal margin of head substraight with a weak rostral hump; head with a few minute hairs (visible in reflected light) and long bristles; antennae with 13-14 segments; larger species head with rostrum 1.68-1.90mm *N. matangensis matangensisiformis* (Holmgren)

1. *Neotermes andamanensis* (Synder)

Kalotermes (*Neotermes*) *andamanensis* synder :

1933. Synder, *Proc. U. S. nat. Mus.*, **82** (16) : 2, *Im.* (deal.), *Type-locality* : North Andaman.

Neotermes andamanensis Snyder :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 22, North Andamans.

1960. Roonwal and Sen Sarma, *Ent. Mongr.* (ICAR), No. 1, pp. 144-145.

1970. Roonwal and Bose, *Rec. zool. surv. India*, **62** (3 &4) : 116,118 North Andamans.

1976. Bose, *Newsl. zool Surv. India*, **2** (3) : 104.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 93-99, North and South Andamans (First description of Soldiers).

Material —Twenty four vials with Im., S. and Psw. from the islands of andaman and Nicobar as follows :

A. Twelve vials from South Andaman as follows : *P.K. Maiti and Party* coll. —Im. and Psw., Port Blair, 21.xii. 1975, ex. "Mango tree"; (2) S. and Psw., Chidiatapu, 8.i. 1976, ex. "live tree of *Ficus* sp."; (3) Im., S. and Psw., Port Blair, 5 viii. 1978, F.C. No. $M_2/5.8.78$, ex. "Ficus trunk"; (4) S., Psw. and deal., Sippighat, 26. vii. 1978, F.C. NO. $M_3/26.7.78$, ex. "Rain tree"; and (5) Im. S., Psw. and Im.—nymphs, Garacharma, 18, viii. 1979, F.C. No. $M_4/18.8.79$, ex. "stem of a small tree" *S.K. Chakraborty and Party* coll. -(6) Im., S. and Psw., Delanipur, 22.v. 1979, F C. No. $Cle/22.5.79$, ex. "sap and heart wood of Badain log" *B. Nandy and Party* coll.— (7) S. and Psw., Baratang, 30. xii.1979, F.C.No. $N_1/30.12.79$, ex. "Taumpeing log"; (8) S. and Psw., Mathura, 7.x. 1981, F.C. No. $N_3/17.10.81$, ex."heart wood of Latkak log" and (9) S. and Psw., Wright Myo, 23.x. 1981, F.C. No. $N_4/23.10.81$, ex. "wound of a live Croton plant" *T.N. Khan and Party* coll.- (10) S. and Psw., Viper Island, 10. viii. 1979, F.C. No. $K_2d/10.8.79$, ex. "Mango log"; (11) S. and Psw., Neil Island, 24. vi. 1980, F.C. No. $K_3/24.6.80$, ex. "unknown stump"; (12) Im., S. and Psw., Chidyatapu, 19.x. 1981, F.C. No. $K_4/19.10.81$, ex. "unknown creeper"

B. Six vials from Middle Andaman as follows : *P.K. Maiti and Party* coll. - from Bakultala, such as—(13) 1 deal., S. and Psw., 8.ii. 1979, F.C. No. $M_3/11.2.79$, ex. "dead portion of a living *Rhizophora conjugata*"; (15) Im., S. and Psw., 14.ii.1979, F.C.No. $M_1/14.ii.79$, ex. "Garjan Log"; (16) S. and Psw., 14.ii.1979, F.C. No. $M_7/14.2.79$, ex. "*Rhizophora epiculata* log"; (17) Im., S. and Psw., 13.ii.1979, F.C. No. $M_3/13.2.79$, ex. "Latcock log" *S.K. Chakraborty and Party* coll. ; from Kadamtala, such as—(18) S. and Psw. and Im.—nymphs, 10.vi. 1979, F.C. No $C_1/10.6.79$, ex. "heart wood of a dead branch of a living tree"

C. Two vials from North Andaman, as follows; (19) Aerial Bay, *P.K. Maiti and Party* coll.—20.ii.1979, F.C. No. $M_2/20.2.79$, ex. "log"; (20) Diglipur, *B. Nandy and Party* coll.— 13.xii.1979, F.C. No. $M_3/13.12.79$, ex. "soft wood of Kata log"

D. One vial with S. and Psw., from Little Andaman (Dugong Creek), *T.N. Khan and Party* coll.— 5.x.1981, F.C. No. $K_3/5.10.81$, ex. "unknown log"

E. One vial with 1 deal., S and Psw., from Nancowry, Nicobar, *T.N.Khan and Party* coll.—5.viii.1980, F.C. No. $K_6/5.8.80$, ex. "Mangrove stump"

Measurements etc. (in mm.) :

Imagos (10 exs.) —Length of head to side base of mandibles 1.34-1.68; Max. width of head (with eyes) 1.68-1.76; Max. diameter of eye 0.53-0.62; Min. diameter of eye 0.53-0.58; Max. diameter of ocellus 0.19-0.24; Min. diameter of ocellus 0.14-0.21; Eye-ocellus distance Nil; Length of postclypeus 0.24-0.34; Width of postclypeus 0.76; Length of labrum 0.30-0.35; Width of labrum 0.55-0.63; Length of pronotum 0.96-1.09; Width of pronotum 1.68-1.91; Length of forewing scale 1.24-1.43; Length of hindwing scale 0.55-0.65; No. of antennal segments 17-19.

Soldiers (10 exs.) —Length of head to side base of mandibles 2.58-3.26; Max. width of head 2.02-2.42; Max length of labrum 0.24-0.40; Max. width of labrum 0.32-0.57; Length of left mandible 1.58-1.84; Min. median length of postmentum 1.96-2.43; Max. width of postmentum 0.68-0.84; Width of postmentum at waist 0.24-0.34; Max. Length of pronotum 1.00-1.42; Max. Width of pronotum 1.86-2.42; No. of antennal segments 12-15.

Distribution—ANDAMAN AND NICOBAR ISLANDS : *South Andaman* : Port Blair, Chidyatapu, Wright Myo, Baratang, Mathura, Neil Island and Viper Island.

Middle Andaman : Kadamtala, Bakultala, Long Island. *North Andaman*: Diglipur. *Little Andaman* : Dugong Creek. *Nancowry*. (all present records). Previously recorded from *North Andaman* : Maya Bunder and *South Andaman*: Humphrygunj. ELSEWHERE : None.

Remarks— The present study based on fairly large collection reveals that the species *Neotermes andamanensis* is widely variable species. In soldier caste, the shape and size of head-capsule, mandibles, postmentum and pronotum show wide range of variation. Head is usually subrectangular in shape, but in some examples lateral margins either weakly diverging or converging anteriorly with very distinct to moderately antero-lateral processes. The tooth pattern of mandibles also varies in their orientation and relative size. The posterior part of the postmentum shows great variation in its width, along with strongly to weakly bilobed lateral margins on anterior third. Likewise, pronotum shape also varies particularly with straight to weakly emarginate posterior margin.

The variations studied in some cases are so prominent, particularly in the population occurring in the isolated islands that it may lead to create some more species. But within the same colony, the normal and variable specimens frequently occur. Since a fairly large number of collection has been studied, such variations are considered fluctuating within the range of typical species.

2. *Neotermes blairi* sp. nov.

(a) *Material*— 3 vials, all with Im. (deal.), S. and Psw., from South Andaman, "B. Nandi and S.K. Chakraborty coll. , as follows (1) 2 S., 2 deal. and 14 Psw., Haddo, 4.x. 1981, F.C. No. N₁a/4.10.81, ex. "wound of a jamun tree"; (2) 2 S., 2 deal. and 26 Psw., Chidyatapu, 16.x.1981, F.C. No. N₃/16.10.81, ex. "wound of a standing tree" and (3) 1 S., 2 deal. and 10 Psw., Chidyatapu, 16.x. 1981, F.C. No. N₅/16.10.81, ex. "wound of a small tree"

(b) *Description*— 1 IMAGO(Dealate) : Head-capsule reddish brown to dark brown; antennae and labrum yellowish brown; pronotum yellowish brown to dark brown; legs golden yellow to yellowish brown; abdominal tergites pale brown; sternites pale yellowish. Head fairly, pronotum moderately and tergites sparsely covered with long bristles.

Head-capsule subround, much broader (including eyes) than length to base of mandibles. Y-suture visible in less chitinized specimens; frons slightly sloping in front. Eyes fairly large, subround, placed very close to base of antennae and much separated from the lower margin of head. Ocelli oval, translucent, touching the eyes and separated from the antennae by almost their maximum diameter. Postclypeus flat and narrow, hardly demarkable from frons and dark as head-capsule with a few bristles. Anteclypeus subtrapezoidal, white, apilose. Antennae broken, segment 2 almost half of segment 1, 3 slightly shorter than 2 and comparatively strongly chitinized, 4 shortest, 5 onwards gradually increasing in size. Labrum broadly dome shaped, broader than long and apical margin substraight with few hairs on the margin and body. Mandibles of typical *Neotermes*-type. Left mandible with a comparatively longer apical and two other marginal teeth: posterior margin of 1st marginal equal to anterior margin of 2nd. Right mandible also with an apical and two marginal teeth, apical finger-like, 1st marginal triangular, 2nd short, posterior margin of 2nd marginal longer than molar plate.

Pronotum flat, a little broader than head-capsule with eyes; anterior margin fairly incurved; posterior margin very weakly incurved, antero-lateral corners narrowly and posterolateral corners broadly rounded. Wing scales dark brown; forewing scales not overlapping the hindwing scale. In forewing scale, costa, subcosta, median and cubitus arising independently; radius and radial sector originating from a common stalk and separating near the wing suture. Legs short and stout, apical tibial spur formule 3:3:3; tarsi 4-jointed; empodium present.

Measurements. etc. (in mm),Imagos (deal.) (6 exs.)

Length of head to tip of labrum	...	...	1.90-2.04
Length of head to side base of mandibles	...	...	1.45-1.58
Max. width of head (with eyes)	...	...	1.72-1.76
Max. diameter of eye	...	...	0.62-0.65
Min. diameter of eye	...	...	0.58-0.63
Distance of eye from lower margin of head	...	...	0.20-0.29
Max. diameter of ocellus	...	...	0.26-0.29
Min. diameter of ocellus	...	...	0.19-0.21
Eye-ocellus distance	...	...	Nil
Max. length of labrum	...	...	0.43-0.50
Max. width of labrum	...	...	0.58-0.63
Length of pronotum	...	...	1.40-1.09
Width of pronotum	...	...	1.72-1.86
Length of forewing scale	...	...	1.24-1.43
Length of hindwing scale	...	...	0.63-0.72

2. SOLDIER (Fig. 1, a-c):

Head-capsule pale yellowish to yellowish brown, a bit darker anteriorly; mandibles pichy black apically and yellowish brown basally; antennae pale brown; labrum, pronotum, legs and abdomen yellowish white. Head and thorax sparsely and abdomen comparatively densely hairy. Body length (including mandibles, but excluding antennae) 6.00-8.20 mm.

Head-capsule subrectangular, much longer than broad; lateral margins weakly outcurved and very slightly narrowing anteriorly; in profile, dorsal margin weakly convex and frons gradually sloping anteriorly with a weak median depression; anterolateral corners somewhat prominent; postero-lateral corners broadly rounded. Y-suture indistinctly marked. Eye spots whitish and indistinctly marked. Ocelli absent. Antennae with 12 segments, segment 2 slightly shorter than 3,3 comparatively more chitinized and conical, one and a half times longer than 2,4 subequal to 2, 5 onwards gradually increasing in length upto penultimate segment, last one smaller and narrower. Postclypeus dark brown, hardly demarcated from frons and pilose. Anteclypeus narrow, strip-like, whitish and apilose. Labrum

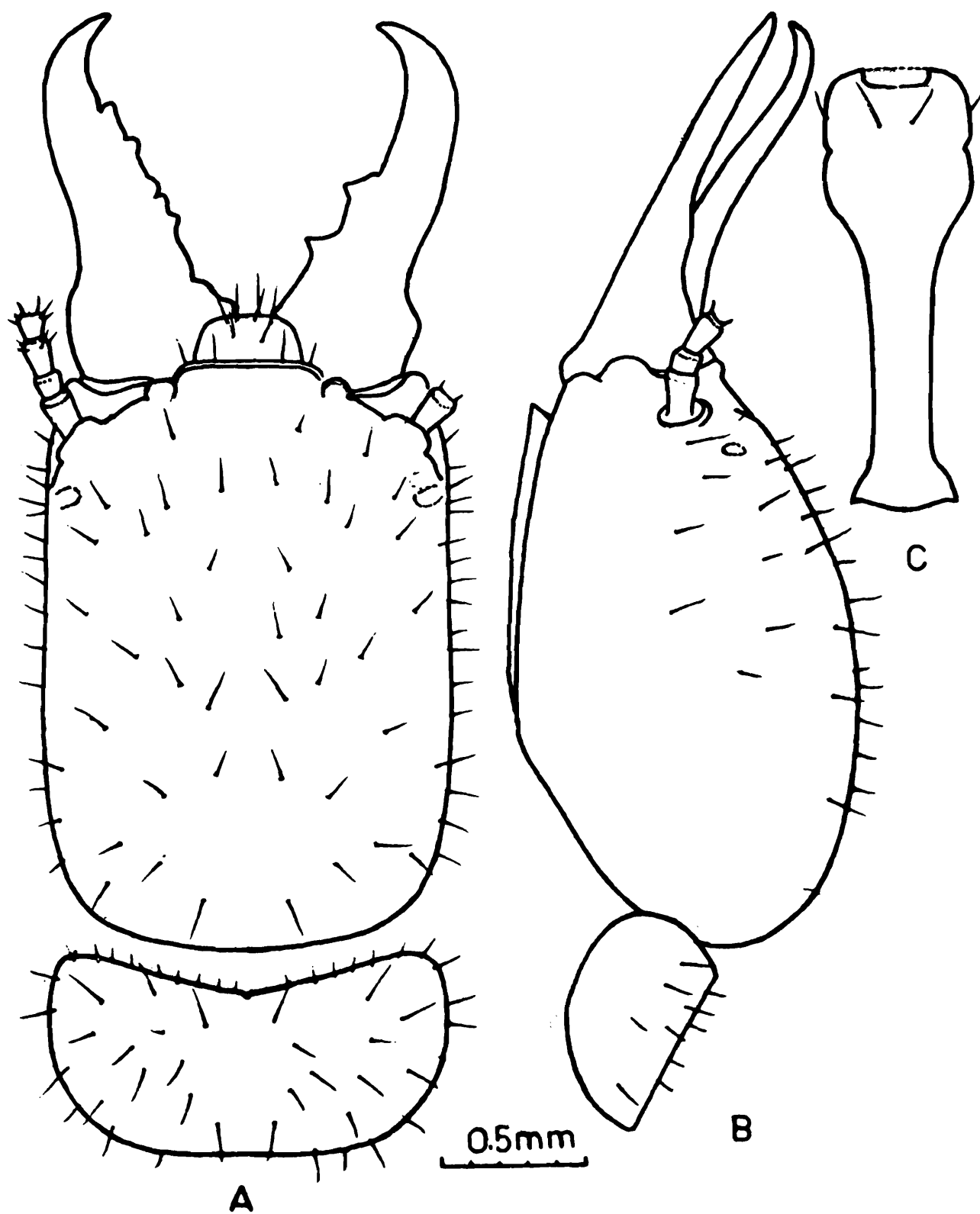


Fig. 1. *Neotermes blairi* sp. nov. Soldier : A. Head and Pronotum, in dorsal view; B. Head and Pronotum in lateral view; C. Postmentum.

variable in size, usually slightly broader than long with a few erect hairs anteriorly, anterior margin subround and lateral margins substraight. Mandibles long and thin, much more than half the head-length and with very much distinct basal hump. Left mandible with a weakly to fairly incurved apical and 5 marginal teeth; apical one with its basal inner margin weakly outcurved; 1st and 2nd marginal teeth prominent and bluntly directed forward with a distinct notch in between; 3rd indistinct, separated from 4th by a notch, 4th small and blunt, and 5th larger than 4th and directed laterally; in some specimens, another distinct tooth-like projection visible below the 5th. Right mandible with a weakly incurved apical and two stout marginal teeth; both marginal teeth directed laterally and with short anterior and long posterior margins and placed wide apart with angular emargination in between; 2nd marginal with long and substraight posterior margin. Postmentum long, club shaped, anterior one third very much dilated without any lateral notch, minimum width almost one-third of the maximum width, anterior margin substraight and posterior margin weakly concave; anterior third with a few hairs.

Pronotum narrower than head-width and almost twice as long as broad, in some specimens, length shorter; anterior margin set with microhairs, with a shallowly to deeply concave and without having any distinct notch; posterior margin weakly emarginate; lateral margins outcurved and narrowing posteriorly; anterolateral corners narrowly and postero-lateral corners broadly rounded; disc with scattered hairs. Legs short and stout; apical tibial spur formule 3:3:3.

Abdomen elongate; both tergites and sternites fairly densely hairy.

Measurements (in mm) etc., Soldiers

	Holotype	Range (5 exs.)
Length of head to side base of mandibles	1.90	1.86-2.14
Max. width of head	1.48	1.48-1.63
Max. height of head	1.09	1.09-1.24
Head Index (Width/Length)	0.78	0.76-0.79
Max. length of labrum	0.20	0.20-0.29
Max. width of labrum	0.38	0.36-0.38
Length of left mandible	1.19	1.19-1.40
Head-mandibular length Index (Left mandible length/Head-length)	0.63	0.63-0.65
Min. median length of post-mentum	1.30	1.29-1.53

	Holotype	Range (5 exs.)
Max. width of postmentum	0.53	0.53-0.58
Width of postmentum at waist	0.19	0.19-0.24
Max. length of pronotum	0.63	0.63-0.68
Max. width of pronotum	1.20	1.20-1.48
Pronotum-Head Index (Pronotum width/Head-width)	0.81	0.81-0.91
Pronotum Index (length/width)	0.52	0.46-0.52
No. antennal segments	12	12

3. PSEUDOWORKER :

Head-capsule, antennae and labrum pale yellow; thorax, legs and abdomen creamy white. Head and body moderately hairy. Total body length (excluding antennae) 6.53-7.48 mm.

Head subcircular, broader than long, eye spots oval, unpigmented, placed close to base of antennae. Antennae with 12 segments, segment 3 incompletely divided, segment 2 almost equal to 3,4 shortest, 5 onwards gradually increasing in size. Postclypeus flat, sparsely hairy, hardly demarcated from frons. Anteclypeus transverse, anterior margin weakly emarginate and apilose. Labrum much broader than long, lateral sides diverging anteriorly, anterior margin substraight; dorsal surface fairly convex, with a few short erect hairs on body and anterior margin. Mandibles of typical *Neotermes*-type.

Pronotum flat, almost half as long as broad, anterior margin broadly concave, without any median notch, antero-lateral corners broadly rounded, posterior margin substraight, disc with sparsely scattered long hairs and entire margin with short hairs.

Abdomen elongate and hairy.

Measurements (in mm) of Pseudoworkers (10 exs.)

Head length to side base of mandibles	...	1.09-1.29
Max. width of head	...	1.38-1.38
Max. height of head	...	0.82-0.86
Max. length of labrum	...	0.38-0.43
Max. width of labrum	...	0.48-0.53
Max. length of pronotum	...	0.58-0.72
Max. width of pronotum	...	1.38-1.43

Type-specimens—All type-specimens, in spirit, from two lots with same date as given under 'Material' above.

(a) *Holotype*— Holotype Soldier, from lot no. (i) under material, in a vial (ZSI. Reg. No. 3165/H₁₁) deposited in ZSI, Calcutta.

(b) *Paratype and Paramorphotypes*— (i) Paratype 1 soldier (ZSI. Reg. No. 3166/H₁₁) and paramorphotypes 2 Imagos (Deleates) and 5 Pseudoworkers (ZSI. Reg. No. 3167/H₁₁) in separate vials from *Holotype-lot*, deposited in ZSI. (ii) Paratype 1 Soldier and Paramorphotypes 2 Pseudoworkers from lot under Material no. (ii) in a single vial, deposited in F.R.I., Dehra Dun. Rest of the material from the same lot is kept in ZSI, as *type-lot*.

Distribution— INDIA : South Andaman. Haddo (Port Blair) and Chidyatapu (Type-localities). So far known only from the type-localities.

Comparison— The new species, *Neotermes blairi* can easily be distinguished from all other species of the genus hitherto known from the Oriental Region by its smaller size. However, it is close to *N. rhizophorae* sp. nov. from Nancowry, Nicobar Island; and *N. parvisculatus* Light from the Philippines, but differs from them as follows :

1. From *N. rhizophorae* :

Imago— (i) Eyes larger, maximum diameter 0.62-0.65 mm (vs. eyes smaller, 0.58-0.63 mm). (ii) 3rd antennal segment slightly shorter than 2nd (vs. 3rd slightly longer than 2nd).

Soldier— (i) Smaller species, head-length 1.86-2.14 and head-width 1.48-1.63 mm (vs. larger species, head-length 2.14-2.43 and head-width 1.76 mm). (ii) 4th and 5th marginal teeth on left mandible fairly separated from each other (vs. very closely placed). (iii) 3rd antennal segment strongly chitinized and one and a half times as long as 2nd, 2nd subequal to 4th (vs. not so chitinized and subequal to 2nd, 4th shortest). (iv) Postmentum not bilobed laterally on apical third and minimum width almost one-third of maximum width (vs. bilobed and minimum width almost half the maximum width).

2. From *N. parvisculatus* Light

Imago— (i) Eyes larger, maximum diameter 0.62-0.65 mm (vs. smaller, 0.60). (ii) Ocelli also larger, maximum diameter 0.26-0.29mm (vs. smaller, 0.25 mm). (iii) 3rd antennal segment slightly shorter than 2nd (vs. 3rd subequal to 2nd).

Soldier—(i) Head narrower, head index (width/length) 0.77-0.80 (vs. head broader, index 0.89) (ii) Left mandible with 5 marginal teeth (vs. only with 3 marginal teeth). (iii) 4th antennal segment shortest (vs. 2nd shortest). (iv) Postmentum bilobed laterally on apical third and minimum width almost one-third of maximum width (vs. very weakly bilobed, minimum width more than one-third of maximum width).

3. *Neotermes rhizophorae* sp. nov.

Material— 2 vials with Im. (deal.), S. and Psw. from Nancowry, T.N. Khan and Party coll., as follows : (i) 3 Im (deal.), 2 S. and 12 Psw., 8. viii. 1980, F.C. No. K_{1a}/8.8.80, ex. decaying *Rhizophora epiculata* Stump. (ii) 2 Im. (deal.), 2 S., 6. viii. 1980, F.C. No. K₁/6.8.80, ex. "unknown long"

Description—1. Imago (Deal.) (Fig. 2, a):

Head-capsule reddish brown to dark brown; antennae and labrum yellowish brown; pronotum paler than head-capsule; abdominal tergites pale brown; sternites pale yellowish; legs golden yellow to yellowish brown. Head and pronotum fairly, and tergites and sternites sparsely hairy.

Head-capsule subcircular, broader than the length of mandibles; Y-suture indistinctly visible in less chitinized specimens, not visible in darker specimens, frons slightly sloping in front. Eyes fairly large, subround, placed very close to base of antennae and much separated from the lower margin of head. Ocelli oval, translucent, touching the eyes and separated from the antennae by almost their long diameter. Postclypeus distinct, flat and narrow, hardly demarkated from frons and as dark as head-capsule with a few bristles. Anteclypeus subtrapezoidal, whitish and apilose. Antennae broken; segment 2 almost half of 1, 3 slightly longer than 2, 2 and 3 comparatively strongly chitinized, 4 shortest, rest gradually increasing in size. Labrum broadly dome shaped, broader than long. Mandibles of typical *Neotermes* type. Left mandible with an comparatively longer apical and two shorter marginal teeth; posterior margin of 1st marginal equal to anterior margin of 2nd. Right mandible also with an apical and two marginal teeth, apical finger-like, 1st marginal triangular, 2nd short, posterior margin of 2nd marginal longer than the molar plate.

Pronotum flat, a little broader than head-width; anterior margin fairly incurved; posterior margin very weakly incurved; antero-lateral corners narrowly and postero-lateral corners broadly rounded. Wing-scales dark brown, forewing scales not overlapping the hindwing scales. In forewing scale, costa, subcosta, median and cubitus arising independently; radial and radial sector originating from a common stalk and separating near the wing suture. legs short and stout, apical tibial spur formula 3:3:3, tarsi 4-jointed; empodium present.

Abdomen oblong, tergites with long bristles on their posterior margins.

Measurements, etc. (in mm). Imagos (deal.) 5 exs.

Length of head to tip of labrum	...	...	1.96-2.14
Length of head to side base of mandibles	...	...	1.58-1.63
Max. width of head (with eyes)	...	...	1.73-1.81

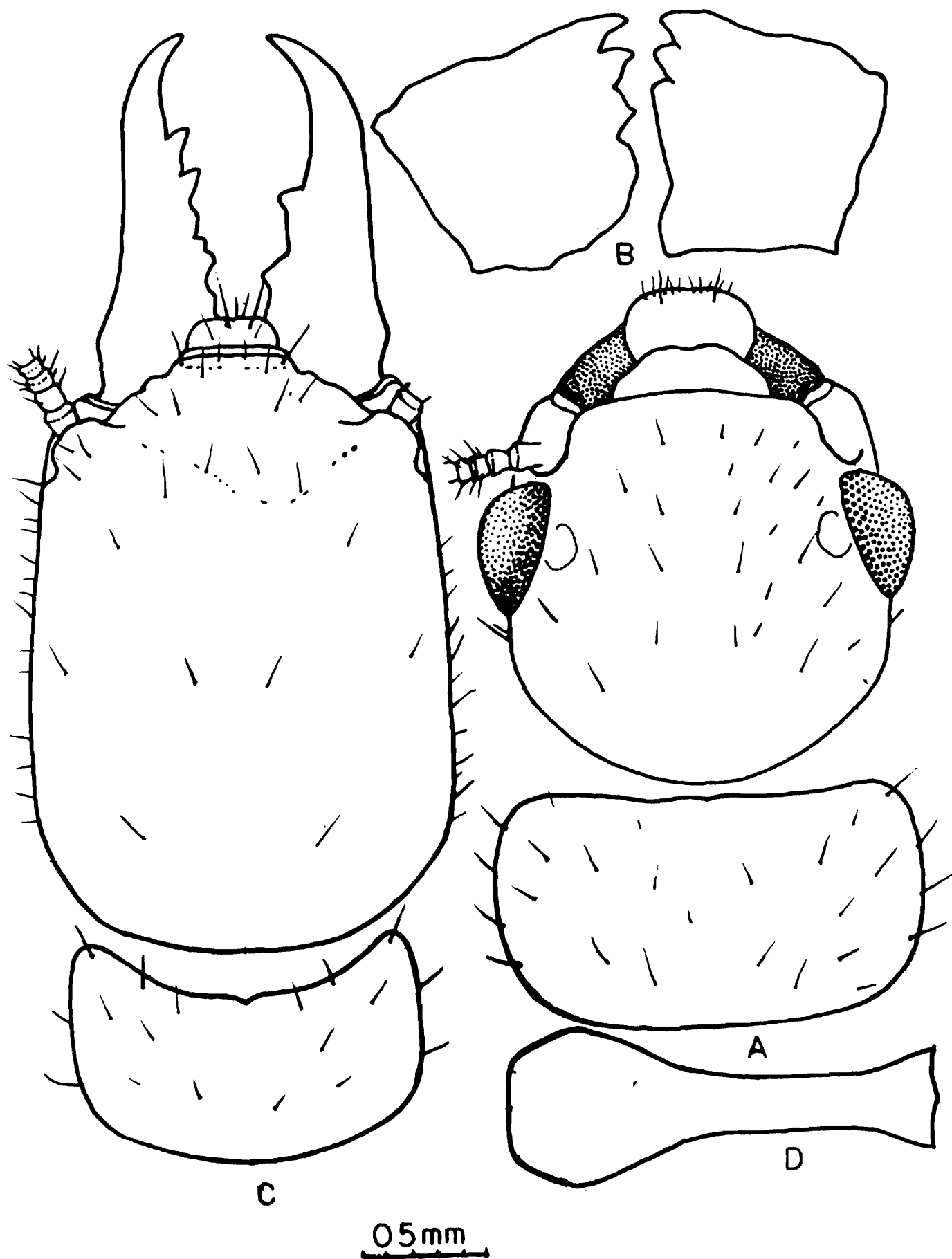


Fig. 2. *Neotermes rhizophorae* sp. nov. Imago and Soldier

Imago : A. Head and pronotum, in dorsal view

Soldier : B. Mandibles; C. Head and Pronotum; D. Postmentum.

Max. diameter of eye	...	...	0.58-0.63
Min. diameter of eye	...	...	0.53-0.60
Distance of eye from lower margin of head	...	...	0.18-0.29
Max. diameter of ocellus	...	...	0.24-0.29
Min. diameter of ocellus	...	...	0.15-0.21
Eye-ocellus distance	...	...	Nil.
Max. length of postclypeus	...	...	0.20-0.29
Max. width of postclypeus	...	...	0.76-0.82
Max. length of labrum	...	...	0.29-0.48
Max. width of labrum	...	...	0.58-0.72
Length of pronotum	...	...	0.96-1.14
Width of pronotum	...	...	1.75-1.91
Length of forewing scale	...	...	1.38-1.48
Length of hindwing scale	...	...	0.58-0.63

2. SOLDIER (Fig. 2, b-d):

Head-capsules yellowish brown, slightly darker anteriorly; antennae and labrum pale yellow; pronotum and legs pale yellow; abdomen yellowish white. Head, thorax and abdomen sparsely hairy. Body length (excluding antennae) 7.85-8.10mm.

Head-capsule subrectangular, much longer than broad; posterior margin substraight; lateral margins subparallel, very weakly converging anteriorly; width of head at side base of mandibles 1.34-1.48 mm.; in profile, frons distinctly sloping anteriorly; antero-lateral corners somewhat prominent, Y-suture distinct. Eyes suboval, white and placed a little below the antennal socket. Ocelli absent. Antennae with 12-13 segments; segment 3 strongly chitinized, somewhat triangular and longer than 2 and 4, 4 shortest, 5 onwards becoming longer and narrower. Postclypeus much broader than long, strongly chitinized, anterior margin substraight, posterior margin clearly demarcated from frons and with a few long erect hairs. Anteclypeus whitish, strip-like, sloping downwards, anterior margin substraight and apilose. Labrum broader than long with a few erect hairs on body, anterior margin weakly outcurved, lateral margin very weakly narrowing anteriorly. Mandibles long, two-thirds as long as head length and with distinct basal hump. Left mandible with an incurved apical and 5 marginal teeth; apical one with its basal inner margin weakly outcurved; 1st and 2nd marginal teeth prominent and placed apart with a distinct notch in between,

3rd indistinct, with concave margin in between 2nd and 3rd; deep concavity in between 3rd and 4th; 4th and 5th blunt and placed close together with indistinct notch in between. Right mandible with an incurved apical and two stout marginal teeth; both marginal teeth with short anterior and long posterior margin, placed wide apart with angular emargination in between; 2nd marginal with incurved posterior margin. Postmentum long, club-shaped, more than anterior one-third dilated with very weak notch on middle of lateral sides; posterior two-thirds narrow, minimum width almost half the maximum width; anterior margin substraight and posterior margin weakly convex, with a few hair on the dilated portion.

Pronotum flat, slightly narrower than head, almost as long as broad; anterior margin broadly and deeply concave; lateral margins weakly outcurved; posterior margin convex with weak median emargination; both margins and disc with sparse hairs. Legs short and stout, apical tibial spur formula 3:3:3.

Abdomen elongate, both tergites and sternites sparsely hairy.

Measurements (in mm) etc., Soldiers (4 exs.)

	Holotype	Range
Length of head to side base of mandibles	2.34	2.14-2.43
Max. width of head	1.76	1.76
Max. height of head	1.34	1.30-1.38
Head Index (Width/Length)	0.71	0.71-0.82
Max. length of labrum	0.19	0.15-0.19
Max. width of labrum	0.40	0.38-0.40
Length of left mandible	1.63	1.43-1.63
Head-mandibular length Index (Left mandible length/Head-length)	0.69	0.63-0.69
Min. median length of postmentum	1.72	1.53-1.72
Max. width of postmentum	0.65	0.64-0.65
Width of postmentum at waist	0.30	0.26-0.30
Max. length of pronotum	0.92	0.72-0.92
Max. width of pronotum	1.58	1.43-1.65

	Holotype	Range
Pronotum-Head Index (Pronotum-width/Head-width)	0.90	0.81-0.94
Pronotum Index (length/width)	0.58	0.46-0.61
No. antennal segments	13	12-13

3. PSEUDOWORKER :

Head-capsule, antennae and labrum pale yellow; thorax, creamy yellow; abdomen and legs creamy white. Head and body moderately hairy. Total body length (excluding antennae) 5.86-6.43 mm.

Head-Capsule subcircular, broader than long, eye spots oval, unpigmented. Antennae with 12 segments, segment 2 almost equal to 3,4 almost half the length of 3,4 shortest, 5 onwards gradually increasing in size. Postclypeus somewhat flat, hardly demarcated from frons, posterior margin weakly depressed and with sparse hairs. Anteclypeus transverse and apilose with feebly emarginate anterior margin. Labrum much broader than long, lateral sides diverging anteriorly, with substraight apical margin, dorsal surface fairly convex, with a few erect hairs, concentrating towards apex. Mandibles of typical *Neotermes*—type.

Pronotum flat, half as long as broad, anterior margin broadly concave, without any median notch, antero-lateral corners narrowly and Postero-lateral corners broadly rounded, posterior margin with a weak median emargination, disc with sparsely scattered small hairs. Legs short and stout.

Abdomen oblong and hairy.

Measurements (in mm.) of Pseudoworkers (10 exs.)

1. Head length to side base of mandibles	...	1.30-1.43
2. Max. width of head	...	1.30-1.40
3. Max. height of head	...	0.85-0.90
4. Max. length of labrum	...	0.43-0.45
5. Max. width of labrum	...	0.48-0.50
6. Max. length of pronotum	...	0.57-0.68
7. Max. width of pronotum	...	1.19-1.24

Type-specimens—All type-specimens, in spirit, from two lots with same data as given under 'Material' above.

(a) *Holotype*—Holotype Soldier, from lot No. (i) under Material, in a vial (ZSI. Reg. No. 3169/H₁₁) deposited in ZSI, Calcutta.

(b) *Paratype and Paramorphotypes*— (i) Paratypes 2 sold. (ZSI. Reg. No. 3170/H₁₁) and paramorphotypes 3 Im. (Deal.) and 5 Psw. (ZSI. Reg. No. 3171/H₁₁) in separate vials from *Holotype*-lot, deposited in ZS.I. (ii) Paratype 1 sold. and paramorphotypes 2 Psw. from lot No. (ii) under material, in a single vial, deposited in F.R.I., Dehra Dun. Rest of the material from lot No. (ii) kept in ZSI, as *type-lot*

Distribution— INDIA : Nicobar Island: Nancowry. So far, only known from the type-locality. ELSEWHERE: None.

Comparison— The new species, *Neotermes rhizophorae* is close to *N. blairi* sp. nov. from South Andamans, and *N. parvisculatus* Light and *Neotermes andamanensis* Snyder, but differs from them as follows :

1. From *N. blairi* sp. nov. (vide, under this species)
2. From *N. parvisculatus* :

Imago— (i) Head smaller, head-length 1.58-1.63 and head-width 1.73-1.81 mm. (vs. larger, head-length 1.70 and head-width 2.10 mm.) (ii) Y-suture indistinctly visible (vs. not visible). (iii) 3rd antennal segment slightly longer than 2nd (vs. 3rd subequal to 2nd).

Soldier—(i) Head narrower, head index (width/length) 0.72-0.82 (vs. head broader, index 0.89). (ii) Left mandible with 5 distinct teeth (vs. with 3 only). (iii) Postmentum waist slightly less than half the maximum width (vs. much less than half).

3. From *N. andamanensis* :

Imago— (i) 3rd antennal segment slightly longer than 2nd (vs. 3rd slightly shorter than 2nd). (ii) Ocelli larger (vs. smaller).

Soldier— (i) Smaller species, head-length 2.14-2.43 and head-width 1.76 mm (vs. larger species, head-length 2.58-3.26 and head width 2.02-2.42 mm). (ii) Mandibles long, much more than half the head-length, mandible head index (mandible-length/head-length) 0.66-0.67 (vs. mandible short. only slightly more than half the head-length, index 0.53-0.61 (iii) 4th and 5th marginal teeth of left mandibles closely placed, with a weak notch in between (vs. placed apart, without any notch, rather with a shallow concavity).

4. *Cryptotermes dudleyi* Banks

1. *Cryptotermes dudleyi* Banks :

1918. Banks, *Bull. Amer. Mus. nat. Hist.*, **38** (17), p. 660, Im; S. *Type-locality* : Panama (Central America).

1949. Snyder, *Smiths. misc. Coll.*, **112** : 41-42.

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3 & 4) : 120-121, Im. S., Little Andamans.
1970. Chhotani, *Mem. zool. Surv. India*, **15** (1) : 34-42.
1983. Maiti, *Rec. zool. Surv. India, Occ. Papers* No. 42, pp. 40-42, Im. and S., West Bengal.
1989. Roonwal and Chhotani, *Fauna of India, Isoptera (Termites)*, **I** : 384-390.

Material—

- (i) *Unidentified* : One vial with 3S., and sev. Psw. from Bakultala, Middle Andaman, P.K. Maiti and Party coll., 14.ii.1979, ex. "log of White Dhoop"
- (ii) *Identified* : One vial with 1 Im. (deal.) from Ross Island, South Andaman, O.Paiva coll., 24.iii.1911, Z.S.I Reg. No. 8043/13.

Measurements, etc. (in mm) :

Imago— (1 ex.)—Length of head to side base of mandibles 0.96; Max. width of head (with eyes) 0.95; Max. diameter of eye 0.34; Min. diameter of eye 0.30; Distance of eye from lower margin of head 0.15; Max. diameter of ocellus 0.15; Min. diameter of ocellus 0.10; Eye ocellus distance 0.03; Max. length of postclypeus 0.10; Max. width of postclypeus 0.48; Max. length of labrum 0.24; Max. width of labrum 0.48; Length of pronotum 0.60; Width of pronotum 0.88; Length of forewing scale 0.91; length of hindwing scale 0.34.

Soldiers (3 exs.)— Length of head to side base of mandibles 1.48-1.63; Max. width of head 1.20-1.34; Max height of head 0.91-1.03; Length of left mandible 0.80-0.92; Min. median length of postmentum 0.62-0.64; Max. width of postmentum 0.28-0.30 Max. length of pronotum 0.78-0.86; Max. width of pronotum 1.10-1.15.

Distribution— ANDAMANS : Middle Andamans : Bakultala. Previously recorded from South Andaman : Ross Island; North Andaman : Maya Bunder. ELSEWHERE: India; Sri Lanka; Indonesia (Sumatra, Java); Philippines; New Guinea; Central and South America; and Australia.

5. *Cryptotermes bengalensis* Snyder

1. *Kalotermes* (*Cryptotermes*) *bengalensis* Snyder

1934. Snyder, *Indian Forest Rec.*, **20** (11) : 4-6, S. Type-locality : Sundarbans, West Bengal, India.

2. *Cryptotermes havilandi* (Sjostedt) (Part) :

1955. Moszkowski, *Mem. Inst. Sci. Madagascar*, (E) **6** : 15-29 India record only.
1983. Maiti, *Rec. zool. Surv. India, Occ. paper*. No. 42 : 42-44.

3. *Cryptotermes bengalensis* Snyder :

1975. Sen-sarma *et al.*, *Wood destroying Termites of India* (Final Tech. Rep. Pl-480 Proj.) : 19-21.

1989. Roonwal and Chhotani, *Fauna of India*, Isoptera (Termites), 1, pp. 373-377.

Material — 11 vials from Andaman and Nicobar Islands, as follows:

A. Six vials from South Andaman : (a) *P.K.Maiti and Party* coll. (i) S. and Psw., Wright Myo Jetty, 2.viii. 1978, F.C. No M₇/2.8.78, ex. "decaying portion of a standing Padauk: (2) S. and Psw., Shippighat, 26.vii.1978, F.C. No. M₅/26.7.78, ex. "branch of a rain tree", (3) S. and Psw., School Line, Port Blair, 28.vii.1978, M₄/28.7.78, ex. "log" (b) *S.K. Chakraborty and Party* coll.—(4) Deal., S. and Psw., Neil Island, 29.v.1979, F.C. No. C₇/29.5.79, ex. "stump"; (5) Deal., S. and Psw., Neil Island, 29.v.1979, F.C.No.C₂/29.5.79, ex. "dead fallen tree"; (6) S. and Psw., Havelock Island, 1.vi.1979, f.C. No. C_{2a}/1.6.79, ex. "wound of living tree" B. One vial from Middle Andaman, *P.K.Maiti and party* coll.—(7) S. and Psw., Bakultala, 14.ii.1979, F.C.No.9, ex. "White Dhup log" C. Four vials from Great Nicobar Island : *P.K. Maiti and Party* coll.—(8) S. only, Lakshman, Beach, Camp Bell Bay, 28.xii.1975, F.C.No. 2, "log lying on ground"; (9) S. and Psw., Lakshman Beach, 28.xii.1975, F.C.No. 4, ex. "hard wood of a fallen tree"; (10) Im., S. and Psw., Rajendra Nagar, 30.xii.1975, F.C.No. 3; and (11) 1 Deal., S. and Psw., Campbell Bay, 31.xii.1975, F.C. No. 4, ex. "dead stump of Lalchini".

Measurements, (in mm) :

Imagos (10 exs.)—Length of head to side base of mandibles 0.86-0.88; Max. width of head (with eyes) 0.82-0.91; Max. diameter of eye 0.30-0.35; Min. diameter of eye 0.24-0.26; Distance of eye from lower margin of head 0.12-0.14; Max. diameter of ocellus 0.12-0.14; Min. diameter of ocellus 0.08-0.10; Eye ocellus distance Nil; Max. length of postclypeus 0.10-0.14; Max. width of postclypeus 0.40-0.45; Max. length of labrum 0.24-0.30; Max. width of labrum 0.35-0.42; Length of pronotum 0.60-0.63; Width of pronotum 0.75-0.88; Length of forewing scale 0.68-0.82; length of hindwing scale 0.24-0.35.

Measurements, (in mm)

Soldiers (10 exs.)— Length of head to side base of mandibles 1.03-1.24; Max. width of head 1.00-1.23; Max height of head 0.82-0.96; Max. length of labrum 0.14-0.24; Max. width of labrum 0.20-0.25; Length of left mandible 0.65-0.68; Max. length of pronotum 0.68-0.82; Max. width of pronotum 0.96-1.12.

Distribution— ANDAMAN AND NICOBAR ISLANDS : *South Andaman* : Port Blair, Neil Island, Havelock Island, Wright Myo. *Middle Andaman* : Bakultala. *Great Nicobar* : Campbell Bay, Rajendra Nagar (all present record). Previously recorded from Little Andaman Island. ELSEWHERE: A widely distributed species, known from India, Africa, Madagascar, West Indies and South America (for further details *vide*, Chhotani, 1970)

6. *Glyptotermes brevicaudatus* (Haviland)

1. *Calotermes brevicaudatus* Haviland:

1898. Haviland, *Journ. Linn. Soc.* **26** (169) : 375, Im. and S., Type-locality : Sarawak.

2. *Calotermes* (*Glyptotermes*) *brevicaudatus* (Haviland) :

1911. Holmgren, *K.Sv.Vet. Akad. Handl.*, **46** (6): 56, S., East Sumatra.

1913. Holmgren, *K.Sv.Vet. Akad. Handl.*, **50** (2): 52-53, S., East Sumatra.

3. *Glyptotermes brevicaudatus* (Haviland) :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 46, Sarawak.

1961. Krishna, *Bull. Amer Mus. nat. Hist.*, **122** (4) : 347; **131** (1) : 10-12, Im. and S., Thailand

Material —Nine vials with Im., S. and Psw. from Andamans and Nicobars, as follows :

A. Six vials from South Andaman : P.K.Maiti and Party coll. (i) Im., S., Psw., and Ny., Bamboo flat, 19.xii.1975, ex. "decaying log lying on ground"; (2) S., deal., Psw. and Ny., Dhanikhari, February, 1979, ex. "log lying on road side"; (3) S., Psw. and Im-Ny, Dhanikari, February, 1979, (4) S. and Psw. and Nym., near Dhanikhari, 17.viii.1979, F.C. No. M_{2b}/17.8.79., ex. "decaying Papita log"; (5) Im., S., Psw. and Ny., 22.viii.1979, F.C.No. M_{3a}/22.7.79, ex. "unknown log" and (6) im., S., Psw. and Ny., Bimlygunj, 21.viii.1979, F.C.No. M_{3a}/21.8.79.

B. One vial from Middle Andaman : (7) Im., S. and Psw. Long Island, P.K. Maiti and Party coll., 9.ii.1979, F.C. No. M₂/9.2.1979, ex. "Cocco log"

C. Two vials from Nicobars (8) Im., S., Psw. and Ny., Sahas, Champin Nancowry, B.Nandi and Party coll., 16.xi.1978, ex. "soft wood of decaying Tamilion log"; (9) S. and Psw., Rajendra Nagar, Great Nicobar, T.N. Khan and Party coll., 19.viii.1980, F.C. No. K₂/19.8.80, ex. "unknown log"

Measurements. etc. (in mm), Imagos (deal.) (10 exs.) :

Length of head to side base of mandibles 0.92-1.00; Max. width of head (with eyes) 0.97-1.09; Max. diameter of eye 0.29-0.34; Min. diameter of eye 0.24-0.29; Distance of eye from lower margin of head 0.14-0.16; Max. diameter of ocellus 0.10-0.15; Min. diameter of ocellus 0.09-0.10; Eye-ocellus distance Nil; Max. length of postclypeus 0.14-0.16; Max. width of postclypeus 0.46-0.48; Max. length of labrum 0.24-0.29; Max. width of labrum 0.34-0.38; Length of pronotum 0.52-0.65; Width of pronotum 0.86-0.97; Length of forewing with scale 6.00-6.57 ; Length of forewing scale 0.80-0.86; Length of hindwing scale 5.14-6.19; Length of hindwing scale 0.29-0.30; No. of antennal segments 13.

Measurements. (in mm), etc. Soldiers (10 exs.) :

Length of head to side base of mandibles 1.43-1.96; Max. width of head 1.04-1.25; Max. height of head 1.00-1.09; Max. length of labrum 0.19-0.30;; Max. width of labrum 0.32-0.38; length of left mandible 0.78-0.88; Min. median length of postmentum 1.24-1.35; Max. width of postmentum 0.38-0.46; width of postmentum at waist 0.19-0.29; Max. length of pronotum 0.55-0.74; Max Width of pronotum 0.98-1.25; No. of antennal segments 12.

Distribution—ANDAMAN AND NICOBAR ISLANDS: *South Andamans* : Bamboo Flat, Dhanikhari, Naya Sahar, Bimlton and Bimlygunj. *Middle Andamans*: Long Island. *Nicobars* : Nancowry, Sahas and Champion. *Great Nicobar Island*: Rajendra Nagar. (all present records). ELSEWHERE : Thailand : Ka-Chong; Malaysia; Sarawak; Indonesia; East Sumatra.

Remarks.— The species is recorded for the first time from a number of localities in the islands of Andaman and Nicobar. It is a well established species in Malayan mainland and its archipelagos. It can easily be distinguished from all other representatives of the genus *Glyptotermes* occurring in the Andamans and Nicobars by its larger size and relatively broad head.

7 *Glyptotermes caudomunitus* Kemner

1. *Glyptotermes caudomunitus* Kemner :

1931. Kemner, *Ent. Tidskr.*, **53** (2-3) : 137-138, *Deal.*, S. and Psw., *Type-locality*: Java: Depok.

1949. Snyder, *Smiths. misc. Coll.*, **112** : 46, Java.

1977 Maiti, *Proc. zool. Soc.* **30**: : 133, Great Nicobar.

Material —Three vials from Great Nicobar, as follows :

P. K. Maiti and Party coll.—(1) S. and sev. Psw., Campbell Bay, 26.xii.1975, ex. "fallen log on soil"; (2) Im., S. and Psw., Laksman Beach, 28.xii.1975, ex. "small stump"

B. Nandi and Party coll.— (3) S., and Psw., 30.xi.1978, ex. "decaying log"

Measurements (in mm) :

Imago (1 ex.)—Length of head to side base of mandibles 0.76; Max. width of head (with eyes) 0.72; Max. diameter of eye 0.29; Min. diameter of eye 0.24; Distance of eye from lower margin of head 0.20; Max. diameter of ocellus 0.08; Min. diameter of ocellus 0.06; Eye-ocellus distance Nil; Max. length of postclypeus 0.09; Max. width of postclypeus 0.38; Max. length of labrum 0.18; Max. width of labrum 0.26; Length of pronotum 0.53; Width of pronotum 0.68; Length of forewing with scale 4.85; Length of forwing scale 0.63; Length of hindwing with scale 4.43; length of hindwing scale 0.19; No. of antennal segments 11.

Soldiers (9 exs.).—Length of head to side base of mandibles 1.19-1.29; Max. width of head 0.86-0.88; Max height of head 0.72-0.78; Max. length of labrum 0.16-0.20; Max. width of labrum 0.20-0.24; Length of left mandible 0.56-0.58; Min. median length of postmentum 0.81-0.91; Max. width of postmentum 0.34-

0.36; Width of postmentum at waist 0.20-0.23; Max. length of pronotum 0.48-0.58; Max. width of pronotum 0.78-0.83; No. of antennal segments 9-10.

Distribution— NICOBAR ISLANDS : Great Nicobar Island : Campbell Bay. ELSEWHERE : Indonesia : West Java, Depok.

Remarks— This is the smallest species of the genus *Glyptotermes* found in these islands and occurs sparsely in the Great Nicobar. Though the species seems to be confined in the insular area of the Indo-Malayan Sub region, a single colony reported by Maiti (1983) from Tista Valley in the foot hills of the eastern Himalayas may be transported through some logs which needs further confirmation.

8. *Glyptotermes nicobarensis* Maiti and Chakraborty

Glyptotermes nicobarensis Maiti and Chakraborty :

1981. P.K. Maiti and S.K. Chakraborty *Bull. zool. Surv. India* 4(1) : 78-83 Im. and S. , *Type-localities* : Lakshman Beach, Campbell Bay and Rajendra Nagar ; Great Nicobar island.

Material —

(i) *Unidentified* : One vial with 2 S. and 17 Psw. from Lakshimpur, 7 km. N. of Diglipur, North Andaman, B. Nandi and Party coll., 15.xii.1979, F.C. No. N₅/15.12.79, ex. "unknown decaying log."

(ii) *Identified* : One vial with 3 *Paratypes* S. and 6 *Paramorphotypes* Im., (Z.S.I. Reg. No. 2533/H₁₁) from Lakshman Beach, Campbell Bay, Great Nicobar, F.C. No. 2, P.K.Maiti and party coll., 28.xii.1975, ex. "decaying fallen log lying on ground"

Measurements (in mm) :

Imagos (5 exs.)—Length of head to side base of mandibles 0.90-0.95; Max. width of head (with eyes) 0.85-0.90; Max. diameter of eye 0.26; Min. diameter of eye 0.20-0.22; Distance of eye from lower margin of head 0.18-0.20; Max. diameter of ocellus 0.07-0.08; Min. diameter of ocellus 0.06-0.07; Eye-ocellus distance 0.02; Max. length of postclypeus 0.12-0.14; Max. width of postclypeus 0.38; Max. length of labrum 0.23-0.25; Max. width of labrum 0.26-0.28; Length of pronotum 0.54-0.56; Width of pronotum 0.84-0.86; Length of forewing with scale 5.10-5.35; Length of forewing scale 0.60-0.65; Length of hindwing with scale 4.65-4.80; Length of hindwing scale 0.20-0.22; No. of antennal segments 9-11.

Soldiers (2 exs.)—Length of head to side base of mandibles 1.34-1.43; Max. width of head 0.96-0.98; Max height of head 0.81-0.83; Max. length of labrum 0.23; Max. width of labrum 0.24-0.25; Length of left mandible 0.55-0.58; Min. median length of postmentum 1.04-1.09; Max. width of postmentum 0.34-0.38; Width of postmentum at waist 0.19-0.20; Max. length of pronotum 0.58-0.60; Max. width of pronotum 0.98; No. of antennal segments 11.

(c) *Distribution*— ANDAMAN AND NICOBAR ISLANDS. : *North Andamans* : Diglipur: Lakshmipur. *Great Nicobar*: Laksman Beach, Campbell Bay and Rajendra Nagar. ELSEWHERE : None.

(d) *Remarks*—The species is known so far from two extremities of these islands being unknown from the intervening islands.

9. *Calcaritermes krishnai* (Maiti and Chakraborty)

1. *Glyptotermes krishnai* Maiti and Chakraborty :

1981 Maiti and Chakraborty *Bull. zool. Surv. India* **4** (1) : 71-78 *Type-localities* : Champa Bay, Gt. Nicobar, India.

2. *Calcaritermes Krishnai* (Maiti and Chakraborty):

1989. Roonwal and Chhotani, *Fauna of India, Isoptera (Termites)*, vol. I, pp.328-332.

Material —Identified : One vial with 3 *Paratypes* : S. and 1 *Morphotype* Deal. (Z.S.I. Reg. No. 2530/H₁₁ and 2529/H₁₁ respectively) from Champa Bay, Great Nicobar Isl. P.K.Maiti and Party coll., 31.xii.1975,ex. "stump of recently felled jungle Mewa"

Measurements (in mm) :

Imago (1 ex.)—Length of head to side base of mandibles 0.88; Max. width of head (with eyes) 0.84 ; Max. diameter of eye 0.26; Min. diameter of eye 0.20; Distance of eye from lower margin of head 0.14; Max. diameter of ocellus 0.07; Min. diameter of ocellus 0.06; Eye-ocellus distance Nil; Max. length of postclypeus 0.05; Max. width of postclypeus 0.57; Max. length of labrum 0.26; Max. width of labrum 0.38; Length of pronotum 0.57; Width of pronotum 0.80; Length of forewing with scale 0.76; Length of hindwing scale 0.61.

Soldiers (6 exs.)—Length of head to side base of mandibles 1.16-1.20; Max. width of head 1.15-1.20; Max height of head 0.95-1.00; Max. length of labrum 0.25-0.27; Max. width of labrum 0.24-0.26; Length of left mandible 0.64-0.67; Min. median length of postmentum 0.15-0.17; Max. width of postmentum 0.40-0.45; Width of postmentum at waist 0.26-0.28; Max. length of pronotum 0.67-0.72; Max. width of pronotum 1.15-1.22; No. of antennal segments 11-12.

Distribution.— NICOBAR ISLAND : *Great Nicobar*; Champa Bay. ELSEWHERE: India : West Bengal.

Remarks—The species is so far recorded from the island of Great Nicobar and West Bengal in Indian mainland. While describing the species, Maiti and Chakraborty (1981) put the species under the genus *Glyptotermes*, but subsequently it has been transferred to the genus *Calcaritermes* by Roonwal and Chhotani (1989).

10. *Coptotermes gaurii* Roonwal and Krishna1. *Coptotermes gaurii* Roonwal and Krishna :

1981. *Indian J. agric. Sci.*, **25** (2) : 143-152, S. and W., Type-locality : Merambekenda, Sri Lanka.
1962. Roonwal and Chhotani, *Ent. Mongr. (I.C.A.R.)*, No. 2, pp.30-34.
1977. Maiti, *Proc. zool. Soc., Calcutta*, **30** : 133. Great Nicobar.
1989. Roonwal and Chhotani, *The fauna of India and the adjacent countries*, 1,441-443.

2. *Coptotermes exiguus* :

1930. Jepson, *Trop. Agric.*, **75** (3) : 155, Sri Lanka (Nom. nud.).

3. *Coptotermes ceylonicus* Holmgren:

1953. Ronwal and Pant, *Indian For. Leaflet. (Ent.)*, No. 121(3), p. 47. (Sri Lanka, only specimens from 'Merambekenda are *C. gaurii*; others *C. ceylonicus*).

Material —

3 vials with S., W. and Ny. from Great Nicobar, P.K.Maiti and Party coll. as follows :

(i) Magar Nulla, Campbell Bay, F.C. No. 2, 29.xii.1975, ex. "gallery on tree trunk"; (ii) Champa Bay. F.C.No. 3, 31.xii.1975, ex. "log"; (iii) Magar Nulla, Campbell Bay, F.C. No. 4, 31.xii.1975, ex. "decaying log"

Measurements (in mm) :

Soldiers (10 exs.).—Length of head to side base of mandibles 1.04-1.10; Width of head at side base of mandibles 0.48-0.50; Max. width of head 0.94-1.02; Max. height of head 0.65-0.68; Length of left mandible 0.56-0.58; Max. length of labrum 0.24-0.26; Max. width of labrum 0.19-0.20; Length of postmentum 0.63-0.64; Max. width of postmentum 0.30-0.31; Min. width of postmentum 0.24; Length of pronotum 0.34-0.39; Width of pronotum 0.60-0.68; No. of antennal segment 14.

Distribution.— NICOBAR : Great Nicobar : Campbell Bay and Champa Bay. Previously also reported by Maiti (1977) from Great Nicobar. ELSEWHERE : Sri Lanka: Arissawella; Galaha; Kiriella; Merambekenda; Paradeniya and Rattanpura.

Remarks— This is a small Ceylonese species closely related to the species of *Coptotermes* having head width at the base of mandibles almost half the maximum head-width. Recently, it has been reported only from Great Nicobar by Maiti (1977) which is further confirmed in the present study. The collection of the species only in three occasions indicates its sparse distribution in the Great Nicobar Island.

11. *Coptotermes havilandi* Holmgren

1. *Coptotermes havilandi* Holmgren :

1911. Holmgren, K. Sv. Vet. Akad. Handl., **46** (6) : 74 (nom. nud.), Thailand.

1949. Synder, Smiths. misc. Coll., **112** : 79, (synonymy).

1965. Ahmad. Bull. Amer. Mus. nat. Hist., **131** (1): 19-20, Im. and S., Thailand.

2. *Coptotermes javanicus* Kemner :

1934. Kenner, K. Sv. Vet. Akad. Handl. (3) **13** (4) : 59, Im. and S. Middle Java.

3. *Coptotermes pacificus* Light :

1932. Light, Bull. B.P.Bishop Mus. **98**: 84-86, Im. Type-locality : Marquesas Isl.

Measurements (in mm) :

Soldiers (1ex.).—Length of head to side base of mandibles 1.18; Max. width of head 0.98; Max. height of head 0.65; Max. length of labrum 0.30; Max. width of labrum 0.26; Length of left mandible 0.88; Min. median length of postmentum 0.72; Max width of postmentum 0.34; Width of postmentum at waist 0.20; Max. length of pronotum 0.34; Max. width of pronotum 0.68; No. of antennal segment 12.

Distribution.—ANDAMAN ISLAND : South Andaman: Rutland Island (present record). ELSEWHERE : Thailand, Indonesia: Malacca and Java. Introduced in the different territories of Marquesas Is. , Mauritius, Reunion Barbados, Jamaica and Brazil (Sao Paulo, Santos and Rio de Janeiro).

Remarks— The species is a native to south-east Asia and Indonesia, and has been introduced in the different localities of the Neotropical Region and of the Pacific Islands (Gay, 1967) The wide range of variation in the species in its head shape, size colouration., etc. of different population has lead to creation of a number of new species in various countries. Subsequently, such confused species are synonymised under it. However, it is recorded for the first time from these islands occuring in the Rutland island in the South Andamans.

12. *Coptotermes heimi* (Wasmann)

1. *Arrhinotermes heimi* Wasmann :

1902. Wasmann. Zool. Jahrb. (abt. Syst.) **17**(1) : 104 (Im.), Type-locality : Wallon (Ahmednagar District, Maharashtra), India.

2. *Coptotermes heimi* (Wasmann):

1949. Synder. Smiths. misc. Coll., **112** : 79.

1970. Roonwal and Bose, Rec. zool.Surv. India, **62** (3 & 4) : 122-123, S., Little Andaman.

1980. Bose, *Rec.. zool. Surv. India*, **77** (1-4) : 99., S. Andamans, Car Nicobar.

1983. Maiti, *Rec. zool. Surv. India, Occ. Paper No. 82*, pp 49-51, Im. and S., West Bengal.

1989. Roonwal and Chhotani, *Fauna of India, Isoptera (Termites)*, I, pp. 449-457.

Material —Five vials with sev. S. and W. from the Andamans as follows :

A. Four vials from South Andaman, such as—*P.K. Maiti and Party* coll.— (1) Bamboo flat, F.C. No. 6, 19.xii.1975, ex. "from out side pocket of a mound of *O. latigula*" *S.K. Chakraborty and Party* coll. (2) Baratang, F.C. No. C_{1a}/16.6.79, 16.vi.1979, ex. "decaying log" 2 vials from Ferrargunj, *B.Nandi and S.K.—Chakraborty* coll., such as—(3) F.C. No. N₅/9.10.81, 9.x.1981, ex. "unknown decaying stump"

B. One vial from Middle Andaman, as follows : (5) Bakultala, F.C. No. M₇/13.2.79, *P.K.Maiti and Party* coll., 13.ii.1979, ex. "dead log"

Measurements (in mm) :

Soldiers (10 exs.)—Length of head to side base of mandibles 1.36-1.50; Max. width of head 1.15-1.35; Max. height of head 0.83-0.93; Max. length of labrum 0.30-0.36; Max. width of labrum 0.28-0.32; Length of left mandible 0.76-0.90; Min. median length of postmentum 0.91-1.04; Max. width of postmentum 0.42-0.46; Width of postmentum at waist 0.25-0.30; Max. length of pronotum 0.48-0.53; Max. width of pronotum 0.82-0.98; No. of antennal segment 14-16.

Distribution— ANDAMAN AND NICOBAR ISLANDS : *South Andaman* : Bamboo flat, Ferrargunj, Baratang. *Middle Andaman* : Bakultala.

Previously recorded from *North Andaman* : Aerial Bay, Diglipur ; *South Andaman* : Port Blair, Hope Town, Wrafiars Creek, Baratang, Manner Ghat, Mt. Harriet, Wright Myo, Humphrygunj, Chidyatapu, and Burma Nullah. *Middle Andaman* : Yerata. *Little Andaman* : Tokoibuea, Kwate-tu-Kwage, Kwateneabo. *Car Nicobar* : Lapatty. ELSEWHERE : All over India, Bangladesh, Pakistan and also in Middle Java (?).

Remarks— *Coptotermes heimi* (Wasm.) is a very common species in the Indian subregion and very sparsely represented in the Andaman group upto Car Nicobar in the South. *C. travians* Haviland, a closely allied species, is predominantly found in the Nicobar group. *C. heimi* is a very variable species in the Indian mainland (Roonwal and Chhotani, 1962). Such variations are hardly observed in the small collection studied in the present account.

13. *Coptotermes premasmii* Ahmad

1. *Coptotermes Premasmii* Ahmad :

1956. Ahmad, *Bull. Amer. Mus. nat. Hist.* **131** (1) : 17-19, IM and S., Type-locality: Ka-Chong, Thailand.

Material—One vial with 16S. and 2W. from Champin Island, Nancowry, F.C. No. K₁₁/7.8.80, T.N. Khan and B. Mitra coll., 7 viii.1980, ex. "unknown log."

Description—

1. *Soldier*—Head-capsule brownish yellow, labrum as in head, antennae yellowish with light brown tinge, mandible dark reddish brown, lighter at base; pronotum lighter than head, legs pale yellowish, abdominal tergites yellowish; head scantily hairy; pronotum with only a few short and long bristles along margins, disc without any bristles or hairs, abdominal tergites with rows of bristles on their posterior margins and few scattered elsewhere.

Head broadly oval, considerably narrowed anteriorly, minimum width at side base of mandibles, a little more than half the maximum width at middle, as long as or slightly longer than broad. Fontanelle gland tubular, opening of the gland comparatively strongly sclerotized, opening at the anterior margin of head-capsule. Antennae with 14-15 segments; segment 2 slightly longer than 3 and subequal to 4, 3 shortest. Labrum subtriangular, longer than broad, sides converging and terminating into a small hyaline tip, with a pair of long bristles. Postclypeus hardly demarcated from frons. Anteclypeus strip like, whitish and apilose. Mandibles long, slender and slightly incurved apically; left mandible with four crenulations on inner margin at base, right mandible without any crenulation. Postmentum nearly twice as long as its maximum width, widest at the anterior third, narrowest below the middle, anterior margin substraight with two bristles, posterior margin very weakly concave.

Pronotum flat, much narrower than head, anterior margin notched medially, antero-lateral corners broadly rounded, posterior margin with median depression. Legs long, apical tibial spur formula 3:2:2.

Measurements (in mm) :

Soldiers (10 exs.)—Length of head to side base of mandibles 1.26-1.53; Max. width of head 1.23-1.46; Max. height of head 0.76-0.92; Max. length of labrum 0.30-0.34; Max. width of labrum 0.26-0.30; Length of left mandible 0.76-1.00; Min. median length of postmentum 0.76-0.92; Max. width of postmentum 0.36-0.48; Width of postmentum at waist 0.26-0.34; Max. length of pronotum 0.46-0.57; Max. width of pronotum 0.84-1.00; No. of antennal segments 14-15.

Distribution—NICOBAR ISLAND: Nancowry : Champin Island. ELSEWHERE: Thailand : Ka-Chong (type-locality).

Remarks— Since its first description in the year 1965 from Thailand, this is the first record of *Coptotermes premasmii* Ahmad from the Nicobar represented by a single colony in the Champin Island. The colony is represented by a number of soldiers which show wide range of measurements of their head and other associated characters. But, the indices calculated from such measurements are quite consistent to consider the species as *C. premasmii* Ahmad. Preliminary examination indicates the presence of major and minor soldiers which actually

intergrade with intermediate forms. However, the Nicobarese population has certainly increased the existing measurement range of the species.

14. *Coptotermes travians* Haviland

1. *Termas* (*Coptotermes*) *travians* Haviland:

1898. Haviland, *J. Linn. Soc. Lond. (Zool)*, **26** (169): 391-392, *Type-localities* : Singapore (Malaya); Sarawak (Borneo).

2. *Coptotermes travians* Haviland :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 83

1962. Roonwal and Chhotani, *Ent. Mongr. (I.C.A.R.)*, No. 2, pp. 61-69. (exhaustive synonymy list).

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3&4) : 123 124. S., Andamans and Nicobars.

1977. Maiti, *Proc. zool. Soc., Calcutta*, **30** : 133, Great Nicobar

1989. Roonwal and Chhotani, *Fauna of India, Isoptera (Termites)*, Vol. 1, pp. 461-467.

Material —Fifty-five vials with sev. S. and W. from the Andaman and Great Nicobar Islands, as follows :

A. Thirty-four vials from South Andamans, as follow:

10 vials around Port Blair, *P.K. Maiti and Party* coll.—2 vials from South Point. such as— (1) F.C. No. 2, 17.xii.1975, ex. "Carton nest at the base of a Mango tree" and (2) F.C. No. 6, 17.xii.1975, ex. "nest on a Mango tree" (3) Bimliton, 24.vii.1978, F.C.No. M₅/24.7 78, ex. "log"; (4) Aubtinabad, 27.vii.1978, F.C.No. M₂/22.7 78, ex. "Tamarind log", (5) School line, 28.vii.1978, F.C. No. M₂/28.7 78, ex. "log"; (6) Delanipur, 31.viii.1979, F.C. No. M₁/31.7 79 ex. "Rotten unknown log"; (7) Lalmitti, 20.viii.1979, F.C.No. M_{1c}/20.8.79, ex. "raintree log"; (8) Lalmitti, 20.viii.1979, F.C.No. M₈/20.8.79, ex. "log" *S.K. Chakraborty and Party* coll.— Delanipur, 20.v.1979, F.C.No. C_{2b}/22.5.79, ex. "under bark of dead Badam log", *B. Nandi and S.K. Chakraborty* coll.— (10) Delanipur, 13.viii. 1981, F.C. No. N₂/13.10.81, ex. "Door frame" 6 vials around Chidyatapu, *P.K. Maiti and Party* coll.— 2 vials from Mundapahar, such as—(11) F.C. No. 2, 10.1.1976. ex. "decaying long"; and (12) F.C. No. 6, 10.1.1976, ex. "log" (13) F.R.H. Campus, F.C. No. 3, 12.1.1976, ex. "log lying on soil" *T. K. Khan and Party* coll., (14) F.C. No. K₆/19.10.81, 19.x.1981, ex. "unknown stump" *B.Nandi and S.K. Chakraborty* coll.— 2 vials around Rest House, such as—(15) F.C. No.

$N_4/15.10.81$, 15.x.1981, ex. "dead stump", (16) F.C. No. $N_7/18.10.81$, 18.x.1981, ex. "decayed stump" 4 vials from Wright Myo forest, *P.K. Maiti and Party* coll.—(17) F.C. No. $M_7/2.8.78$, 2.viii.1978, ex. "decaying log", *B. Nandi and S.K. Chakraborty* coll.—(18) F.C. No. $N_5/24.10.81$, 24.x.1981, ex. "under bark of decaying log"; (19) F.C. No. $N_7/22.10.81$, 22.x.1981, ex. "Carton nest in a decayed log"; (20) F.C. No. $N_8/22.10.81$, 22.x.1981, ex. "decayed log", (21) Bartang, F.C. No. $N_{10}/31.12.79$, 31.xii.1979, ex. "unknown log" *S.K. Chakraborty and Party* coll.—5 vials from Neil Island. 1979, such as—(22) F.C. No. $C_{1d}/25.5.79$, 25.v.1979, ex. "Papita log"; (23) F.C.No. $C_{1g}/25.5.79$, 25.v. 1979, ex. "Papita log", (24) F.C.No. $C_{7f}/25.5.79$, 25.v. 1979, ex. "Papita log", (25) F.C.No. $C_{1f}/27.5.79$, 27.v. 1979, ex. "sap wood of an unknown log"; (26) F.C.No. $C_{1a}/28.5.79$, 28.v. 1979, ex. "under bark of an unknown log"; 3 vials from Havelock Island, such as—(27) F.C.No. $C_{3b}/1.6.79$, 1.vi 1979, ex. "under bark galleries of a stump"; (28) F.C.No. $C_{4a}/1.6.79$, 1.vi. 1979, ex. "under bark of a White Dhoop tree"; (29) F.C.No. $C_{2a}/2.6.79$, 2.vi. 1979, ex. "under bark of papita stump"; (30) One vial from Havelock Island, *T.N. Khan and Party* coll.—F.C.No. $K_2/7.6.80$, 7.vi. 1980, ex. "unknown log", 4 vials from Rutland Island. *B. Nandi and S.K. Chakraborty* coll.—(31) F.C.No. $N_3/19.10.81$, 19.x. 1981, ex. "decayed stump"; (32) F.C.No. $N_{11}/19.10.81$, 19.x. 1981, ex. "decayed log", *R.M. Sharma and Party* coll.—2 vials from Barakhari, such as—(33) F.C.No. 21(2913), 21.1.1982 and (34) F.C.No. $C_{22}(2914)$, 21.i.1982.

B. Nine vials from Middle Andaman as follows :

P.K. Maiti and Party coll.— 3 vials from Bokultala, such as—(35) F.C.No. $M_{12}/12.2.79$, 12.ii. 1979, ex. "dead log", (36) F.C.No. $M_2/13.2.79$, 13.ii. 1979, ex. "Latecock log", (37) F.C.No. $M_{3c}/14.2.79$, 14.ii 1979, ex. "unknown log", (38) Long Island, F.C.No. $M_1/8.2.79$, 8.ii 1979, ex. "Coco log" 3 vials around Kadamtala, *S.K.Chakraborty and Party* coll. —such as (39) Naya Dera, F.C.No. $C_{3j}/11.6.79$, 11.vi. 1979, ex. "under bark of a Papita log"; (40) Naya Dera, F.C.No. $C_{2b}/11.6.79$, 11.vi 1979, ex. "under bark of felled Nabbe tree"; (41) Quiary, F.C.No. $C_{3a}/12.6.79$, 12.vi.1979, ex. "under bark of Garjan log", 2 vials from Rangat, *B.Nandi and Party* coll., such as— (42) F.C.No. $N_1/7.12.79$, 7.xii. 1979, ex. "dead stump", (43) F.C.No. $N_3/7.12.79$, 7.xii. 1979, ex. "decaying Coco log",

C. 2 vials from North Andaman, around Diglipur, such as—(44) Kshudirampur, 23.ii.1979, F.C.No. $M_1/23.2.79$, ex. "Papita log", (45) Lakshmipur, 15.xii.1979, F.C.No. $N_4/15.12.79$.

D. 4 vials from Little Andaman, as follows : (46) Quarry, Hut Bay, B. Nandi and Party coll., 22.xi.1978, F.C.No. 2N₂, ex. "Papita log". T.N. Khan and Party coll.— (47) Quarry, 2.x. 1981, F.C. No. K₃/2.10.81, ex. "under bark of unknown log"; (48) Quarry, 2.x. 1981, F.C.No. K₁₁/2.10.81, ex. "Papita log"; (49) Dugong Creek, 5.x. 1981, F.C.No. K₄/5.10.81, ex. "dead portion of an unknown live tree".

E. 6 vials from the Great Nicobar Island, as follows :

P.K.Maiti and Party coll., 1975—2 vials from Rajendranagar, such as— (50) F.C.No.28, 30.xii.75, ex. "decaying portion of a stump"; (51) F.C.No. 30, 30.xii.75, ex. "decaying log", B. Nandi and Party coll., 1978—2 vials, from Campbell Bay, such as— (52) F.C.No. N₃/10.12.78, 10.xii. 1978, ex. "decaying stump" and (53) F.C.No.3, 13.xii.1978 ex. "decaying log" T.N. Khan and Party coll. 1980— (54) Galathea river, F.C.No. K₂d/15.8.80, 15.vii.1980, (55) Pygmilion Point, F.C.No. K₂/21.8.80, 21.viii 1980, ex. "unknown stump"

Measurements (in mm) :

Soldiers—Length of head to side base of mandibles 1.06-1.45; Max.width of head 0.96-1.20; Max. height of head 0.68-0.81; Max. length of labrum 0.26-0.36; Max. width of labrum 0.24-0.32; Length of left mandible 0.70-0.85; Min. median length of postmentum 0.72-0.95; Max. width of postmentum 0.34-0.40; Width of postmentum at waist 0.21-0.29; Max. length of pronotum 0.34-0.48; Max. width of pronotum 0.60-0.89; No. of antennal segments 13-15.

Distribution— ANDAMAN AND NICOBAR ISLANDS : *South Andaman* : Port Blair, Bimlton, School line, Delanipur, Lalmitti, Chidyatapu, Neil Island, Havelock Island and Rutland Island. *Middle Andaman* : Bakultala, Kadamtala, Rangat. *North Andaman* : Kshudirampur and Lakshmipur. *Little Andaman* : Hut Bay and Dugong Creek. *Great Nicobar Island* : Rajendra nagar, Camp Bell Bay, Galathea River and Pygmilion Point.

Previously recorded from *South Andaman* : Havelock Island. *North Andaman*: Port Cornwallis and Interview Island. *Nicobar* : Car Nicobar (Hus Village). ELSEWHERE : Eastern India (Kharagpur, West Bengal), Bangladesh, Burma, Malay-Peninsula, Indonesia (Sumatra, Java and Borneo).

Remarks — This is a widely distributed species in the south-east Asia including eastern India. It is fairly well represented throughout the islands of Andaman and Nicobar. The identity of the species is usually confused with its allied species, *Coptotermes heimi* which is sparsely represented in the area. The proportionately elongated head and much narrowed postmentum at waist in the soldier caste of *C. travians*, are the reliable characters to isolate it from *C. heimi*.

15. *Prorhinotermes flavus* (Bugnion and Popoff)

1. *Coptotermes flavus* Bugnion and Popoff

1910. Bugnion and Popoff, *Mem. Soc. Zool. France*, **23** (8) : 117-120, S. and W., *Type-locality* : Border of Lake Ambalangoda, Sri Lanka.

2. *Arrhinotermes flavus* (Bugnion and Popoff) :

1911. N. Holmgren, *Zool. Anz.*, **37** (26) : 561 (changes from *Coptotermes*).

1913-1914. N. Holmgren, *Zool. Jharb.* (Abt. Syst.), **36** (2-3) : 235. Seenigoda, Sri Lanka.

3. *Prorhinotermes flavus*,

1949. Snyder, *Smiths. misc. Coll.*, **112** : 86.

1970. Bose, *Rec. zool. Surv. India*, **62** (3&4) : 124; South and Little Andamans.

4. *Prorhinotermes shiva* Roonwal and Thakur :

1963. Roonwal and Thakur, *Indian J. agric. Sci.*, **33** : 102-109 *Type-locality* : Long Island, Middle Andamans, India.

1989. Roonwal and Chhotani, *Fauna of India Isoptera (Termites)*, **1** : p. 524 (New synonymy).

Material —20 vials with *Im.*, S. and W. from Andamans and Nicobars, as follows :

A. 4 vials with S. And W. from south Andaman—*P.K.Maiti and Party* coll. 1976. (1) Mundapahar, Chidyatapu, F.C. No. 4. 10.i. 1976, ex. "decaying log" 3 vials from Rutland Island, *R.M. Sharma and Party* coll., 22.i.1982, such as (2) Ghasnala, coll. No. 63(2916); (3) Ghasnala, Coll. No. 64(2917), (4) Ghasnala, Coll. No. 71(2919).

B. 2 vials with S. and W. from North Andaman—*B. Nandi and Party* coll., 11.xii.1979, Rabindrapalli, 3 km. E. of Diglipur, such as, (5) F.C. No. N₃/11.12.79, ex. "decaying log"; (6) F.C. No. N₄/11.12.79, ex. "unknown decaying log"

C. 2 vials with S. and W. from Noncowry, such as -*T.N. Khan and Party* coll., 3 viii. 1980, (7) F.C.No. K₃/3.8.80, ex. "Pyma"; (8) F.C. No. K₈/3.8.80, ex. "wood"

D. 11vials with sev. S. and W. and 2 vials with *Im.* and dealates from Great Nicobar as follows :—

P.K.Maiti and Party coll. 1975. 9 vials around Campbell Bay, such as—(9) F.C. No. 5, 26.xii.75, ex. "standing dead tree"; (10) F.C. No. 9, 26.xii.75, ex. "log lying on ground"; (11) F.C. No. 10, 26.xii.75, ex. "rotten log"; (12) Magar Nulla, 27.xii.75, ex. "decaying log", (13) Magar Nulla, F.C. No. 5, 29.xii.75 ex. "decaying log"; (14) Lakshman Beach, F.C. No. 6, 28.xii.75, ex. "dead stump"; (15) Rajendranagar F.C. No. 13/30, 30.xii.75 ex. "decaying log" (16) Rajendranagar, F.C. No. 24, 30.xii.75, ex. "log"; (17) Champa Bay, F.C. No. 2, 31.xii. 75, ex. "decaying log" *B.N. Nandi and Party* coll., 4 vials around Campbell Bay, 1978 such as—(18) 2 deal, 2 *Im.* S. and W. F.C. No. 3/N_{3n}, 27.xi.78, ex. "decaying log"; (19) F.C. No. 3/N_{1c}, 6.xii.78, ex. "Papita log"; (20) Str. No. 3, 13.xii.1978,

ex. "decaying log"

Measurements (in mm) :

Imago (4 exs.)—Length of head to side base of mandibles 1.04-1.09; Max. width of head (with eyes) 1.38; Max. diameter of eye 0.36-0.38; Min. diameter of eye 0.34-0.36; Distance of eye from lower margin of head 0.14-0.18; Max. diameter of ocellus 0.14-0.16; Min. diameter of ocellus 0.09-0.11; Eye-ocellus distance 0.02; Max. length of postclypeus 0.19-0.22; Max. width of postclypeus 0.63-0.65; Max. length of labrum 0.40-0.43; Max. width of labrum 0.50-0.58;; Length of pronotum 0.75-0.78; Width of pronotum 1.24-1.29; Length of forewing with scale 8.48-8.57; Length of forewing scale 1.00-1.04; Length of hindwing with scale 7.43-7.81; Length of hindwing scale 0.58-0.63; No. of antennal segments 17-19.

Measurements (in mm) etc., Soldiers :

	Major Soldier (10 exs.)	Minor Soldier (10 exs.)
Length of head to side base of mandibles	1.58-1.80	1.26-1.48
Max. width of head	1.34-1.50	1.07-1.34
Max. height of head	0.82-0.90	0.75-0.81
Max. length of labrum	0.28-0.32	0.14-0.26
Max. width of labrum	0.26-0.34	0.19-0.24
Length of left mandible	1.03-1.16	0.96-1.00
Min. median length of postmentum	1.00-1.19	0.92-0.96
Max. width of postmentum	0.46-0.50	0.38-0.43
Width of postmentum at waist	0.19-0.26	0.19-0.23
Max. length of pronotum	0.52-0.69	0.46-0.53
Max. width of pronotum	1.03-1.24	0.88-1.09
No. of antennal segments	18	16-17

Distribution.— ANDAMAN and NICOBAR ISLANDS: *South Andaman* : Chidyatapu and Rutland Island. *North Andaman* : Rabindrapalli and Diglipur. *Nicobar* : Great Nicobar : Campbell Bay. Rajendra Nagar, Magar Nullah, Lakshman Beach and Champa Bay; Nancowry.

Previously recorded from *Little Andaman* : Inagoie and Inгатijala. *Great Nicobar* : Campbell Bay. ELSEWHERE : South India and Sri Lanka.

Remarks—The species originally described from Sri Lanka, is a very variable one as studied in the islands of Andaman and Nicobar in the present account. The species is fairly represented in the major islands of Andaman and Nicobar. The populations either in the same or different colonies in the different islands, show wide range of variations in their shape, size, colouration, etc. of the head. Soldiers can easily be separated as major and minor ones mainly based on measurements. The collection of only minor soldiers sometimes leads to profuse confusion to an extent of establishing even a new species.

However, the head-shape varies from elongate to rectangularly oval with weakly outcurved to substraight lateral sides gradually narrowing anteriorly. In general, colour varies from pale yellow to chestnut brown in some colonies represented by only major soldiers from Diglipur, apparently seem to be very close to *S. ravani* Roonwal and Maiti from Indonesia which is differentiated from it by deep notch on the anterior margin of pronotum.

16. *Schedorhinotermes eleanorae* Roonwal and Bose

Schedorhinotermes eleanorae Roonwal and Bose:

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3&4): 125-132, *Im.* S. (Minor),
Type-locality : Bedeabdulu, 19 km. south of Toikoibuea, Little Andaman Island, India.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 100.

1989. Roonwal and Chhotani, *Fauna of India. Isoptera* (Termites) 1, pp 537-540.

Material —Since no further material is available in the collection studied, the Paratype Soldiers (minor) and Morphotype Imago (dealate) present in Z.S.I., have been studied to incorporate measurements, etc. of the species.

Measurements (in mm) :

Imago (Deal.) (1ex.)—Length of head to side base of mandibles 1.38; Max. width of head (with eyes) 1.73; Max. diameter of eye 0.50; Min. diameter of eye 0.48; Max. diameter of ocellus 0.18; Min. diameter of ocellus 0.13; Eye-ocellus distance 0.06; Max. length of labrum 0.37; Max. width of labrum 0.53; Length of pronotum 0.85; Width of pronotum 1.48; Length of forewing with scale 1.30; Length of hindwing scale 0.78.

Soldiers (Minor) (5 exs.)—Length of head to side base of mandibles 0.73-0.79; Max. width of head 0.68-0.70; Max. height of head 0.43-0.48; Max. length of labrum 0.38-0.43; Max. width of labrum 0.15-0.20; Length of left mandible 0.45-0.50; Min. median length of postmentum 0.38-0.40; Max. width of postmentum 0.28-0.30; Width of postmentum at waist 0.18-0.20; Max. length of pronotum 0.30-0.32; Max. width of pronotum 0.43-0.48; No. of antennal segments 14.

Distribution— ANDAMAN ISLAND : *Little Andaman* : Bedeabdulu, 19 km. S. of Toikoibuea. (type-locality). ELSEWHERE : None.

Remarks—The species is so far known only from the type-locality.

17 *Schedorhinotermes javanicus* Kemner

Schedorhinotermes javanicus Kemner :

1934. Kemner, K. *sv. Vet. Akad. Handl.*, **13** (4) : 51-54, Im. and S. (maj. and min.).
Type-locality : West Java, Indonesia.

1949. Snyder, *Smith. misc. Coll.*, **112** : 92, Java.

1966. Roonwal and Maiti, *reubia*, **27** : 90-91, S. (maj. and min.), Java.

Material —Five vials from Nicobars, as follows :

A. Four vials with S. and W. from Campbell Bay, Great Nicobar, such as—
P.K. Maiti and Party coll.— 3 vials around Magar Nulla, such as— (1) Sev. S. (Maj.), S. (Min.) and W., 21.xii.1975, F.C.No. 4, ex. "dead stump"; (2) 3 S. (maj).. sev. S. (Min.) and W., 27.xii.1975, F.C.No. 7, ex. "decaying log"; and (3) 2 S. (Maj.), Sev. S. (Min.) and W., 29.xii. 1975, F.C. No. 3, ex. "decaying log", (4) 1 S. (Maj.), 10. S. (Min.) and 4 W., forest around Campbell Bay, 26.xii.1975, F.C. No. 9, ex. "log"

B. One vial with Im., S. and W. from Nancowry, such as— Sev. Im. 1S. (Maj.) 5 S. (Min.) and Sev. W., *T.N.Khan and Party* coll., 4.viii.1980, F.C. No K₂/4.8.80, ex. "dead jungli Bamboo"

Description—

1. IMAGO : Head-capsule brownish yellow, paler posteriorly; postclypeus brownish yellow, with a dark brown line separating from the frons; anteclypeus pale; labrum, antennae and pronotum brownish yellow: basal portion of wing light brown, rest hyaline; legs light brownish yellow; abdominal tergites much darker; head with few scattered erect bristles; pronotum with long bristles along the margins and a few on the disc; wing scales with long posteriorly directed suberect bristles; tergites and sternites with dense hair.

Head-capsules subrectangular, broader than long, posterior margin rounded. Fontanelle small, circular and situated at the level of anterior ends of ocelli, with a shallow groove extending upto the middle of postclypeus. Eyes large, subcircular, bulging, separated from the lower margin of head by about one-fourth of of their maximum diameter. Ocelli broadly oval, separated from the eyes by one-fourths of their minimum diameter. Postclypeus broader than long, much produced anteriorly, almost triangular with broad base and rounded tip, with a shallow median groove; in profile, convex over hanging the anteclypeus, with few scattered erect bristles. Anteclypeus subtrapezoidal, whitish, apilose. Labrum broader than long, dome-shaped with few erect bristles. Antennae with 20 segments, segment 3 one and a half times as long as 2, 2 and 4 subequal. Mandible sub-squarish, darker. Left mandible with three marginal teeth, apical finger-like and pointed,

1st marginal pointed, equal to the apical, 2nd marginal shorter, 3rd well developed, triangular and directed posteriorly. Right mandible with three marginal teeth, apical long, finger-like, pointed, 1st marginal rudimentary, 2nd well developed, as long as the apical, 3rd short and blunt.

Pronotum flat, subrectangular, narrower than head-width; anterior margin weakly concave, posterior margin weakly emarginate, antero-lateral corners narrowly and postero-lateral corners broadly rounded. Legs long, sparsely pilose; apical tibial spur fromule 3:2:2; tarsi 4 segmented. Wing long, hyaline, sparsely hairy. Forewing longer than hindwing, scale also longer than that of hindwing.

Measurements (in mm) :

Imago (10 exs.)—Length of head to side base of mandibles 1.26-1.34; Max. width of head (with eyes) 1.64-1.76; Max. diameter of eye; 0.49-0.58; Min. diameter of eye 0.45-0.53; Distance of eye from lower margin of head 0.09-0.15; Max. diameter of ocellus 0.20-0.24; Min. diameter of ocellus 0.14-0.15; Eye-ocellus distance 0.03-0.06; Max. length of postclypeus 0.29-0.34; Max. width of postclypeus 0.63-0.73; Max. length of labrum 0.38-0.48; Max. width of labrum 0.55-0.62; Length of pronotum 0.84-0.91; Width of pronotum 1.42-1.53; Length of forewing with scale 1.20-1.34; Length of hindwing with scale 0.28-0.52; Length of hindwing scale 0.76-0.80; No. of antennal segments 20.

2. SOLDIER MAJOR :Head-capsules yellowish to yellowish brown, labrum, antennae, legs and body paler; mandibles reddish brown, yellowish at base. Head with a few scattered erect bristles; pronotum with a few long bristles on the margins only; abdominal tergites with rows of long bristles on their posterior margins; sternites with rows of bristles and scattered short hairs.

Head-capsules squarish, as long as maximum width, a little narrowed at the posterior end of antennal carinae, and abruptly narrowed at the posterior end of antennal carinae, and abruptly narrowed from this point to side base of mandibles, posterior margin rounded. Fontanelle small, rounded and situated at the middle of line connecting the bases of antennae, leading to a shallow gradually widening groove almost upto the anterior margin of labrum. Eyes and Ocelli absent. Antennae with 16 segments, segment 3 slightly longer than 2 and almost twice the length of 4, 4 shortest. Postclypeus subelliptical, broader than long, anterior margin notched medially, without short or long hairs. Anteclypeus subtrapezoidal, whitish and apilose, Labrum broadly tongue-shaped, with a shallow and gradually widening groove medially, reaching almost up to the two-thirds of the length of mandibles, almost as long as broad, sides converging anteriorly and posteriorly, anterior margin weakly bifid and fringed with short hairs, a few long bristles present near the anterior margin. Mandibles sabre-shaped, apices sharply pointed and weakly incurved. Left mandible with two

prominent teeth at the anterior half of inner margin. Right mandible with only one tooth slightly above the middle of mandible. Postmentum club-shaped, widest at the anterior third and narrowest a little below the posterior third, anterior margin straight posterior margin concave and with a few long bristles on the anterior third.

Pronotum flat, rhomboidal, broader than long and much narrower than head-width, anterior margin weakly raised and projected anteriorly with a weak median notch, sides rounded and narrowed posteriorly, posterior margin incurved medially. Legs thin and long, apical tibial spur formula 3:2:2.

Measurements (in mm.) etc., Soldiers (10 exseach.)

	Soldier (Maj.)	Soldier (Min.)
Length of head to side base of mandibles	1.38-1.58	0.78-0.90
Max. width of head	1.38-1.58	0.72-0.82
Max. height of head	0.76-0.96	0.38-0.54
Max. length of labrum	0.43-0.48	0.43-0.50
Max. width of labrum	0.43-0.48	0.22-0.24
Length of left mandible	0.86-0.96	0.55-0.64
Min. median length of postmentum	0.91-1.00	0.48-0.58
Max. width of postmentum	0.45-0.48	0.24-0.32
Width of postmentum at waist	0.24-0.30	0.24
Max. length of pronotum	0.50-0.58	0.34-0.38
Max. width of pronotum	0.76-0.86	0.50-0.58
No. of antennal segments	16	15

3. SOLDIER MINOR : Head-capsule, labrum and pronotum light yellowish brown; antennae, legs and body paler; mandibles darker distally, yellowish basally. Head with a few scattered erect long bristles; pronotum also with a few long bristles on the margins; abdominal tergites with rows of long bristles on their posterior margins.

Head-capsule suboval, longer than broad, converging abruptly beyond the base of antennae, sides subparallel, posterior margin subround. Fontanelle circular, small and situated a little behind clypeus leading to a shallow median dorsal groove upto the tip of labrum, fontanelle gland distinct. Eyes and ocelli absent. Antennae with 15 segments, segment 2 longer than 3 and 4, 3 shortest. Clypeus indistinctly divided into ante- and postclypeus, subtrapezoidal, anterior margin rounded and apilose. Labrum rectangular, much longer than broad, extending upto the tip of mandibles, anterior margin weakly bifid and fringed with numerous short hairs. Mandibles slender, sabre-shaped and long; weakly incurved at apices. Left mandible with two sharply pointed teeth on the inner margin at the anterior half. Right mandible with only one tooth on the inner margin, a little above the anterior third. Postmentum shorter, club-shaped, broadest at the anterior third and narrowest a little below the posterior third, anterior margin substraight, posterior margin weakly concave with a few long hairs at the anterior third.

Pronotum rhomboidal, broader than long, anterior margin convex, weakly raised and projected medially, sides narrowed posteriorly, posterior margin weakly incurved at middle. Anterolateral and posterolateral corners broadly rounded. Legs thin and long, apical tibial spur formula 3:2:2.

Distribution—NICOBAR ISLANDS : *Great Nicobar* : Campbell Bay and Nancowry. ELSEWHERE : Indonesia (Java).

Remarks—It is recorded for the first time from the Indian subregion, hence the characters of all the castes are incorporated.

18. *Schedorhinotermes longirostris* (Brauer)

1. *Termes* sp.

1865. Brauer, *Verh. zool. bot. Ges. Wien.*, **15**: 977.

2. *Termes longirostris* Brauer:

1866. Brauer, *Reise der Fregatte 'Novara' (Zool. Theil)*, Bd. 2 (Abth. 1, Art. 4), pp. 47-48, S., W. and Ny., *Type-locality* : Kondul Isl., Nicobar.

3. *Rhinotermes* (*Schedorhinotermes*) *longirostris* (Brauer) :

1913. Holmgren, *K.Sv. Vet. Akad. Handl.*, **50** (2) : 86, S., W. Nicobar, Java and Malacca.

4. *Schedorhinotermes longirostris* (Brauer) :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 93.

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4) : 132-138, Kondul Is.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 100, Great Nicobar.

1989. Roonwal and Chhotani, *Fauna of India*, Isoptera (Termites), I. pp.540-544.

Material —Two vials from the Andamans and Nicobars as follows:

A. One vial from South Andaman, such as—(i) 3 S. (Maj.), 7S. (Min.) and 5W., Neil Island, *T.N.Khan and Party* coll., 21.vi.1980, ex. "log"

B. One vial from Great Nicobar, such as—(ii) 1 S. (Maj.), sev. S. (Min.) and sev. W., Laksman Beach, *T.N. Khan and Party* coll., 13 viii. 1980, F.C.No. K₁f/13.8.80, ex. "sap wood of an unknown log"

Measurements (in mm) etc., Soldiers (10`exs. each) :

	Soldier (Maj.)	Soldier (Min.)
Length of head to side base of mandibles	1.34-1.45	0.70-0.76
Max. width of head	1.29-1.38	0.68-0.72
Max. height of head	0.72-0.80	0.40
Max. length of labrum	0.43	0.38-0.40
Max. width of labrum	0.40-0.43	0.20-0.22
Length of left mandible	0.90-0.96	0.53-0.55
Min. median length of postmentum	0.88-0.91	0.43-0.48
Max. width of postmentum	0.38-0.43	0.30
Width of postmentum at waist	0.24-0.30	0.20-0.22
Max. length of pronotum	0.43-0.53	0.30-0.34
Max. width of pronotum	0.72-0.86	0.48-0.52
No. of antennal segments	16	15

Distribution.—ANDAMAN AND NICOBAR ISLANDS : *South Andaman* Neil Island; *Great Nicobar*: Laksman Beach.

Previously also recorded from *Nicobar Isl.* , Kondul Island (Type-locality); *Great Nicobar* : Galathea Bay, Gala Bay and Campbell Bay. ELSEWHERE : None.

19. *Schedorhinotermes medioobscurus* Holmgren

1. *Rhinotermes* (*Schedorhinotermes*) *brevialtus* f. *medioobscurus* Holmgren :

1914. Holmgren, *Zool. Jahrb. (Abt. Syst.)* **36** (2-3): 241, Im., S., W., Type-locality: Trong in Taiping, Malacca only.

2. *Rhinotermes* (*Schedorhinotermes*) *longirostris* (Brauer). Wrong determination.

1913. Holmgren, *K. Sv. Vet. Akad. Handl.*, **50** (2) : 86, Malacca only.

3. *Schedorhinotermes medioobscurus* Holmgren :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 94, Malacca.

1965. Ahmed, *Amer. Mus. nat. Hist.*, **131** (1) : 24-27, Thailand.

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4) : 138-140; South Andaman.

1980. Bose, *Rec. zool. surv. India*, **77** (1-4) : 100, Middle and South Andamans.

1989. Roonwal and Chhotani, *Fauna of India*, Isoptera (Termites), 1 pp. 544-549.

Material —Seven vials with Im., S. and W. from the Andamans, as follows:

A. Four vials from S. Andaman, such as—*P.K. Maiti and Party* coll.—(1) 8 S. (Maj.) sev. S. (Min.) and W., Monglutton, 20km. S. of Port Blair, F.C. No. 2, 18.xii.1975, ex. "stump"; (2) 2 S. (Maj.), sev. S. (Min.) and W., Bidnabad, September, 1979, ex. "decayed stump" *B. Nandi and Party* coll.—(3) 2 S. (Maj.) and 2 W., Jerwa Creek, Baratang, F.C. No. N₈/31.12.79, 31.xii.1979, ex. "unknown log" *B. Nandi and S.K.Chakraborty* coll.- (4) 3 S. (Maj.) 12 S. (Min.) 6 W., Chouldari, 11.x.1981, F.C. No. N₄/11.10.81, ex. "decaying log"

B. One vial from Middle Andaman, such as -(5) 4 S. (Maj.), 7 S. (Min.) and 10 W., Bakultala, *P.K.Maiti and Party* coll., 12.ii.1979, F.C. No. M₈/12.2.79, ex. "dead stump"

C. Two vials from Little Andamans, such as—(6) 10 S.(Maj.), 5 S. (Min.) and Sev. W., Ramkrishanpur, Hut Bay, *B. Nandi and Party* coll., 21.xi. 1978, F.C. No. 2N₃, ex. "Thiapate log" (7) 25 Im., 4 S. (maj.), 11 S. (Min.) and 6 W., 1½ km. west of R.R.O. Colony, Hut Bay, Little Andamans, *B. Mitra and party* coll., 22.vi. 1982, F.C. No. B₇/22.7.82, ex. "under bark and sapwood of unknown log"

Measurements, etc. (in mm) :

Imago (10 exs.)—Length of head to side base of mandibles 1.30-1.34; Max. width of head (with eyes) 1.72-1.76; Max. diameter of eye 0.53-0.54; Min. diameter of eye 0.45-0.48; Distance of eye from lower margin of head 0.11-0.15; Max. diameter of ocellus 0.16-0.20; Min. diameter of ocellus 0.14-0.15; Eye-ocellus distance 0.06; Max. length of postclypeus 0.26-0.30; Max. width of postclypeus 0.72; Max. length of labrum 0.43-0.45; Max. width of labrum 0.53-0.55; Length of pronotum 0.86-0.88; Width of pronotum 1.42-1.48; Length of forewing with scale 0.33-10.19; Length of forewing scale 1.20-1.30; Length of hindwing with scale 8.28-9.62; Length of hindwing scale 0.70-0.72; No. of antennal segments 20.

Measurements (in mm) etc., Soldiers (10 exs. each) :

	Soldier (Maj.)	Soldier (Min.)
Length of head to side base of mandibles	1.43-1.68	0.81-0.86
Max. width of head	1.38-1.68	0.76-0.81
Max. height of head	0.80-0.86	0.46-0.53
Max. length of labrum	0.38-0.43	0.38-0.43
Max. width of labrum	0.45-0.53	0.22-0.25
Length of left mandible	0.96-1.04	0.58-0.60
Min. median length of postmentum	0.96-1.04	0.48-0.60
Max. width of postmentum	0.38-0.43	0.32-0.34
Width of postmentum at waist	0.22-0.24	0.20-0.22
Max. length of pronotum	0.53-0.58	0.35-0.38
Max. width of pronotum	0.90-1.00	0.53-0.60
No. of antennal segments	16	15

Distribution—ANDAMAN ISLANDS : South Andaman: Monglutan; Bidnabad; Jerwa creek and Chouldari. *Middle Andaman* : Bakultala. *Little Andaman* : Hut Bay, Ramkrishnapur. Previously recorded from *South Andaman*: Mount Harriet. ELSEWHERE: Malay (Kualalumpur); Singapore; Thailand.

Remarks—The species can easily be distinguished from all other representatives of the genus occurring in the Bay islands, by its very thick apices of mandibles and by its almost squarish head with straight lateral sides. The species is so far known from Malaysia, South and Middle Andamans. Many new localities of both south and middle Andamans.

20. ***Schedorhinotermes nancowriensis*** sp. nov.

Material —One vial with 30 S. (maj.), 10 S. (min.) and 23 W., Nancowry Isl., T.N.Khan and B. Mitra coll., 3.viii.1980, F.C. No. K₇/3.8.80, ex. "Peynma stump" and (ii) One with 4 S. (maj.) and sev. S. (min.) and W., Magar Nallaha, Campbell Bay, Great Nicobar, P.K.Maiti and Party coll., 27.xii. 1975, F.C. No. 5, ex. "stump"

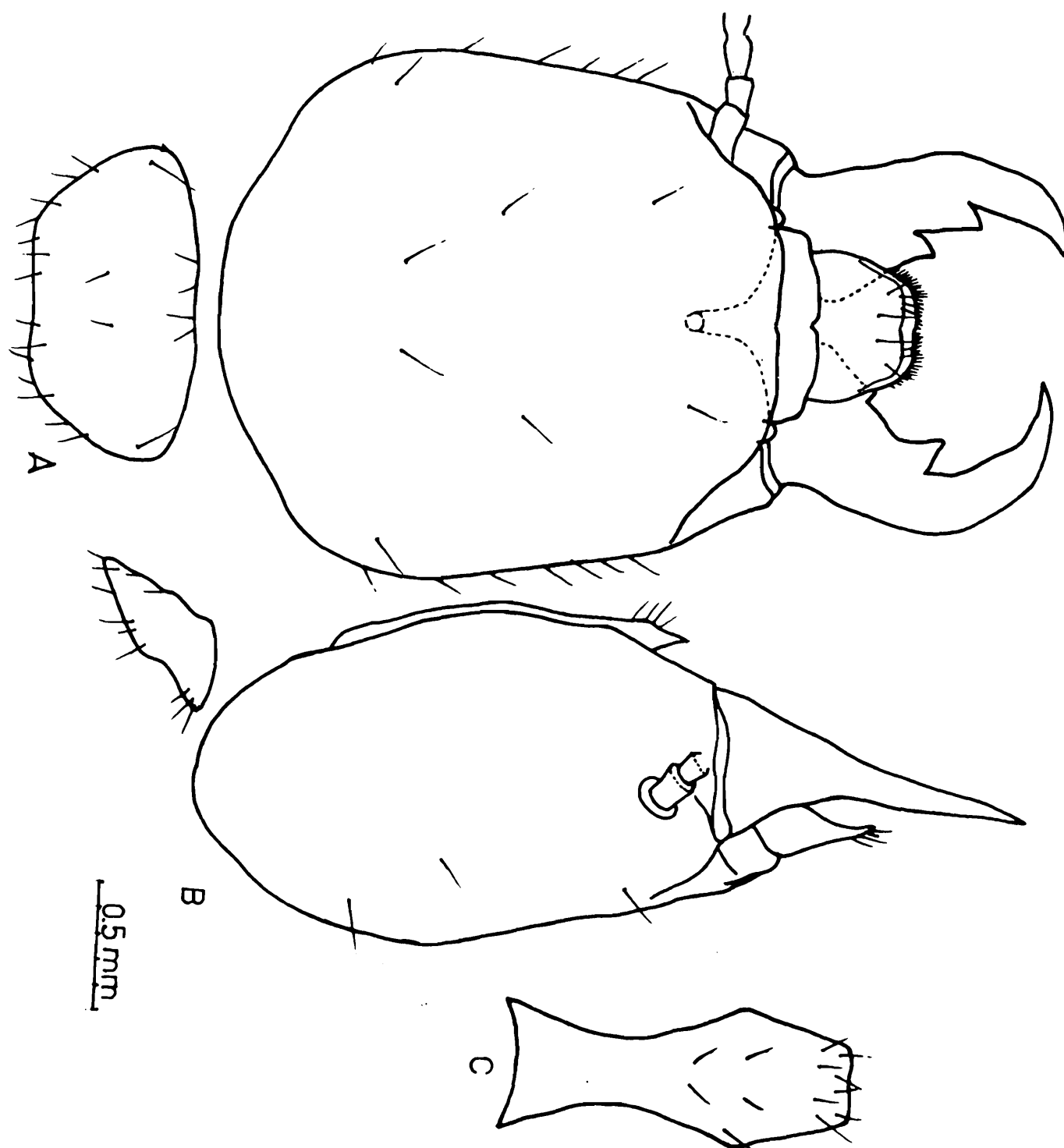


Fig. 3. *Schedorhinotermes nancowriensis* sp. nov. Soldier (mJ.)
 Soldier (naj.) A. Head and Pronotum, in dorsal view.
 B. Head and pronotum in lateral view; C. Postmentum

Description.—

(i) IMAGO—Unknown.

(ii) SOLDIER MAJOR (Fig. 3, a-c) : Head-capsule, postclypeus and thorax yellowish brown, frons somewhat paler; mandibles blackish brown distally and yellowish brown basally ; antennae, labrum, legs and abdomen pale yellow; anteclypeus translucent and labrum with whitish tinge. Head sparsely pilose with short hairs; pronotum with a few erect hairs mostly on margins and abdomen with more dense hairs. Body length (excluding antennae) 6.10-6.45 mm.

Head-capsule somewhat squarish, almost as long as broad; lateral sides substraight, weakly narrowing upto the antennal foveolae and thence strongly converging anteriorly; postero-lateral angles and posterior margin broadly rounded. Fontanelle opening round and distinct, only placed slightly below the fronto-clypeal suture (distance 0.20mm); a narrow and shallow groove on frontal surface running from frontanelle to tip of labrum and very well marked and widening upto fontoclypeal suture. Eyes and ocelli absent. Antennae with 16-segments; segment 1 and 2 almost apilose, remainder moderately pilose and pilosity increasing in the distal segments; segment 3 long and conical, and one and a half times as long as either 2 or 4; 5 onwards subpyriform upto penultimate one; the terminal one ovate and narrower than others. Labrum subquarish, slightly wider than long; anterior margin weakly bilobed and with fringe of small hairs extending laterally upto almost anterior-third; a few erect hairs slightly below the antero-lateral corners. Anteclypeus a narrow, translucent strip-like, much broader than long and apilose. Postclypeus transverse, pilose and weakly demarcated from frons; apical margin outcurved with a median fontanelle groove. Mandibles strongly built with strongly incurved tip, especially in right mandible; broadest at base. Left mandible with two prominent and pointed marginal teeth placed close together almost at the middle. Right mandible with also two marginal teeth, 1st one pointed, laterally directed and placed at the middle; 2nd tooth small, blunt and placed wide apart from 1st marginal; margin in between these two teeth deeply concave. Postmentum club-shaped, much shorter than head-length; maximum width at anterior third almost double the minimum width at posterior third; anterior margin substraight and posterior margin concave; a few short hairs on the anterior half.

Pronotum flat with a very weakly raised anterior lobe, width slightly less than double its length and more than half the head-width anterior margin weakly outcurved, without any median notch; antero-lateral corners narrowly and postero-lateral corners broadly rounded; posterior margin with a very weak emargination. Mesonotum as wide as or slightly narrower than pronotum with a broadly rounded lateral margins. Metanotum short, but wider than others, with broadly rounded lateral margins and with a weak median emargination on posterior margin. Legs much hairy; femora long and slender; apical tibial spur formule 3:2:2. Tarsi 4-segmented.

Abdomen oblong; tergites with one or two rows of short but stout hairs posteriorly. Cerci 2-jointed and hairy. Styli 1-jointed.

Measurements	Soldier (Major)	
	Holotype	Range (10 exs.)
Length of head to side base of mandibles	2.00	1.98-2.08
Width of head at side base of mandibles	1.23	1.34-1.38
Width of head at postero-lateral ends of antennal carinae	1.76	1.76-1.88
Max. width of head	2.00	1.98-2.08
Height of head	1.19	1.19-1.25
Length of left mandible	1.08	1.08-1.10
First marginal tooth distance from the tip of left mandible	0.43	0.40-0.48
Max. length of labrum	0.53	0.53-0.58
Max. width of labrum	0.58	0.58-0.63
Length of postmentum	1.30	1.30-1.38
Max. width of postmentum	0.53	0.53-0.56
Min. width of postmentum	0.26	0.26-0.28
Length of pronotum	0.68	0.63-0.68
Width of pronotum	1.14	1.14-1.20
Width of mesotum	1.09	1.09-1.14
Width of metanotum	1.22	1.22-1.29
No. of antennal segments	16	16

3. SOLDIER (MINOR) (Fig. 4,a-c) : Head-capsule, labrum, postclypeus, thorax and abdomen pale yellow; mandibles yellowish brown basally and blackish brown apically; anteclypeus translucent white. Head with a few scattered short hairs; pronotum with also hairs mainly on the margins and abdomen with short and long hairs. Total body-length 3.45-3.55.

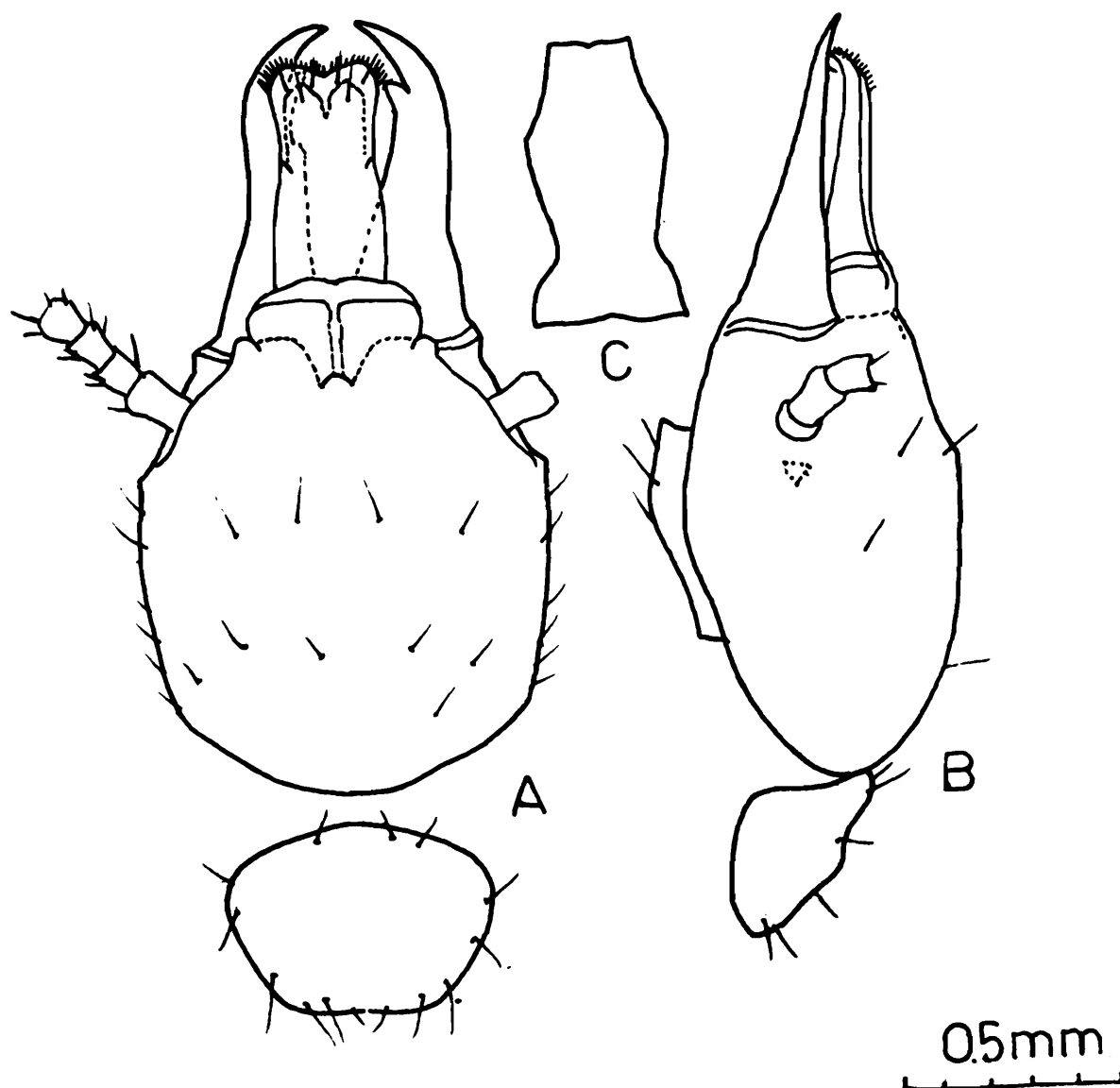


Fig. 4. *Schedorhinotermes nancowriensis* sp. nov. Soldier (min.)

- A. Head and pronotum in dorsal view.
- B. Head and pronotum in lateral view.
- C. Postmentum

Head-capsule somewhat suboval; longer than broad, broadest near the level of antennal foveolae, thence gradually narrowing posteriorly into a rounded posterior margin. Fontanelle opening small and circular, situated slightly below the fronto-clypeal suture (distance 0.07mm); aperture facing backward and with a narrow groove running from frons to tip of labrum, and gradually widening anteriorly. Eyes and ocelli absent. Antennae with 16 segments; segment 2 subequal to 3,4 shortest; 5 onwards gradually thick except the last becoming a little thinner. Labrum strongly rectangular, almost double its width, extending upto tip of mandibles in closed position; anterior margin strongly bilobed and translucent; anterolateral corners somewhat narrowly rounded and with minute fringe of hairs gradually becoming smaller on either side; with 3 to 4 pairs of long erect hairs apically below the translucent margin; strongly grooved longitudinally. Anteclypeus transverse whitish striplike and apilose. Postclypeus much broader than long and pilose, and with median fontanelle groove. Mandibles long, thin

and with very pointed apex. Left mandible with two subequal marginal teeth directed forwardly placed on anterior third. Right mandible with one forwardly directed and very much pointed tooth. Postmentum somewhat as in soldier major, but waist lying more posteriorly; anterior narrow part also short; maximum width one and a half time wider than minimum width.

Pronotum flat broader than long and much narrower than head-width; anterior margin bluntly projected medially; sides converging posteriorly and posterior margin with a weak emargination; short hairs mostly on margins. Mesonotum wider than pronotum with rounded lateral margins. Metanotum much wider than others and with narrowly rounded lateral side. Legs and abdomen as in soldier major.

Measurements of Soldier (Minor) :

	<i>Range (10 exs.)</i>
Length of head to side base of mandibles	1.00-1.05
Width of head at side base of mandibles	0.63-0.68
Width of head at postero-lateral ends of antennal carinae	0.92-0.95
Max. width of head	0.88-0.92
Height of head	0.58-0.68
Length of left mandible	0.70-0.72
First marginal tooth distance from the tip of left mandible	0.14-0.15
Max. length of labrum	0.50-0.53
Max. width of labrum	0.24-0.28
Length of postmentum	0.72-0.74
Max. width of postmentum	0.34-0.37
Min. width of postmentum	0.24-0.26
Length of pronotum	0.43-0.48
Width of pronotum	0.65-0.68

Width of mesonotum	0.68-0.72
Width of metanotum	0.75-0.78
No. of antennal segments	16

3. WORKER : Head-capsule, labrum and postclypeus straw yellow; mandibles pale yellowish with dark brown toothed margins; antennae, thorax and abdomen paler than head. Head and thorax sparsely, abdomen fairly more hairy. Total body length 5.38-5.75 mm.

Head broadly squarish, much broader than long; sides weakly outcurved and posterior margin rounded. Fontanelle, eyes and ocelli absent. Antennae with 17 segments; segment 2 subequal to 3, 4 shorter than 3 and 4 shortest. Labrum domeshaped, somewhat broader than long, widest at the middle and body with a few scattered hairs. Postclypeus large, pilose and somewhat weakly convex, and divided by a median incomplete line into two equal halves. Anteclypeus narrow, translucent and apilose. Mandibles of typical *Schedorhinotermes*-type.

Pronotum saddle-shaped, much broader than long, length slightly less than half the width; anterior margin strongly convex, with a weak median notch; posterior margin straight. Legs slender and hairy; tibial spur formula 3:2:2; tarsi 4-segmented.

Abdomen oblong and hairy, cerci 2-jointed, styli 1-jointed.

Measurements (in mm) of workers (10 exs.)

Length of head to tip of labrum	1.53-1.56
Length of head to lateral base of mandibles	1.12-1.15
Maximum width of head	1.31-1.36
Maximum height of head	0.73-0.77
Maximum length of postclypeus	0.20-0.23
Maximum width of postclypeus	0.56-0.59
Maximum length of labrum	0.33-0.36
Maximum width of labrum	0.43-0.46
Maximum length of pronotum	0.36-0.39
Maximum width of pronotum	0.85-0.87
Number of antennal segments	17

Type-specimen : All type-specimens, in spirit, from a single vial with same data as given under "Material" deposited as follows :

(a) *Holotype* : Holotype Soldier (major), in a vial (Z.S.I. Reg. No. 3173/H₁₁) deposited in Z.S.I., Calcutta.

(b) *Paratypes and Paramorphotypes* : (i) Paratypes 6 Soldiers (3 major and 3 minor) and Paramorphotypes 4 workers in a vial (Z.S.I. Reg. No. 3174/H₁₁) deposited in Z.S.I., Calcutta; (ii) Paratypes 2 S. (1 major and 1 minor) and paramorphotypes 2 workers, in a vial, deposited in F.R.I., Dehra Dun. Rest of the material kept as *holotype*-lot in Z.S.I.

Type-locality— Noncowry, Nicobar Island, India.

Distribution : Known only from the type-locality.

Comparison—The species is very close to *S. translucens* (Haviland) from Borneo, Thailand and Bangladesh, *S. bidentatus* (Oshima) from Philippines and *S. tiwarii* Roonwal and Thakur from South Andaman, but differs from them by the characters of the Soldiers (major) as follows :

1. From : *S. translucens*. : (i) Larger species and head as long as wide, head-length 1.98-2.08, width 1.98-2.08 mm (*vs.* Smaller species and head slightly longer than broad; head-length 1.59-1.85, width 1.49-1.75mm.) (ii) 2nd marginal tooth of right mandible placed close to 1st marginal one (*vs.* 2nd placed not so close). (iii) Labrum with apical margin somewhat bilobed (*vs.* apical margin substraight). (iv) Postmentum-waist strongly constricted (*vs.* not so constricted).

2. From *S. bidentatus* : (i) Head fairly strongly converging anteriorly (*vs.* head subrectangular). (ii) Right mandible with inner margin between 1st and 2nd marginal teeth weakly concave (*vs.* margin very strongly concave). (iii) Pronotum width much less than double its length and much narrower than head-width (*vs.* Pronotum width almost double its length and not so narrower than head-width).

3. From *S. tiwarii* : (i) larger species, head strongly converging anteriorly; head-length 1.72-2.08, width 1.63-2.08 mm (smaller species, head; subsquarish head-length 1.68-1.85, head-width 1.60-1.68 mm). (ii) Right mandible with two distinct marginal teeth (*vs.* with one distinct tooth). (iii) Postmentum-waist almost half its maximum width (*vs.* waist almost two-third of its maximum width).

21. ***Schedorhinotermes tiwarii*** Roonwal and Thakur

Schedorhinotermes tiwarii Roonwal and Thakur :

1963. Roonwal and Thakur, *Indian J. agric. Sci.* **33** (2) : 109-117, S. (maj. and min.) W., *Type-locality* : Chouldhari, S. Andaman.

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (324) : 140-141 S (min.), W. Little Andaman.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 101. S. W., Baratang, South Andaman.

1989. Roonwal and Chhotani, *Fauna of India*, Isoptera (Termites), I, pp. 554-559.

Material —Ten vials with S. (Maj.), S. (Min.) and W. from Andamans as follows :

A. Five vials from South Andaman, such as

P.K. Maiti and Party coll. — 2 vials from Garacharma, 10 km. N.W. of Port Blair, such as : (1) 1 S. (Maj.) , Sev. S. (Min.) and W., 26 .vii. 1978, F.C.No. M₈/26.7 78, ex. "stump" and (2) 2 S. (Maj.) Sev. S. (Min.) and W., 18.viii.1979, F.C. No. M₁₀/18.8.79, ex. "unknown log" *B. Nandi and S.K. Chakraborty* coll.— Three vials from Mathura, such as— (3) 1 S. (Maj.) Sev. S. (Min.) and W., 7.x.1981, F.C. No. N₅/7 10.81, ex. "decomposed log"; (4) Sev. S. (Maj.). S. (Min.) and W., 7.x.1981, F.C. No. N₉/7 10.81 ex. "decomposed felled tree" and (5) 1 S. (Maj.) Sev. S. (Min.) and W., Rutland Island, 19.x.1981, F.C. No. N_{3a}/19.10.81 ex. "decayed stump"

B. two vials from Middle Andaman, as follows:

(6) 2 S. (Maj.), Sev. S. (Min.) and W., Bakultala, *P.K. Maiti and Party* coll., 13.ii.1979, F.C.No. M₉/13.2.79 and (7) 2S. (Maj.), Sev. S. (Min.) and W., Kadamtala, Naya Dera, *S.K. Chakraborty and Party* coll., 11.vi. 1979, F.C. No. C₇/11.6.79, ex. "under bark of Taumpieng log."

C. One vial from North Andaman, such as—

(8) 1 S. (Maj.) and 7 W., Smith Island, *B. Nandi and Party* coll., 22.xii.1979, F.C. No. N₁/22.12.79, ex. "decaying log"

D. Two vials from Little Andaman, as follows:

T.N. Khan and Party coll.—2 vials, Forest 11 km. from Hut Bay, such as— (9) 3 S. (Maj.), Sev. S. (Min.) and W., 28.ix. 1981, F.C. No. K₇/28.9.81, ex. "unknown stump" and (10) 1 S. (Maj.), 8 S. (Min.) and 1 W., 29.ix.1981, F.C.No. K₂/29.9.81, ex. "unknown dead branch"

Measurements (in mm) etc., Soldiers (10`exs.)

	Soldier (Maj.)	Soldier (Min.)
Length of head to side base of mandibles	1.68-1.72	0.81-0.91
Max. width of head	1.53-1.63	0.76-0.86
Max. height of head	0.86-1.00	0.48-0.53
Max. length of labrum	0.36-0.43	0.40-0.43
Max. width of labrum	0.48-0.53	0.23-0.24
Length of left mandible	1.00-1.04	0.58-0.64

	Soldier (Maj.)	Soldier (Min.)
Min. median length of post- mentum	1.04-1.15	0.48-0.58
Max. width of postmentum	0.43-0.48	0.30-0.34
Width of postmentum at waist	0.26-0.32	0.23-0.25
Max. length of pronotum	0.53-0.58	0.38-0.40
Max. width of pronotum	0.98-1.04	0.55-0.63
No. of antennal segments	16	15

Distribution—ANDAMAN ISLANDS : *South Andaman* : Garacharma, Mathura and Rutland Is. *Middle Andaman* : Bakultala and Kadamtala (Naya Dera). *North Andaman* : Smith Is. *Little Andaman* : Hut Bay (all present record).

Previously known also from *South Andaman* : Chouldhari (type-locality) and Wrafters Creek, Baratang. *Little Andaman* : Laitora near Tokoibuea. ELSEWHERE : None.

Remarks— This is a very distinct species, reported earlier from only a few localities of South and Little Andamans. Now, it proves that the species is widely distributed throughout the Andamans and is apparently absent from the Nicobar group. It is represented by much smaller forms in contrast to its much larger forms known so far. The postmentum with distinctly broad, apical portion and the mandibles with more pointed apices, keep the species very distinct from its allied ones.

22. *Microcerotermes biswanathae* sp. nov.

Material —One vial with 2S. (one with head and abdomen separated, other one immature), W. and sev. Im.-Ny. from Radio Colony, Port Blair, B. Nandi and S.K. Chakraborty coll., 5. x. 1981, F.C. No. N_{1a}/5.10.81, ex. "under mud plaster on a fence post"

Description—

1. IMAGO— Unknown

2. SOLDIER (Fig. 5, a-d): Head-capsule light brown, slightly paler posteriorly; labrum yellowish brown; mandibles blackish brown; antennae, pronotum and legs pale yellowish; abdomen yellowish white, head and pronotum sparsely hairy.

Head-capsule subrectangular, lateral margins weakly outcurved, posterior margin subround, antero-lateral corners not so prominent; frons fairly sloping anteriorly, Y-suture indistinct. Frontanella minute, placed a little above the middle of head-capsule. Antennae with 13 segments, segment 2 more than double the

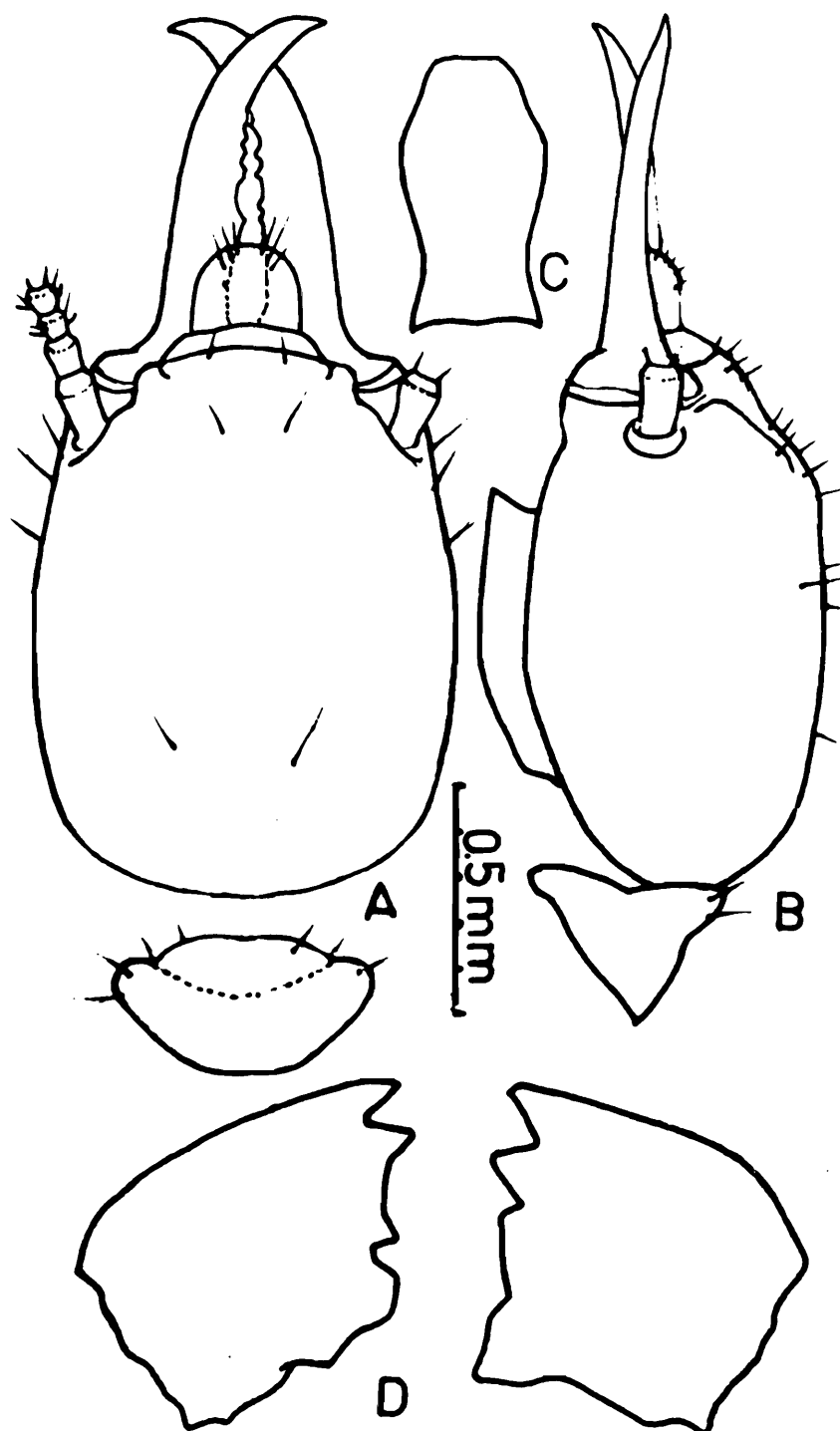


Fig. 5. *Microcerotermes biswanathae* sp. nov. Soldier

- A. Head and pronotum, in dorsal view;
- B. Head and pronotum, in lateral view;
- C. Postmentum; D. Worker's mandibles

length of 3 and slightly longer than 4, 3 smallest and narrowest, 5 onwards increasing in length. Postclypeus strongly chitinized, much broader than long with few short and long hairs. Anteclypeus whitish, more than double its length and apilose. Labrum subrectangular, broader than long, anterior margin subround with a few erect hairs on the anterior half. Mandibles sickle-shaped, thin and

long with fairly incurved apices, inner margin somewhat coarsely serrated and with a prominent tooth slightly below the middle of each mandibles.

Postmentum club-shaped, widest at the level of anterior third and narrowest below the level of posterior third, narrowest width slightly less than the widest width and broadest width half its median length; anterior margin substraight with a few small hairs and posterior margin weakly outcurved.

Pronotum saddle-shaped, broader than long, anterior lobe shorter, with a very weak median emargination; posterior margin substraight, also with a weak median emargination; lateral margins angularly rounded; postero-lateral corners broadly rounded; a few erect hair both on margins and disc. Legs short and hairy, apical tibial spur formula 3:2:2.

Abdomen oblong and densely hairy.

Measurements(in mm) etc. Soldier

	Holotype
Length of head to side base of mandibles	1.23
Max. width of head	0.92
Max. height of head	0.61
Head Index (Width/Length)	0.75
Max. length of labrum	0.19
Max. width of labrum	0.26
Length of left mandible	0.80
Head mandibular length Index (Left mandible length/Head length)	0.65
Min. median length of postmentum	0.70
Max. width of postmentum	0.34
Width of postmentum at waist	0.27
Max. length of pronotum	0.34
Max. width of pronotum	0.57

	Holotype
Pronotum-head Index (Pronotum Width /Head width)	0.62
Pronotum Index (Length/width)	0.60
No. of antennal segments	13

3. WORKER MAJOR : Head-capsule, labrum, postclypeus and pronotum pale yellow to yellowish brown ; antennae yellowish brown, much paler basally; abdomen yellowish white, legs almost white with some yellowish tinge. Head, pronotum and abdomen moderately hairy. Total body length (excluding antennae) 4.65-4.76 mm.

Head-capsule subsquarish, lateral sides slightly diverging anteriorly, posterior margin rounded. Fontanelle indistinct. Eyes and ocelli absent. Antennae with 13 segments, segment 3 almost half of either 2 or 4, 3 smallest, 5 or 6 segments gradually increasing in size, apical one ovate and longest. Postclypeus swollen, divided longitudinally by a distinct median line and fairly pilose. Anteclypeus a narrow whitish strip, anterior margin projected medially and apilose. Labrum dome-shaped, much broader than long, lateral sides outcurved, anterior margin substraight and with a few long and short hairs. Mandibles subsquarish. Left mandible with an apical and two marginal teeth; apical finger like, 1st marginal comparatively narrow and a little longer and placed close to apical; 2nd small, placed much below the 1st with shallow incurved margin in between; molar plate well developed. Right mandible also with an apical and two marginal teeth; apical subtriangular and pointed, 1st marginal triangular, close to and a little smaller than apical, 2nd marginal much smaller, blunt and closely placed to 1st marginal tooth, molar plate large with oblique minute ridges.

Pronotum strongly saddle-shaped ; much broader than long, anterior lobe distinctly rounded without any median notch, posterior margin substraight without any median emargination, lateral sides diverging anteriorly, antero-lateral corners narrowly rounded. Legs fairly pilose, apical tibial spur formula 3:2:2.

Abdomen oblong, fairly pilose. Cerci 2-jointed, styli absent.

3. WORKER MINOR : Similar to major worker, but slightly smaller.

Measurements (in mm) of Worker

	Worker major (10 exs.)	Worker minor (10 exs.)
Length of head to side base of mandibles	0.86-0.91	0.68-0.72
Max. width of head	0.91-0.96	0.76-0.81

	Worker major (10 exs.)	Worker minor (10 exs.)
Max. height of head	0.46-0.53	0.43-0.48
Max. length of labrum	0.29	0.20-0.24
Max. width of labrum	0.34-0.38	0.34
Max. length of pronotum	0.24	0.22-0.24
Max. width of pronotum	0.58-0.60	0.48-0.53

Type-specimens.— All type-specimens, in spirit, from a single vial, with same data as given under 'Material', deposited in Z.S.I., Calcutta, as follows :

(a) *Holotype* : 1 Soldier, in a vial (Z.S.I. Reg. No. 3176/H₁₁), and (b) *Paratype*: 1 Soldier and *Paramorphotypes* 10 workers (5 major and 5 minor), in a vial (Z.S.I. Reg. No. 3177/H₁₁).

Type-locality : Radio Colony, Port Blair, South Andaman.

Distribution : Known only from the type-locality.

Comparison— *Microcerotermes biswanathae* sp. nov. is very close to *M. heimi* Wasmann and *M. tenuignathus* Holmgren, both from India and Pakistan, and *M. insularis* sp. nov. from Middle Andaman, but differs from them by the characters of the Soldiers as follows :

1. From *M. heimi* : (i) Mandibles thin, gradually incurved towards apices, somewhat coarsely serrated with a prominent tooth below the middle on both the mandibles (*vs.* Mandibles thick somewhat straight, abruptly incurved at apices, finely serrated without any distant tooth). (ii) Postmentum and waist more constricted, lateral margins above maximum width almost straight (*vs.* waist less constricted, lateral margins above maximum width somewhat incurved.)

2. From *M. tenuignathus* : (i) Mandibles thin, gradually incurved towards apices, somewhat coarsely serrated (*vs.* Mandibles thick, strongly hooked at the apices and finely serrated). (ii) Postmentum more dilated a little above the middle (*vs.* Less dilated at anterior third). (iii) Labrum rounded at apex (*vs.* labrum somewhat pentagonal). (iv) Head-capsule sparsely hairy (*vs.* Fairly densely hairy).

3. From *M. insularis* : Larger species, head length 1.23mm, head width 0.92mm (*vs.* smaller species, head-length 1.17-1.18mm, head width 0.81-0.83 mm). (ii) Mandibles with outer margin not strongly outcurved, but with more incurved apices, inner margin somewhat coarsely serrated (*vs.* Outer margin uniformly and strongly outcurved and with less incurved apices, inner margin finely serrated).

However, the species also comes close to *M. minutus* Ahmed from Thailand and *M. minor* Holmgren from India and Sri Lanka in morphological characters, but this is a larger species than those.

23. *Microcerotermes danieli* Roonwal and Bose

Microcerotermes danieli Roonwal and Bose:

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4) : 141-146, S. and W., Type-locality : Streamlet near Phoenix Bay, Port Blair, South Andaman.

1980. Bose, *Rec. zool. surv. India*, **77** (1-4) : 101, Im (not described by the original author), S. and W, South and North Andamans.

(a) *Material* —Sixty eight vials, one with 2 Im. (deal.) and others with S. and W. from the Andamans, as follows : —

A. 55 vials, one with 2 Im. (deal.) (sl. No. 29, Havelock Island) and rest with S. and W. from South Andaman, as follows: *P.K. Maiti and Party* coll.— (1) South Point, Port Blair, 17.xii.1975, F.C. No. 1, ex. "carton nest adpest with the trunk of *Wild Mango*" 3 vials from Monglutan, such as, (2) F.C No. 3, 18.xii.1975, ex. "nest in trunk"; (3) F.C. No. 4, 18.xii.1975, ex. "log" and (4) F.C.No. 6, 18.xii.1975, ex. "gallery on stump"; (5) Wandoor, F.C.No. 1, 18.xii. 1975; (6) Bambooflat, F.C.No. 4, 19.xii.1975, ex. "dead tree trunk" 8 vials from Chidyatapu, such as, 3 from Mundapahar; (7) F.C.No. 2, 10.i.1976, ex. "decaying log"; (8) F.C.No. 1, 10. i. 1976, ex. "decaying log with carton nest"; (9) F.C.No 3, 10. i.1976, ex. "under log"; 2 vials from Manjari : (10) F.C.No. 6, 8. i.1976, ex. "dead stump"; and (11) F.C.No. 8, 8. i.1976, ex. "dead stump"; and 3 vials from F.R.H. campus: (12) F.C.No. 4, 12. i. 1976, ex. "decaying portion of a stump"; (13) F.C.No.7, 12. i.1976, ex. "deep stump"; and (14) F.C.No. 8, 12. i. 1976, ex. "decaying log"; 3 vials from Kalapahar, Rutland Island, such as— (15) F.C.No.2, 9. ii. 1976, ex. "dead inside a dead stump"; (16) F.C.No. 4, 9. ii. 1976, ex. "dead stump"; and (17) F.C.No. 10, 9. ii. 1976, ex. "decaying log"; 3 vials from Haddo, Port Blair, such as—(18) F.C.No. $M_4/23.7.78$, 23.vii. 1978, ex. "tree trunk"; (19) F.C.No. $M_1/23.7.78$, 23.vii. 1978, ex. "unknown plant" and (20) F.C.No. $M_1/15.8.79$, 15.viii. 1979, ex. "Garjan log" (21) Sippighat, F.C.No. $M_1/26.7.78$, 26.viii. 1978, ex. "Rain tree"; (22) Burmanulla, F.C.No. $M_2/24.8.79$, 24.viii. 1979, ex. "unknown stump" 2 vials from C.A.R.I. area, Garacharma, such as—(23) F.C.No. $M_5/13.8.79$, 18.viii. 1979, ex. "unknown log"; and (24) F.C.No. $M_{11}/18.8.79$, 18.viii. 1979, ex. "unknown log" *S.K. Chakraborty and Party* coll.— 4 vials from Neil island, such as—(25) F.C.No. $C_{1c}/25.5.79$, 25.v. 1979, ex. "Papita log"; (26) F.C.No. $C_1/26.5.79$, 26.v. 1979, ex. "Padauk stump"; (27) F.C.No. $C_{2a}/29.5.79$, 29.v. 1979, ex. "dead fallen tree" and (28) F.C.No. $C_{1c}/27.5.79$, 27.v. 1979, ex. "under bark of an unknown log" 4 vials rom Havelock Island, such as— (29) Im. (deal), F.C.No. $C_6/2.6.79$, 2.vi. 1979, ex. "sap wood of a dead branch"; (30) F.C.No. $C_{4b}/2.6.79$, 2.vi. 1979, ex. "under bark and sap wood of

decaying Papita log"; (31) F.C.No. $C_1/1.6.79$, ex. "stump"; and (32) F.C.No. $C_7/2.6.79$, 2.vi. 1979, ex. "dry stump" (33) Baratang, F.C.No. $C_2/16.6.79$, 16.vi. 1979, ex. "decaying log" *B. Nandi and Party* coll.— 3 vials from Baratang, of which 2 from Jerwa Creek, such as—(34) F.C.No. $N_8/31.12.79$, 31.xii. 1979, ex. "unknown log"; and (35) F.C.No. $N_{10}/31.12.79$, 31. xii. 1979, ex. "unknown log"; and the other (36) Around rest house, F.C.No. $N_3/30.12.79$, 30.xii. 1979, ex. "Pynma log"; (37) Neil island, F.C.No. $N_6/7.1.80$, 7.i. 1980, ex. "decaying log"; (38) Chouldari, F.C.No. $N_4/11.1.80$, 11. i. 80, ex. "Papita log"; *B. nandi and S.K. Chakraborty* coll. 2 vials around Port Blair, such as—(39) Radio colony, F.C.No. $N_{2a}/5.10.81$, 5.x.1981, ex. "decayed cane on soil"; and (40) Corbyn's cove, F.C.No. $N_1/6.10.81$, 6.x. 1981, ex. "decaying unknown twig on soil" 4 vials from Chouldary, such as—(41) F.C.No. $N_{2a}/11.10.81$, 11.x. 1981, ex. "decayed dead tree"; (42) F.C.No. $N_4/11.10.81$, 11. x. 1981, ex. "dead stump"; (43) F.C.No. $N_7/11.10.81$, 11 x. 1981, ex. "dead stump" and (44) F.C.No. $N_{10}/11.10.81$, 11. x. 1981, ex. "decayed stump" 3 vials from Chidyatapu, such as— (45) F.C.No. $N_3/15.10.81$, ex. "dead stump"; (46) F.C.No. $N_8/18.10.81$, 18.x. 1981, ex. "at the base of a dead stump" and (47) F.C.No. $N_9/18.10.81$, 18. x. 1981, ex. "decayed fallen branch"; (48) Rutland Island, F.C.No. $N_{3c}/19.10.81$, 19.x. 1981, ex. "decayed stump" 3 vials from Wright Myo, such as—(49) F.C.No. $N_5/22.10.8$, 22.x. 1981, ex. "decayed stump"; (50) F.C.No. $N_6/22.10.81$, 22.x.1981, ex. "decayed trunk lying on soil" and (51) F.C.No. $N_0/23.10.81$, 23.x. 1981, ex. "earthen galley on building beam" *T.N. Khan and Party* coll.— (52) Havelock Island, F.C.No. $K_{2a}/8.6.80$, 8.vi. 1980, ex. "under bark of unknown log"; (53) Wright Myo, F.C.No. $K_4/22.10.81$, 22.x. 1981 ex. "unknown stump"; *R.M. Sharma and Party* coll.—2 vials from Ghasnala, Rutland Island, such as—(54) F.C.No. 6 (2908), 21.i..1982 and (55) F.C.No. 72(2920), 22.i.1982.

B. 4 vials with S. and W. from Middle Andaman, as follows: *P.K.Maiti and Party* coll.— (56) Long Island, F.C.No. $M_4/9.2.79$ ex. "cocoanut log"; 2 vials from Bakultala, such as— (57) F.C.No. $M_8/13.2.79$, 13.ii. 1979, ex. "dead log"; and (58) Strn. No. 9, 14.ii.1979, ex. "Dhoon log" *B. Nandi and Party* coll.—(59) Bakultala, F.C.No. $N_3/8.12.79$, ex. "decaying log"

C. Eight vials with S. and W. from North Andaman, as follows :

B. Nandi and Party coll.— 8 vials around Diglipur, such as (60) Durgapur, F.C.No. $N_2/13.12.79$, 13. xii. 1979, ex. "decaying log"; (61) Keralapuram, F.C.No. $N_3/13.12.79$, 13. xii. 1979, ex. "soft wood of kataphal log"; (62) Kalipur, F.C.No. $N_5/18.12.79$, 18. xii. 1979, ex. "decaying stump"; 5 vials from Lakshmipur such as—(63) F.C.No. $N_3/14.12.79$, 14. xii. 1979, ex. "Garjan log"; (64) F.C.No. $N_5/14.12.79$, 14. xii. 1979, ex. "decaying log"; (65) F.C.No. $N_5/15.12.79$, 15. xii. 1979, ex. "unknown decaying log"; (66) F.C.No. $N_2/13.12.79$, 16. xii. 1979, ex. "decaying log"; and (67) F.C.No. $N_1/19.12.79$, 19. xii. 1979, ex. "decaying log"

D. One vial from Little andaman, as follows : *T.N.Khan and Party* coll.— (68) 16 km. off Little Andaman, F.C.No. $K_1/11.10.81$, 11. x. 1981, ex. "unknown log"

Measurements, etc. (in mm) :

Imagos (deal.) (2 exs.)—Length of head to side base of mandibles 0.96-1.00; Max. width of head (with eyes) 1.25-1.28; Max. diameter of eye 0.45-0.48; Min. diameter of eye 0.40; Distance of eye from lower margin of head 0.04-0.05; Max. diameter of ocellus 0.19-0.21; Min. diameter of ocellus 0.15-0.16; Eye-ocellus distance 0.04; Max. length of postclypeus 0.19; Max. width of postclypeus 0.53; Max. length of labrum 0.34; Max. width of labrum 0.45; Length of pronotum 0.62-0.63; Width of pronotum 0.94-0.98; Length of forewing scale 0.64-0.66; Length of hindwing scale 0.52-0.53; No. of antennal segments 15.

Soldiers (10 exs.)—Length of head to side base of mandibles 1.38-1.68; Max. width of head 0.88-1.06; Max height of head 0.72-0.83; Max. length of labrum 0.15-0.24; Max. width of labrum 0.26-0.31; Length of left mandible 0.91-1.08; Min. median length of postmentum 0.86-1.02; Max. width of postmentum 0.34-0.38; Width of postmentum at waist 0.20-0.24; Max. length of pronotum 0.29-0.34 Max. width of pronotum 0.58-0.69; No. of antennal segments 13.

(c) *Distribution*— ANDAMAN ISLANDS : *South Andaman* : Port Blair, Chidyatapu, Bamboo flat, Burma Nulla, Garacharma, Wandoor, Baratang, Chouldari, Wright Myo, Havelock Island, Neil Island and Rutland Island. *Middle Andaman* : Bakultala and Long Island. *North Andaman* : Diglipur, Lakshmipur and Keralapuram. *Little Andaman* : 16 km. of Little Andaman (all present records).

Previously also recorded from *South Andaman* : Phoenix Bay, Port Blair, Cowriaghat, Humphrygunj, Ferrargunj and Wright Myo. *North Andaman* : Interview Island and Smith Island. *Little Andaman* : Tokoibuea and Kwateneabo. ELSEWHERE : None.

Remarks—This is a very common species in the islands of Andaman represented from numerous localities and is unknown so far from the Nicobars. The original description of the species was based on only soldier caste by Roonwal and Bose (1970) from the Car Nicobar island. In the present account, the dealate imago is described for the first time from the Havelock island. The inter-island populations or even populations in the same colony in some instances show some variations in colour, size, shape, etc. of the soldier caste which seem to vary within the limit of its specific range of characteristics. The coarsely serrated elongate mandibles of the soldiers keep the species distinct from all other representatives of the genus in the Andamans.

24. *Microcerotermes insularis* sp. nov.

(a) *Material* —One vial with 2 S. and 5 W., from Bakultala, Middle Andaman. P.K.Maiti and Party coll., 12.ii. 1979, F C. No. M₁₃/12.2.79, ex. "log"

Description :—

1. IMAGO—Unknown

2. SOLDIER (Fig. 6, a-d): Head-capsule light yellowish brown to blackish brown, slightly paler posteriorly; labrum yellowish brown; antennae, pronotum and legs yellowish white; mandibles blackish brown. Head very sparsely, pronotum fairly and abdomen comparatively more hairy. Body length (with mandibles, but excluding antennae) 4.50-4.60 mm.

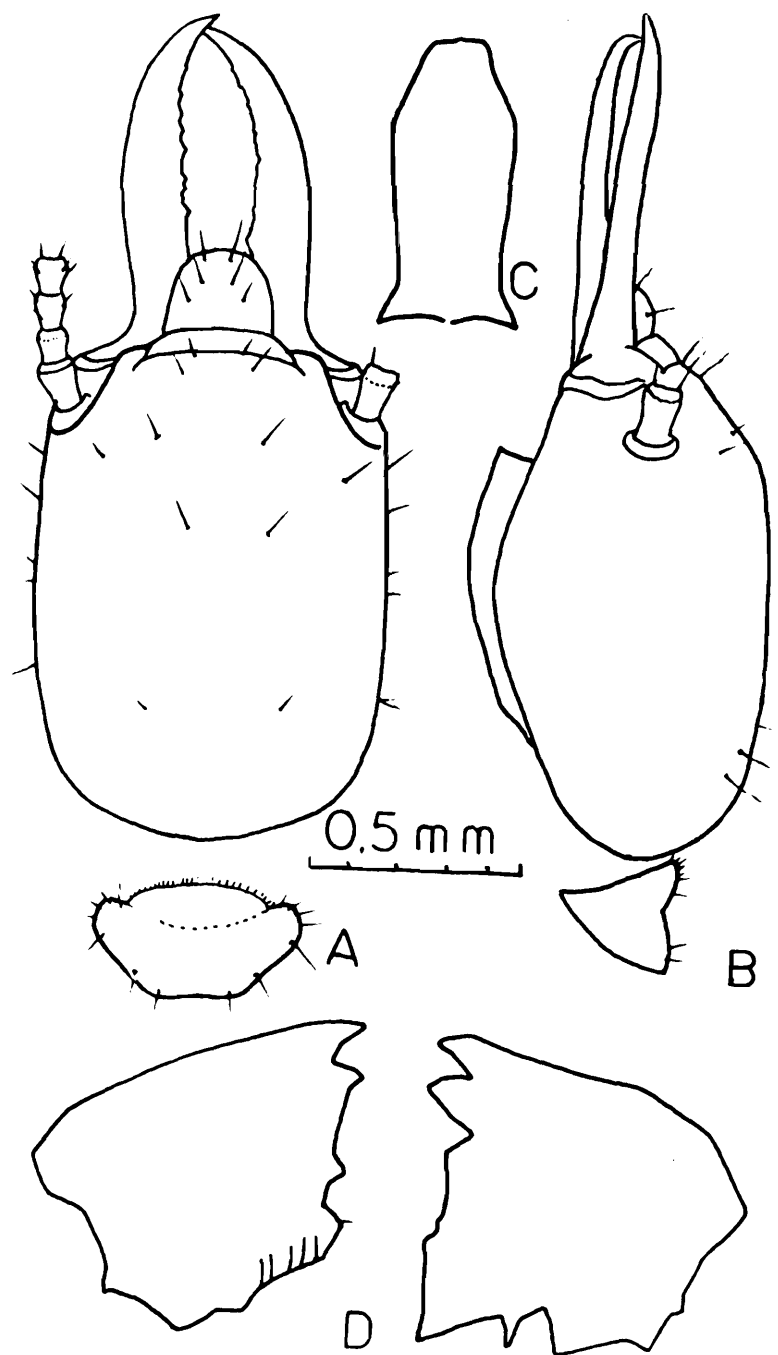


Fig. 6. *Microcerotermes insularis* sp. nov. Soldier
 A. Head and pronotum in dorsal view
 B. Head and pronotum in lateral view
 C. Pronotum; d. Worker's mandible

Head-capsule somewhat rectangular, lateral and posterior margins weakly

outcurved, one and a half times as long as broad, antero-lateral corners not so prominent and postero-lateral corners broadly rounded; Y-suture indistinct; frons sloping from anterior one-fifth. Antennae with 13 segments, segment 2 almost double the length of 3, 4 one and a half times longer than 3, 3 smallest and narrowest, 5 onwards gradually increasing in length upto the penultimate one and last one elongately oval. Postclypeus strongly chitinized, much broader than long with a few erect hairs on the anterior margin. Anteclypeus whitish, strip-like, width more than double the length and apilose. Labrum tongue-shaped, slightly wider than long, lateral margins very weakly outcurved and weakly narrowed anteriorly terminating into a rounded apex with two erect hairs below the apical margin. Mandibles very thin, with finely but distinctly serrated inner margins and with less incurved pointed apices; a prominent tooth slightly below the middle of inner margin in each mandible; as long as two-thirds of the head-length. Postmentum club-shaped, length slightly more than double the maximum width, waist only slightly more than half its maximum width at anterior one-third, anterior margin substraight and posterior margin weakly incurved.

Pronotum distinctly saddle-shaped, anterior lobe prominently raised with broadly rounded apical margin without any median notch, one and a half times as long as broad and much narrower than head-width; posterior margin substraight, entire margin with a few erect hairs along with microhairs. Legs slender and hairy; apical tibial spur formula 3:2:2.

Abdomen oblong, modertely hairy.

Measurements (in mm) etc., Soldiers (2 exs.):

	Holotype	Range (2 exs.)
Length of head to side base of mandibles	1.18	1.17-1.18
Max. width of head	0.83	0.81-0.83
Max. height of head	0.62	0.60-0.62
Head Index (Width/Length)	0.70	0.69-0.70
Max. length of labrum	0.20	0.18-0.20
Max. width of labrum	0.24	0.24
Length of left mandible	0.75	0.75-0.76
Head-mandibular length Index (Left mandible length/Head length)	0.63	0.63-0.65
Min. median length of postmentum	0.70	0.70
Max. width of postmentum	0.34	0.33-0.34

	Holotype	Range (2 exs.)
Width of postmentum at waist	0.21	0.20-0.21
Max. length of pronotum	0.30	0.29-0.30
Max. width of pronotum	0.54	0.54
Pronotum-head Index (Pronotum Width/Head width)	0.65	0.65-0.67
Pronotum Index (Length/width)	0.55	0.54-0.55
No. of antennal segments	13	13

3. WORKER : Head-capsule, labrum , antennae and pronotum yellowish brown; abdomen yellowish white. Head fairly, pronotum sparsely and abdomen moderately hairy. Total body length (excluding antennae) 3.40-4.10mm.

Head subsquarish, lateral sides slightly diverging anteriorly; posterior margin rounded. Fontanelle indistinct. Eyes and ocelli absent. Antennae with 13 segments, segment 3 smallest, almost half of either 2 or 4, 5 onwards gradually increasing in size, apical one ovate and longest. Postclypeus comparatively more chitinated, fairly swollen, divided vertically by a distinct median line and sparsely pilose. Anteclypeus narrow, strip-like, whitish, distal end projected medially and apilose. Labrum much broader than long, lateral sides outcurved and apical margin substraight with a few hairs near the tip as well as on body. Mandibles subsquarish. Left mandible with an apical and two marginal teeth; apical finger-like, 1st marginal blunt, placed close to apical; 2nd small and blunt, placed much below the 1st with a shallow incurved margin in between. Right mandible also with an apical and two marginal teeth, apical finger-like, somewhat pointed; 1st marginal subtriangular, close to and slightly smaller than apical; 2nd marginal much smaller, blunt and close to 1st marginal with long posterior margin; molar plate large with oblique crenulations.

Pronotum strongly saddle-shaped, much broader than long, anterior lobe distinctly round without any median notch; posterior margin convex without any median emargination. Legs fairly pilose, apical tibial spur formula 3: 2: 2.

Abdomen oblong fairly pilose.

Measurements (in mm) of workers (5 exs.)

Length of head to side base of mandibles	0.69-0.75
Max. width of head	0.76-0.80
Maximum height of head	0.38-0.42

Maximum length of labrum	0.26-0.28
Maximum width of labrum	0.34-0.35
Maximum length of pronotum	0.14-0.17
Maximum width of pronotum	0.38-0.42

Type-specimens : All type-specimens, in spirit, from a single vial, with same data as given under "Material" deposited in Z.S.I., Calcutta, as follows :

(a) *Holotype* : 1 Soldier, in a vial (Z.S.I. Reg. No. 3178/H₁₁). and (b) *Paratype* 1 Soldier and *Paramorphotypes* 5 workers, in a vial (Z.S.I. Reg. No. 3179/H₁₁).

Type-locality— Bakultala, Middle Andaman.

Distribution : So far known only from the type-locality

Comparison— *Microcerotermes insularis* sp. nov. is close to *M. minutus* Ahmad from Thailand, *M. minor* Holmgren from India and Sri Lanka, *M. heimi* Wasmann from India and Sri Lanka, *M. tenuignathus* Holmgren from India; and *M. biswanathae* sp. nov. (vide under this species) from the Andaman; but differs from them by the characters of the Soldiers as follows :—

From : *M. minutus* : (i) Head larger, length 1.17-1.18 mm, width 0.81-0.83 mm (*vs.* head smaller, length 1.09 mm, width 0.67 mm.) (ii) Mandible much longer than half the head-length, head-mandibular index (Mandible length/head length) 0.64; mandible finely serrated (*vs.* mandible only slightly longer than half the head-length, head-mandibular index 0.52; mandible finely serrated) (iii) Head very sparsely hairy (*vs.* densely hairy).

From *M. minor* : (i) Mandibles thin, uniformly outcurved from base to apices (*vs.* mandibles fairly thick and outcurved only towards the apices). (ii) Head sparsely hairy (*vs.* densely hairy). (iii) Apical margin of labrum rounded (*vs.* acuminate) (iv) Postmentum slightly different in shape.

From *M. heimi* : (i) Mandibles regularly outcurved, and finely serrated (*vs.* somewhat straight and finely serrated) (ii) Postmentum much constricted at waist, maximum width on apical third (*vs.* not so constricted rather wider; maximum width below the apical third). (iii) Labrum dome shaped (*vs.* transversely rectangular). (iv) Smaller species (*vs.* larger species).

From *M. tenuignathus* : (i) Mandibles shorter, finely serrated, uniformly outcurved and less incurved apices (*vs.* mandibles much longer, finely serrated,

somewhat straight and with strongly hooked apices). (ii) Labrum dome-shaped (vs. pentagonal). Postmentum at waist much narrower (vs. wider). (iv) Head sparsely hairy (vs. moderately densely hairy).

25. *Microcerotermes nicobarensis* Roonwal and Bose

Microcerotermes nicobarensis Roonwal and Bose :

1970. Roonwal and Bose *Rec. zool. Surv. India*, **62** (3-4) : 146-154, Im. S. and W.,
Type-locality : Arong village, Car Nicobar, India.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 101, S.W., Andamn and Nicobar Isl.

Material —

(i) *Unidentified*: Ten vials with S. and W. from Nancowry and Great Nicobar Islands, as follows :

A. Five vials from Great Nicobar Island such as—*P. K. Maiti and Party* coll.— 3 vials from Magar Nulla, (1) F.C, No. 1,29. xii 1975, ex. "carton nest"; (2) F.C, No. 2, 27 xii 1975, ex. "carton nest on top of a small stump"; and (3) F.C, No. 3, 27 xii 1975, ex. "carton nest adpest on a stump" (4) Rajendra Nagar, F.C, No. 26, ex. "dead stump" *B. Nandi and Party* coll.— (5) Deshmukh Nagar, F.C, No. 3/N_{2a}, 27.xi.1978, ex. "stump"

B. Five vials fom Nancowry group of Islands, such as— *P. K.Maiti and Party* coll.— 2 vials from Kamorta. (6) F.C, No. 2, 24.xii.1975, ex. "gallery on *Casuarina* tree" and (7) F.C. No. 3, 24.xii.1975, ex. "dead stu np" *B. Nandi and Party* coll.— (8) Kamorta, F.C, No. 1/N_{2b}, 13.xi.1978, ex. "Rain tree log" *T.N. Khan and Party* coll.— 2 vials from Nancowry, such as -(9) F.C, No. K₃/6.8.80 6.viii. 1980, ex. "carton nest" and (10) F.C, No. K₂₀/6.8.80, 6.viii.1980, ex. "unknown log"

(ii) *Identified* : One vial with Im., S., W. and Ny. from Ross Island, South Andaman, *K. K. Tiwari* coll., 14.iii 1959, F.C. No. 622.

Measurements, etc. (in mm) :

Imagos (5 exs.)—Length of head to side base of mandibles 0.80-0.88; Max. width of head (with eyes) 0.90-0.97; Max. diameter of eye 0.25-0.26; Min. diameter of eye 0.22-0.23; Max. diameter of ocellus 0.06-0.09; Min. diameter of ocellus 0.05-0.07; Eye-ocellus distance 0.08-0.10; Max. length of postclypeus 0.23-0.27; Max. width of postclypeus 0.50-0.53; Max. length of labrum 0.18-0.23; Max.

width of labrum 0.33-0.48; Length of pronotum 0.45-0.46; Width of pronotum 0.60-0.68; Length of forewing with scale 7.30-7.70; Length of forewing scale 0.35-0.40; Length of hindwing with scale 6.80-7.00; Length of hindwing scale 0.33-0.38; No. of antennal segments 14.

Soldiers (10 exs.)—Length of head to side base of mandibles 1.53-1.72; Max. width of head 1.03-1.05; Max height of head 0.81-0.85; Max. length of labrum 0.24-0.26; Max. width of labrum 0.34-0.36; Length of left mandible 0.81-0.96; Min. median length of postmentum 1.00-1.09; Max. width of postmentum 0.34-0.38; Width of postmentum at waist 0.23-0.24; Max. length of pronotum 0.35-0.38; Max. width of pronotum 0.63-0.68; No. of antennal segments 13.

(c) *Distribution*— ANDAMANS AND NICOBAR ISLANDS : *Nicobaris* : Kamorta and Nancowry. *Great Nicobar Island* : Campbell Bay, Rajendra Nagar, Deshmukh Nagar and Magar nulla (all present records).

Previously also recorded from *South Andaman* : Port Blair and Ross Island. *Car Nicobar* : Arong village, Kamorta. *Great Nicobar Island* : Galathea Bay and Campbell Bay. ELSEWHERE : None.

(d) *Remarks*—It is predominantly a Nicoborese species, but only found in a single occasion in the Ross Island, South Andaman. The species can easily be distinguished from all other species of the genus found in these island in having large head-capsule with relatively shorter mandibles in the soldier caste.

26. *Odontotermes latigula* (Snyder)

1. *Termes* (*Cyclotermes*) *latigula* Snyder :

1934. Snyder, *Indian Forest Rec.*, **20** (11) : 9-10, S., *Type-locality*: North Andamans.

2. *Odontotermes* (*Odontotermes*) *latigula* Snyder :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 232.

3. *Odontotermes latigula* Snyder:

1958. M. Ahmad, *Biologia*, **4** (1-2) : 106 (key).

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4) : 155-156, S., Andamans and Nicobars.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4): 102-104, Im., Smith Island, North Andaman.

Material —

(i) *Unidentified* : Two vials with S. and W. from Chidyatapu, South Andaman, P.K.Maiti and Party coll., such as— (1) 8.i.1976, ex. "mud plaster on log" (2) 9.i. 1976, ex. "soil"

(ii) *Identified* : One vial with Im. S. and W. Smith Island, North Andaman, B.K. Tikadar coll., 27.iv. 1971, ex. "Mound"

Measurements (in mm) :

Imagos (2 exs.)—(after, Bose, G. 1980) Length of head to side base of mandibles 1.80-1.82; Max. width of head 2.52-2.55; Max. diameter of eye 0.64-0.68; Min. diameter of eye 0.60-0.61; Max. diameter of ocellus 0.33-0.38; Min. diameter of ocellus 0.28-0.32; Eye-ocellus distance 0.15-0.23; Max. length of postclypeus 0.40-0.45; Max. width of postclypeus 1.05-1.15; Max. length of labrum 0.50-0.53; Max. width of labrum 0.83-0.90; Length of pronotum 1.23-1.30; Max width of pronotum 2.25-2.30; Length of forewing with scale 22.00-22.50; Length of forewing scale 1.00-1.10; Length of hindwing with scale 20.60-20.65; Length of hindwing scale 1.00-1.05; No. of antennal segments 19.

Soldiers (10 exs.)—Length of head to side base of mandibles 1.14-1.30; Width of head at side base of mandibles 1.03-1.15; Length of left mandible 0.74-0.82; First marginal tooth distance from the tip of left mandible 0.25-0.28; Length of postmentum 0.72-0.76; Max. width of postmentum 0.58-0.63; Length of pronotum 0.50-0.58; Width of pronotum 0.76-0.88; No. of antennal segments 16.

27 *Odontotermes paralatigula* Chatterjee and Sen-Sarma

Odontotermes paralatigula Chatterjee and Sen-Sarma :

1962. Chatterjee and Sen-Sarma, *J. Bombay nat. Hist. Soc.* **59** (3) : 822-826, S.,
Type-locality : Burma : Hlegu Range, Insein Forest Division.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 104-105, S. and W., S. Andaman.

Material —127 vials with sev. S. and W. from Andaman, as follows :—

A. 97 vials with sev. S. and W. from South Andaman, as follows: — *P.K. Maiti and Party* coll.—15 vials around Port Blair, such as— (1) South Point, F.C.No.3, 17.xii.1975, ex. "under log"; (2) Marina Hill, F.C.No. 8, 16.xii.1975, ex. "under log"; (3) South Point F.C. No. 4, 17.xii.1975, ex. "mud plaster on tree trunk"; (4) Bamboo flat, F.C.No. 2, 19.xii.1975, ex. "decaying log"; (5) Monglutan, F.C.No. 1, 18.xii. 1975; ex "Mound"; (6) Marina Hill, F.C.No. 1, 16.xii.1975, ex. "under log" 2 vials from Garacharma, such as— (7) F.C.No. $M_6/18.8.79$, 18.viii.1979 ex. "unknown stump" and (8) F.C.No. $M_{12}/18.8.79$ 18.viii. 1979, ex. "unknown log"; Two vials from Junglighat, such as- (9) F.C.No. $M_4/27.7.78$, 27.vii. 1978, ex. "under bark of Garjan log" and (10) F.C.No. $M_5/27.7.78$, 27.vii. 1978 ex. "wood"; (11) Bidnabad F.C.No. $M_3/24.9.79$, 24.ix.1979, ex. "unknown log"; (12)

Austinabad, F.C.No. $M_{1a}/27.7.78$, 27.vii.1978, ex. "Tompeing log"; (13) Haddo, F.C.No. $M_2/23.7.78$, 23.vii. 1978, ex. "Mangustin log with mud plaster"; (14) Nayasahar, F.C.No. $M_4/17.8.79, 17.viii.1979$, ex. "under bark of unknown log"; (15) Bimlilton, F.C.No. $M_1/22.8.79$, 2.viii. 1979 ex. "unknown log" Seven vials from Chidyatappu, such as— (16) Kudyaghat, F.C.No. 1, 11. i. 1976, ex. "earthen plastering on tree trunk"; (17) Manjari, F.C.No. 9, 8. i. 1976, ex. "decaying log"; (18) Kudyaghat, F.C.No.2, 11.i.1976, ex. "decaying log"; (19) Manjari, F.C.No. 5, 8.i.1976, ex. "mud plastering on a log"; (20) Manjari, F.C.No. 7, 12.i.1976, ex. "dead stump"; (21) Kudyaghat, F.C.No. 3, 11.i.1976, ex. "dead stump"; (22) Mundapahar, F.C.No. 6, 10.i.1976, ex. "Mound" One vial from Rutland Island, such as— (23) Kalapahar, F.C.No. 5, 9.i.1976, ex. "mud plaster on log"; (24) Chouldari, 26.vii.1978, ex. "Rain tree" *B. Nandi and Party* coll.— 22 vials around Port Blair, such as—(25) Haddo, 20.12.78, ex. "Papita log"; (26) Diltaman, 3.11.79, ex. "Badam log"; (27) Junglighat, 25.12.78, ex. "Papita log"; (28) Line Dera, 21.12.78, ex. "Papita log"; (29) Diltaman tank area, 30.12.78 ex. "Jamun tree"; (30) Diltaman tank area, 2.1.79, ex. "Jamun tree"; (31) Premnagar, 19.12.78 ex. "Papita log"; (32) Junglighat, 23.12.78, ex. "Garjan log" (33) Pahargaon., F.C.No. $N_1/4.12.79$, ex. "Rain tree log"; (34) Pahargaon, F.C.No. $N_3/4.12.79$, ex. "Jungli Aam log"; (35) Diltaman tank, 27.12.78, ex. "Jamun tree"; (36) Diltaman tank 24.12.78, ex. "jamun tree"; (37) New Wandoor, 22.12.78, ex. "Papita log"; (38) Line Dera, 21.12.78, ex. "Papita log"; (39) Haddo, 26.12.78, ex. "Badam tree"; (40) Junglighat, 18.12.78, ex. "Papita log"; (41) Haddo, 26.12.78, ex. "Badam tree"; (42) Junglighat 25.12.78, ex. "Papita log"; (43) New Wandoor, 22.12.78 ex "Papita log"; (44) Corbyn's Cove, 31.12.78, ex. "Jamun tree"; (45) Haddo, 20.12.78, ex. "Papita log"; (46) Junglighat, 23.12.78, ex. "Papita log" 6 vials from Chouldari, such as— (47) F.C.No. $N_1/27.12.79$, ex. "White Dhup log"; (48) F.C.No. $N_1/11.1.80$, "Jungli Aam"; (49) F.C.No. $N_2/11.1.80$, ex. "Tompieng log" 5 vials from Chidyatapu, such as— (50) F.C.No. $N_3/10.1.80$, ex. "unknown log" (51) F.C.No. $N_3/16.1.80$, ex. "Garjan log"; (52) F.C.No. $N_4/16.1.80$, ex. "Jungli Aam log"; (53) F.C.No. $N_2/16.1.80$, "Papita stump"; (54) F.C.No. $N_1/10.1.80$, ex. "unknown stump" 3 vials from Baratang, such as—(55) 31.12.78, ex. "unknown log"; (56) F.C.No. $N_2/30.12.79$, ex. "Pyenma log"; (57) F.C.No. $N_{10}/11.12.79$, ex. "unknown log"; (58) F.C.No. $N_3/11.1.80$, ex. "unknown log"; (59) F.C.No. $N_2/27.12.79$, ex. "unknown log" *S.K.Chakraborty and Party* coll.—1979—Delanipur, Port Blair, F.C.No. $C_{2c}/22.5.79$, ex. "scar on Badam log above soil" 2 vials from Neil Island, such as— (61) F.C.No. $C_{5a}/25.5.79$, ex. "under bark of a log above soil" (62) F.C.No. $C_{5b}/25.5.79$, ex. "Mound" 2 vials from Havelock Island. such as— (63) F.C.No. $C_{4a}/2.6.79$, ex. "under bark of a decaying papita tree" (64) F.C.No. $C_8/12.6.79$, ex. "Mound" 2 vials from Baratang, such as—(65) F.C.No. $C_3/16.6.79$, ex. "decaying log"; (66) F.C.No. $C_4/16.6.79$, ex. "Mound at the base of a tree" *B.Nandi and S.K. Chakraborty* coll. 1981— 3 vials around Port Blair, such as— (67) Fishery Jetty, F.C.No. $N_4/4.10.81$, ex. "dry and decayed branch of unknown tree"; (68) Radio colony F.C.No. $N_1/5.10.81$, ex. "under mud plaster over a fencing post".; (69) Corbyn's Cove, F.C.No. $N_3/6.10.81$, ex. "decaying guava branch

on soil" 2 vials from Mathura, such as—(70) F.C.No. $N_4/7.10.81$, ex. "log on soil"; (71) F.C.No. $N_6/7.10.81$, ex. "under bark of decaying log" 3 vials from Ferrargunj., such as—(72) F.C.No. $N_4/9.10.81$, ex. "decaying log"; (73) F.C.No. $N_4/10.10.81$, ex. "under mud plaster on a log"; (74) F.C.No. $N_8/10.10.81$, ex. "decaying log" 4 vials from Chouldari, such as—(75) F.C.No. $N_6/11.10.81$, ex. "mud plaster on dead stump"; (76) F.C.No. $N_7/11.10.81$, ex. "dead stump" (77) F.C.No. $N_{8a}/11.10.81$, ex. "felled log"; (78) F.C.No. $N_{11}/11.10.81$, ex. "mud plaster on a log" 6 vials from Chidyatapu, such as— (79) F.C.No. $N_2/15.10.81$, ex. "mud plaster on a fallen branch"; (80) F.C.No. $N_2/16.10.81$, ex. "log lying on soil"; (81) F.C.No. $N_4/16.10.81$, ex. "gallery on a standing dead tree"; (82) F.C.No. $N_6/18.10.81$, ex. "mud plaster on a twig"; (83) F.C.No. $N_7/18.10.81$, ex. "decayed trunk"; (84) F.C.No. $N_{10}/18.10.81$, ex. "Mound" 2 vials from Rutland Island,, such as—(85) F.C.No. $N_9/19.10.81$, ex. "mud plaster on a fallen twig"; (86) F.C.No. $N_{3b}/19.10.81$, ex. "decayed stump" 5 vials from Wright, Myo, such as— (87) F.C.No. $N_3/22.10.81$, ex. "under mud plaster on fallen twig" (88) F.C.No. $N_4/22.10.81$, ex. "under mud plaster on fallen branch" (89) F.C.No. $N_5/23.10.81$, ex. "under mud plaster on a fallen twig"; (90) F.C.No. $N_4/24.10.81$, ex. "mud plaster on a fallen twig"; (91) F.C.No. $N_{7a}/24.10.81$, ex. "mud plaster on a fallen branch"; (92) F.C.No. $N_{7a}/24.10.81$, ex. "mud plaster on a fallen Padank branch". *T.N. Khan and Party* coll. 1980-1981-(93) Kalating, F.C.No. $K_3/4.9.80$, ex. "unknown creeper"; (94) Wright Myo, F.C.No. $K_1/23.10.81$, ex. "Padank log" *B. Mitra* coll.—1980 (95) Dhanikari forest, F.C.No. $B_3/6.4.80$, ex. "dead tree" *R.M. Sharma and Party* coll. 1982.—3 vials from Rutland island, such as—(96) Barakhari, coll. No. 8(2909), 21.1.82; (97) Barakhari, coll. No. 9(2910), 21.1.82, (98) Ghasnala, coll. No. 62(2915), 22.1.82.

B. 12 vials from Middle Andaman as follows :—

P.K.Maiti and Party coll.—1979. 4 vials from long Island, such as—(99) F.C.No. $M_1/8.2.79$, ex. "Coco log"; (100) No. $M_2/8.2.79$, ex. "Coco log" (101) F.C.No. $M_4/8.2.79$, ex. "Coco log" (102) F.C.No. $M_6/9.2.79$, ex. "Badam log" 6 vials from Bakultala, such as— (103) F.C.No. $M_1/11.2.79$, ex. "decaying log" (104) F.C.No. $M_3/11.2.79$ ex. "dead log"; (105) F.C.No. $M_2/12.2.79$, ex. "dead stump"; (106) F.C.No. $M_{13}/12.2.79$, ex. "log"; (107) F.C.No. $M_1/13.2.79$, ex. "Jungli late cock log"; (108) F.C.No. $M_2/13.2.79$, ex. "Late cock log" *B. Nandi and Party* coll.— 1979. (109) Rangat, F.C.No. $N_3/7.12.79$, ex. "decaying coco log" (110) Bakultala, F.C.No. $M_2/8.12.79$, ex. "decaying log"

C. 17 vials from North Andaman, as follows :—

P.K.Maiti and Party coll.— 1979. 3 vials from Aerial Bay such as—(111) F.C.No. $M_1/20.1.79$, ex. "dead stump"; (112) F.C.No. $M_2/22.2.79$, ex. "log"; (113) F.C.No. $M_1/19.2.79$, ex. "under bark of Garjan log" *B. Nandi and party* coll.— 7 vials around Diglipur, such as— (114) Sita Nagar, F.C.No. $N_2/12.12.79$, ex.

"decaying log"; (115) Kalipur, F.C.No. N₅/18.12.79, ex. "decaying stump"; (116) Durgapur, F.C.No. N₂/13.12.79 ex. "decaying log"; (117) Rabindrapalli, F.C.No. N₅/11.12.79, ex. "decaying log"; (118) Sitanagar, F.C.No. N₃/12.12.79, ex. "decaying log" (119) Durgapur, F.C.No. N₁/13.12.79, ex. "decaying log"; (120) Rabindrapalli, F.C.No. N₃/10.12.79, ex. "stump" 4 vials from Lakshmipur, such as—(121) F.C.No. N₁/23.12.79, ex. "TOMPIENG log"; (122) F.C.No. N₃/15.12.79, ex. "decaying log"; (123) F.C.No. N₅/19.12.79, ex. "decaying log"; (124) F.C.No. N₅/14.12.79, ex. "decaying log"; 4 vials from Smith Island, such as— (125) F.C.No. N₁/20.12.79, ex. "decaying log"; (126) F.C.No. N₄/22.12.79, ex. "decaying log"; (127) F.C.No. N₈/22.12.79, ex. "decaying log"; (128) F.C.No. N₆/28.12.79, ex. "decaying stump"

Measurements (in mm) :

Soldiers (10 exs.).—Length of head to side base of mandibles 1.20-1.48; Max width of head 1.10-1.38; Length of left mandible 0.74-0.91; First marginal tooth distance from the tip of left mandible 0.25-0.34; Length of postmentum 0.78-0.95; Max. width of postmentum 0.63-0.72; Length of pronotum 0.54-0.68; Width of pronotum 0.86-1.02; No. of antennal segments 17

Distribution : South Andaman : Area around Port Blair, Rutland Island, Neil Island, Havelock Island, Chidyatapu, Ferrargunja etc. (vide material). Middle Andaman : Rangats, Bakultala, Long Island. North Andaman : Area around Diglipur Lakshmipur and Smith Island (all present record).

Previously recorded from Humphrygunj, Ferrargunj and Monglutan (S. Andaman) ELSEWHERE. Burma.

28. *Pericapritermes buitenzorgi* (Holmgren)

1. *Capritermes (Capritermes) buitenzorgi* Holmgren:

1914. Holmgren, Zool. jb. (Syst.) **36** (2-3) : 280 S. and W. Type localities : Java (Tjibodas) and Malacca (Tandjong, Stamat).

1934. Kemner, K. Sv. Vet. Akad. Handl., (3) **13** (4) : 175-178, Western Java.

1949. Snyder, Smiths. misc. Coll. **112** : 192, Java and Malay Peninsula.

2. *Capritermes (Capritermes) approximatus* Kemner:

1914b. Kemner, Zool. Jb. (Syst.) **36** (2-3) 283, Im. Type-locality: Buitenzorg (=Bogor, W. Java).

3. *Pericapritermes buitenzorgi* Holmgren :

1968. Krishna, *Bull Amer. Mus. nat. Hist.* **138** (5) : 294 (new combination).

(a) *Material*—One vial with 3 S. and sev. W. from Mundapahar, Chidyatapu, S. Andaman, P.K. Maiti and Party coll. F.c. No. 5, 10.i.1979, ex. "under log"

Measurements (in mm) :

Soldiers (3 exs.)—Length of head to side base of mandibles 2.10-2.38; Max. width of head 1.24-1.34; length of left mandible 1.48-1.58; Max. length of labrum 0.19-0.20; Max. width of labrum 0.26-0.32; Max. length of postmentum 1.30-1.40; Max. width of postmentum 0.42-0.45; Min. width of postmentum 0.21-0.24; Length of pronotum 0.32-0.34; Width of pronotum 0.72-0.80.

Distribution—ANDAMAN ISLANDS : *South Aandaman* , Mundapahar (present record). *Elsewhere* : Indonesia ; Java Bogor, West Java; Peutjang Isl., near western tip of Java, Java Sea; Malaya Peninsula; Malacca (Tandjong, Slamati).

Remarks—The species was found under log in the humid forest floor, but it did neither penetrate the wood nor spread in the adjoining soil. Gradually, the species proves to be a fairly widely distributed species in the Orient.

29. *Nasutitermes haddoensis* sp. nov.

(a) *Material* —One vial with sev. S. and W. from Zoo Garden, Haddo, Port Blair, South Andaman, B.Nandi and S.K. Chakraborty coll. 4.x. 1981, F.C.No. N₆/4.10.81, ex. "earthen gallery on a tree trunk"

(b) *Description* :—

1. IMAGO—Unknown

2. SOLDIER (Fig. 7, a-c): Head pale brown to dark brown, base of rostrum and posterior part of head paler; antennae pale brown; pronotum yellowish brown, anterior lobe darker; legs yellowish white; pronotum with a few minute hairs; abdominal tergites with a few microhairs; sternites and legs densely pilose. Total body length (including rostrum, but excluding antennae) 3.53-3.62 mm.

Head without rostrum subcircular, almost as long as broad, posterior margin rounded; in profile, posterior head bulge fairly developed and dorsal margin substraight with rostral hump. Rostrum conical and thick, much more than half the head-length with a pair of erect hairs at the anterior tip as well as at the base of rostrum. Fontanelle gland and tube prominent. Antennae with 12-13 segments; in 13 segment antenna, segment 2 slightly shorter than 3, 3 twice

as long as 4, 4 shortest; 5 onwards slightly gradually increasing in length; in 12 segment antennal, segment 5 and 2 shortest. Mandibles vestigial, each with a short spine-like apical process, placed almost at the middle of its length; margin between apical processes and molar plates almost straight; molar area slightly darker and weakly convex.

Pronotum strongly saddle-shaped; width double its length and almost half the width of head-capsule; anterior lobe highly raised with rounded anterior

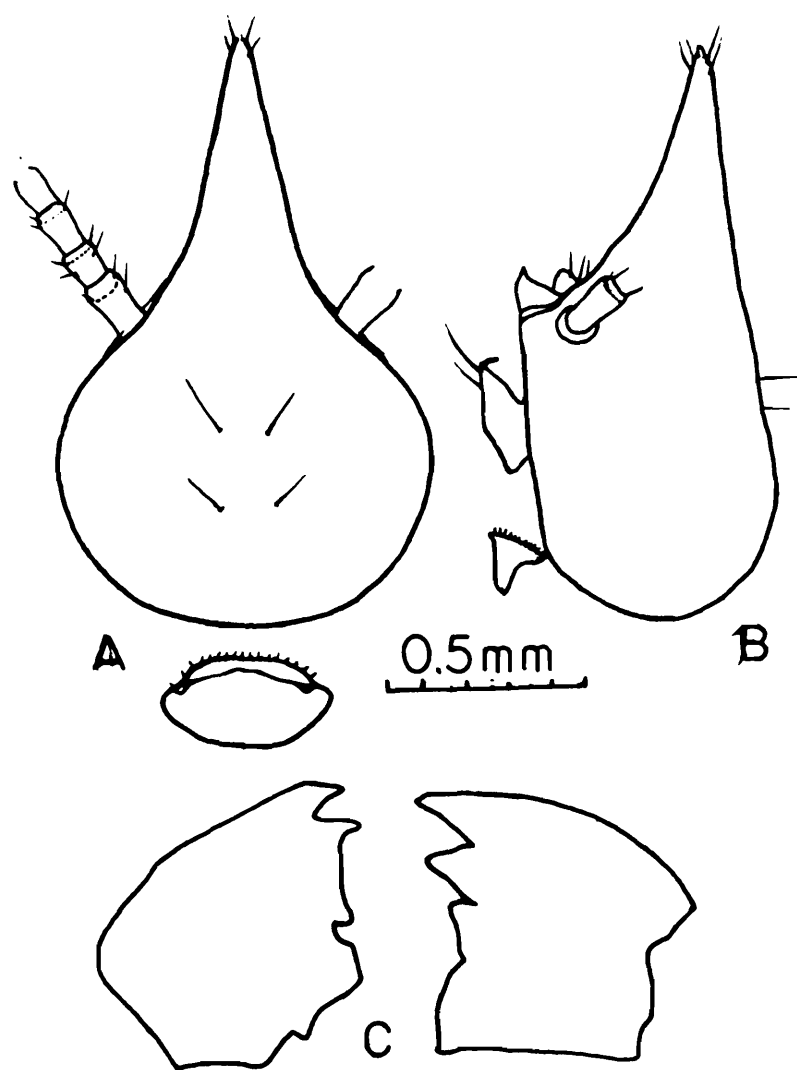


Fig. 7. *Nasutitermes haddoensis* sp. nov. Soldier
A. Head and pronotum in dorsal view
B. Head and pronotum in lateral view
C. Worker's mandible

margin fringed with microhairs and without any median notch; lateral margins weakly outcurved and diverging anteriorly; posterior margin rounded without any distinct emargination. Legs short, apical tibial spur formula 2:2:2.

Abdomen oblong, cerci 2-jointed. Styli absent.

Measurements (in mm) etc., Soldiers

	Holotype	Range (10 exs.)
Length of head with rostrum	1.52	1.45-1.52
Length of head without rostrum	0.93	0.90-0.93
Length of rostrum	0.59	0.55-0.59
Max. width of rostrum	0.25	0.24-0.25
Max. width of head	0.91	0.86-0.92
Max. height of head	0.63	0.57-0.63
Head Index (Width/Length without rostrum)	0.98	0.95-0.99
Head Rostrum Index (Rostrum Length /Length of head without rostrum)	0.63	0.61-0.63
Max. length of Pronotum	0.19	0.14-0.23
Max. width of Pronotum	0.45	0.45-0.46
Pronotum-head Index (Pronotum Width/Head width)	0.49	0.49-0.52
No. of antennal segments	12	12-13

3. WORKER : Head-capsule yellowish brown; antennae, labrum, pronotum and legs yellowish white. head and pronotum sparsely and abdomen somewhat densely hairy. Total body length (excluding antennae) 3.30-3.50mm.

Head subsquarish, slightly wider than long; lateral margins weakly diverging anteriorly; posterior margin subround; y-suture distinct. Fontanelle plate whitish, translucent and situated almost at the middle. Antennae with 12-13 segments in specimens with antennae 13 segments, segment 2 and 4 subequal, 3 smallest. in specimen with 12 segments, 2 shortest. Postclypeus strongly swollen, pilose and divided medially into equal halves by an indistinct median line. Anteclypeus trapezoidal, whitish and apilose. Labrum slightly broader than long with a few hairs on the body. Mandibles of typical *Nasutitermes* —type. Left mandible with an apical and two marginal teeth, apical one conical, 1st marginal pointed and longer than 2nd, 2nd placed much below the 1st. Right mandible also with an apical and two marginal teeth; apical larger than 1st marginal, 1st marginal conical and larger than 2nd, 2nd with longer posterior margin; molar area long with distinct crenulations.

Pronotum strongly saddle-shaped, anterior lobe highly raised, anterior margin rounded with a weak median notch; antero-lateral corners narrowly rounded; posterior margin broadly rounded with indistinct emargination. Legs thin, long and pilose; apical tibial spur formula 2:2:2.

Abdomen oblong, hairy; cerci 2-jointed ; styli absent.

Measurements (in mm) of workers (5 exs.)

Length of head to side base of mandibles	0.90-0.94
Max. width of head	1.04-1.08
Maximum height of head	0.48-0.55
Maximum length of labrum	0.24-0.30
Maximum width of labrum	0.43-0.48
Maximum length of pronotum	0.24-0.28
Maximum width of pronotum	0.53-0.57

Type-specimen : All type-specimens, in spirit, from a single source, with same data as given under 'Material' deposited as follows:

(i) *Holotype* : Holotype Soldier in a vial (Z.S.I. Reg. No. 3130/H₁₁) deposited in Z.S.I., Calcutta.

(ii) *Paratypes and Paramorphotypes* (i) Paratypes 5 Soldiers and Paramorphotypes 5 Worker in a vial (Z.S.I. Reg. No. 3181/H₁₁) deposited in Z.S.I., Calcutta, (ii) Paratypes 2 S. and Paramorphotypes 2 Workers, in a vial, deposited in F.R.I., Dehra Dun. Rest of the material kept as *holotype-lot* in Z.S.I.

Type-locality.— Zoo Garden, Haddo, Port Blair, south Andaman.

Distribution : Known only from the type-locality.

Comparison— This species is close to *N.krishna* Roonwal and Bose from South Andaman; *N. emersoni* Snyder from Sundarban, India and *N. triloki* Bose from South Andaman, but differs from them in the characters of Soldiers as follows :

1. From : *N. krishna* : (i) Smaller species, head with rostrum 1.45-1.52mm (*vs.* larger species, head with rostrum 1.45-1.63 mm). (ii) Rostrum conical, thick and short with distinct basal hump (*vs.* rostrum subcylindrical to subconical, slender, long and without any basal hump). (iii) Head-capsule devoid of any distinct hairs (*vs.* with several distinct short hairs.)

2. From *N. emersoni* : (i) Smaller species, head with rostrum 1.45-1.52 mm (vs. larger species, head with rostrum 1.53-1.70 mm). (ii) Rostrum with distinct basal hump (vs. without any basal hump). (iii) Head-capsule without hairs (vs. sparsely hairy).

3. From *N. triloki* : (i) Head pale brown to dark brown (vs. pale yellow to light brownish yellow). (ii) In profile, rostrum thick, dorsal margin substraight with a distinct basal hump (vs. rostrum slender, dorsal margin shallowly incurved to substraight, with a faint basal hump). (iii) Head-capsule without hairs (vs. with numerous short and 1—3 pairs of long bristles). (iv) Antennae with 13 segments, segment 4 shortest (vs. with 12 segments, segment 3 shortest).

30. *Nasutitermes devrayi* sp. nov.

(a) *Material* —Two vials with sev. S. and W. from the Great Nicobar Island, M.K. Dev ray coll., as follows. (i) Campbell Bay, F.C. No. 1, 26.ix. 1983, ex. "decaying wood"; (ii) Bragi Farm, 1.x. 1983, ex. "decaying wood"

(b) *Description* :—

1. IMAGO—Unknown

2. SOLDIER (Fig. 8, a-c): Head-capsule yellowish brown, rostrum dark brown, antennae yellowish brown; pronotum light yellowish brown, anterior lobe darker; legs pale yellowish. Head sparsely covered with very minute hairs and a few long erect hairs, abdominal tergites with several microhairs and rows of erect hairs on the posterior margins, sternites densely pilose; legs pilose. Total body length (including rostrum, but excluding antennae) 3.00-3.43 mm.

Head without rostrum oval, longer than broad, posterior margin substraight with a weak median depression. In profile, rostrum much depressed than the rest of head with a very low hump at the base, dorsal margin of head-capsule convex, posterior head bulge fairly developed. Rostrum conical and thick, as long as half the length of head without rostrum, tip with a tuft of short hairs. Fontanelle gland and tube distinct. Antennae with 12 segments; segment 2 slightly longer than 3, 2 and 4 subequal, 3 shortest; 5 onwards gradually increasing in length. Mandible vestigial, each with a short spine-like apical processes, placed almost at the middle of its anterior margin; between apical processes and molar plates weakly concave; molar area slightly darker and weakly convex.

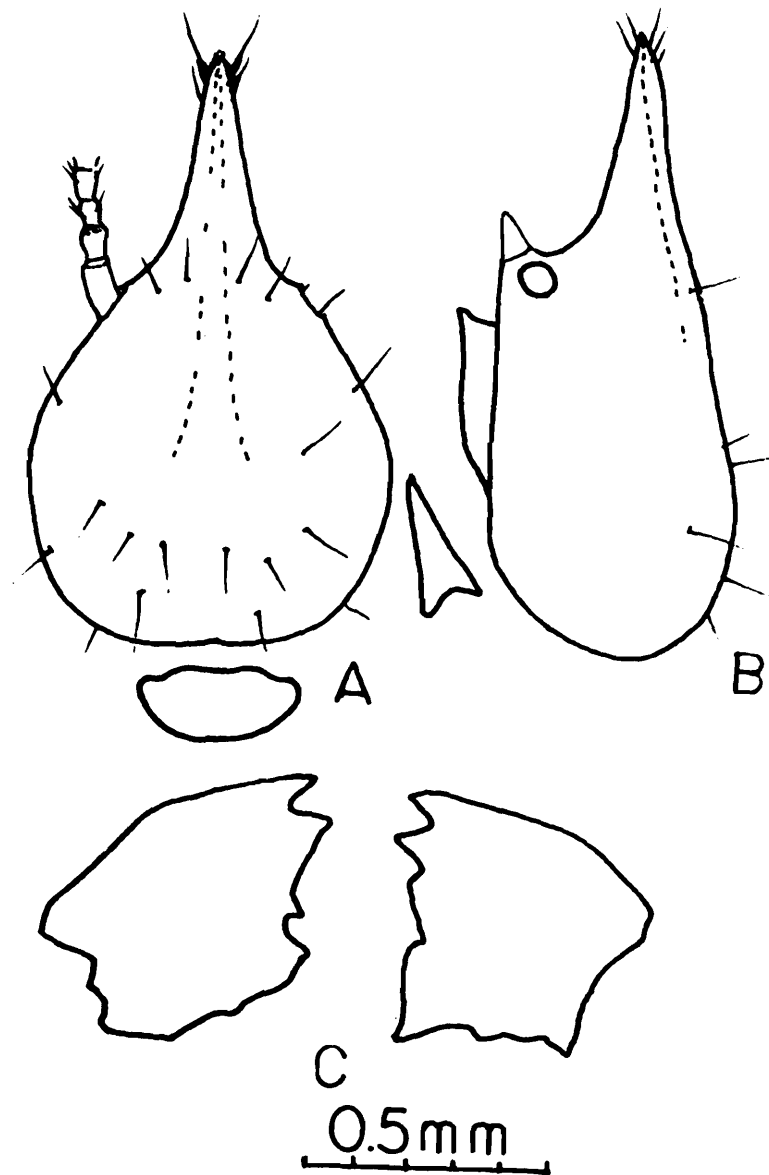


Fig. 8. *Nasutitermes devrayi* sp. nov. Soldier
 A. Head and Pronotum, in dorsal view
 B. Head and pronotum, in lateral view
 C. Worker's mandibles.

Pronotum strongly saddle-shaped; width double its length and half the width of head-capsule; anterior lobe highly raised, anterior margin subround with a weak median emargination, and fringed with minute hairs; lateral margins weakly outcurved and diverging anteriorly, posterior margin rounded without any distinct emargination, with minute hairs; disc with very a few erect hairs. Legs short, apical tibial spur formula 2:2:2.

Abdomen oblong; cerci 2-jointed. Styli absent

Measurements (in mm) etc., Soldiers

	Holotype	Range (10 exs.)
Length of head with rostrum	1.32	1.24-1.32
Length of head without rostrum	0.89	0.84-0.89
Length of rostrum	0.43	0.38-0.43
Max. width of rostrum	0.20	0.20
Max. width of head	0.80	0.70-0.80
Max. height of head	0.58	0.50-0.58
Head Index (Width/Length without rostrum)	0.61	0.56-0.64
Head Rostrum Index (Rostrum Length /Length of head without rostrum)	0.48	0.44-0.50
Posterior bulge of head	0.36	0.32-0.38
Max. length of Pronotum	0.15	0.14-0.19
Max. width of Pronotum	0.40	0.38-0.40
Pronotum-Head Index (Pronotum Width/Head width)	0.50	0.47-0.54
No. of antennal segments	12	12

3. WORKER : Head-capsule yellowish brown; antennae, labrum and pronotum pale brown; legs yellowish white. Head and pronotum sparsely and abdomen somewhat densely hairy. Total body length (excluding antennae) 3-3.4-3.58 mm.

Head oval, slightly wider than long to side base of mandibles; lateral margins weakly diverging anteriorly; posterior margin subround; epicranial suture distinct. Fontanelle plate whitish and situated almost at the middle. Antennae with 13 segments, segment 2 and 4 subequal, 3 smallest, 5 onwards gradually increasing in length. Postclypeus pale brown, swollen, indistinctly divided into two halves by a median line, pilose. Anteclypeus trapezoidal, whitish and apilose. Labrum dome-shaped, broader than long with a few long and many short hairs on the body. Mandibles of typical *Nasutitermes* type. Left mandible with an apical and two marginal teeth; apical one conical, 1st marginal pointed and longer than 2nd, 2nd placed much below the 1st, molar area short with distinct crenulations. Right mandible with an apical and two marginal teeth; apical larger than 1st marginal, 1st marginal triangular and larger than 2nd, 2nd small with longer posterior margin; molar area long with distinct crenulations.

Pronotum strongly saddle-shaped, anterior lobe highly raised, anterior margin rounded without any notch, posterior side fringed with minute hairs; antero-lateral corners narrowly rounded; posterior margin broadly rounded with indistinct emargination. Legs thin and long, pilose; apical tibial spur formula 2:2:2.

Abdomen oblong, hairy; cerci 2-jointed. Styli absent.

Measurements (in mm) :

Workers (10 exs.)

Length of head to side base of mandibles	0.68-0.76
Max. width of head	0.80-0.86
Maximum height of head	0.38-0.53
Maximum length of labrum	0.21-0.24
Maximum width of labrum	0.38
Maximum length of pronotum	0.18-0.23
Maximum width of pronotum	0.38-0.43

Type-specimen : All type-specimens, in spirit, from two sources, with same data as given under 'Material' above.

(a) *Holotype* : Holotype Soldier from lot no. (i) under material, in a vial (Z.S.I. Reg. No. 3182/ H₁₁) deposited in Z.S.I., Calcutta.

(b) *Paratypes and Paramorphotypes* (i) Paratypes 4 soldiers and Paramorphotypes 4 workers (Z.S.I. Reg. No. 3183/H₁₁) in separate vials from Material (ii) deposited in Z.S.I.

(ii) Paratype 1 soldiers and paramorphotypes 2 workers in a single vial deposited in F.R.I., Dehra Dun. Rest of the material is kept in Z.S.I., as type lot.

Comparison—The species is very close to *N. javanicus* (Holmg.) from E. Sumatra, *N. fabricii* Krishna from Nicobar, *N. mollis* Light & Wilson from Philippines and *N. perparvus* Ahmad from Thailand, but differs from them in the characters of the soldiers as follows :

1. From : *N. javanicus* :

(i) Rostrum much shorter, almost half the length of head without rostrum (vs. as long as or a little shorter than the length of head without rostrum). (ii) In profile rostrum more depressed than rest of head (vs. dorsal profile straight with a low bulge at the base of rostrum). (iii) Antennae with 12 segments, segment 3 shortest (vs. antennae with 12-13 segments, segment 4 shortest).

2. From *N. fabricii* :

(i) Head sparsely hairy (*vs.* densely hairy). (ii) Mandibles with apical processes (*vs.* without apical process). (iii) Length of head without rostrum 0.84-0.89 mm (*vs.* 0.79 mm)

3. From *N. mollis* :

(i) In profile rostrum much depressed than the rest of head (*vs.* distinctly convex with a concavity at the base of rostrum). (ii) Head sparsely hairy (*vs.* densely coated with whitish hairs). (iii) Larger species, head length with rostrum 1.24-1.32mm, without rostrum 0.84-0.89 mm, head width 0.70-0.80 mm (*vs.* smaller species, head length with rostrum 1.23 mm, without rostrum 0.75-0.78 mm, head width 0.72-0.74mm).

4. From *N. parvus* :

(i) Rostrum without any projection on either side at the base (*vs.* with small projection on either side). (ii) Head sparsely hairy at the base (*vs.* covered with a dense coat of delicate whitish hairs) (iii) Larger species, head length with rostrum 1.24-1.32 mm, without rostrum 0.84-0.89 mm, head width 0.70-0.80 mm (*vs.* smaller species, head length with rostrum 1.20 mm, without rostrum 0.76 mm, head width 0.69 mm).

5. From *N. parparvus* :

(i) Larger species, head length with rostrum 1.24-1.32 mm, (*vs.* smallest species, head length with rostrum 1.01-1.06 mm). (ii) Head sparsely hairy (*vs.* densely covered with numerous short hairs and a few scattered long bristles). (iii) Antennae with 12 segments, 3 shortest (*vs.* antennae with 11 segments, 4 shortest).

31. *Nasutitermes fabricii* Krishna*Nasutitermes fabricii* Krishna :

1965. Krishna, *Etmologiske—Meddelelse*, **34** : 107-109, S. Type-locality : Little Nicobar Island, India.

Material —One vial with S. and W. from Nancowry, T.K.Khan and party coll., 6.viii.1980, F.C. No K_{2b}/6.8.80, ex. "unknown log"

Measurements, (in mm) :

Soldiers (10 exs.)—Length of head with rostrum 1.16-1.24; Length of head without rostrum 0.72-0.76; Length of rostrum 0.44-0.52; Max. width of rostrum

0.16-0.18; Max. width of head 0.68-0.73; Max. height of head 0.43-0.52; Posterior bulge of head 0.20-0.24; Max. length of pronotum 0.14-0.16; Max. width of pronotum 0.34-0.38; No. of antennal segments 11.

Distribution— NICOBAR ISLANDS : *Nicobar Island* : Nancowry (present record). Earlier recorded from Little Nicobar (Type-locality). ELSEWHERE : None.

Remarks.—The species is a rare one in the Nicobar, collected in two occasions only. It can easily be recognised by its smallest size and dense coat of small hairs on the head. It is unknown from anywhere else.

32. *Nasutitermes johoricus* (John)

1. *Eutermes* (*Eutermes*) *johoricus* John :

1925. John, *Treubia*, 6 (3-4) : 393, S. and W., *Type-locality*: Johore, Malay Archipelago.

2. *Nasutitermes johoricus* Snyder :

1949. Snyder, *Smiths. misc. Coll.*, **112** : 281 (Synonymy).

1965. Ahmad, *Bull. Amer. Mus. nat. Hist.*, **131** (1) : 76, 82-83, S., Thailand.

1977. Maiti, *Proc. zool. Soc., Calcutta*, **30** : 133, Great Nicobar.

Material —Four vials with S. and W. from Great Nicobar Island, as follows

P.K.Maiti and Party coll.—(1) Laksman Beach, Campbell Bay, 28.xi.1975, F.C.No. 1, ex. "gallery on a tree trunk"; (2) Rajendra Nagar, 30 .xii. 1975, F.C. No. 33, ex. "log" *B. Nandi and party* coll.—(3) Campbell Bay, 27.xi. 1978, ex. "decaying log" *T.N.Khan and Party* coll.— (4) Galathea River, 15.viii. 1980, F.C. No. K₁/15.8.80, ex. "Unknown log"

Measurements (in mm) :

Soldiers (10 exs.)—Length of head with rostrum 1.32-1.36; Length of head without rostrum 0.80-0.86; Length of rostrum 0.48-0.50; Max. width of head 0.77-0.82; Max. height of head 0.48-0.58; Max. length of pronotum 0.15-0.19; Max. width of pronotum 0.45-0.48; No. of antennal segments 12-13.

Distribution : NICOBAR ISLAND ; *Great Nicobar Island* : Campbell Bay, Rajendranagar, Galathea River. ELSEWHERE : Indonesia : Johore, Thailand, Ka-Chong, Kan Tang, Chantaburi, Prew and Mae Sod.

Remarks.— Since its first description in 1925 by John from Malayan Archipelago, species was unknown to any workers. Recently, the species has been reported from Great Nicobar by Maiti (1977) and from Thailand by Ahmad (1965). The characteristic round head with a few erect hairs and mandibles devoid of any apical process serve as the most diagnostic features of the species.

33. *Nasutitermes krishna* Roonwal and Bose

Nasutitermes krishna Roonwal and Bose :

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4): 157-161, S. and W., *Type-locality* : Kwate-tukwage, Little Andaman Island, India.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 105, S. and W., South. Andamans.

Material —24 vials with S. and W. from Andamans and Great Nicobar Island, as follows :

A. 14 vials from South Andaman, such as— *P.K.Maiti and Party* coll.—3 vials Chidyatapu, such as— (1) Manjari 8.i.1976, F.C.No. 2, ex. "small stump"; (2) Kudyaghat, 11.i.1976, F.C.No. 2, ex. "decaying log"; (3) Around rest house, 12.i.1976, F.C.No. 10, ex. "earthen covering on the tip of a stump"; (4) Lalmitti, 28.vii.1978, F.C.No. M₁/28.7.78, ex. "decaying Siris log"; (6) Dhanikhari, Feb. '79, ex. "log lying on road side" and (7) Lalmitti, 20.viii.1979, F.C.No. M_{1a}/20.8.79, ex. "Rain tree log" *B. Nandi and Party* coll.—(8) Port Blair, Dec. '79, ex. "unknown log"; (9) Chidyatapu, 10.i.1980, F.C.No. N₁/10.1.80, ex. "Kata stump"; 2 vials from Chouldari— (10) F.C.No. N₃/11.10.81, 11.x. 1981, ex. "decaying log" and (11) F.C.No. N₁/11.10.81, 11.x.1981, ex. "decaying log" *T.N.Khan and Party* coll.— (12) Havelock Island, 8.vi.1981, F.C.No. K₁/8.6.80, ex. "unknown mangrove plant"; (13) Chidyatapu, 19.x.1981, F.C.No. K₉/19.10.81, ex. "unknown log" *R.M.Sharma and Party* coll.— (14) Ghasnala, Rutland Island, 22.i.1982, coll. No. 65(2918).

B. Four vials from Bakultala, Middle Andamans, as follows :

P.K.Maiti and Party coll.— (15) F.C.No. M₁/12.2.79, 12.ii.1979, ex. "dead stump"; (16) F.C.No. M₂/14.2.79, ex. "Arjun log" *B. Nandi and Party* coll.— (17) F.C.No. N₃/8.12.78, 8.xii. 1979, ex. "decaying log" and (18) F.C.No. N₅/18.12.79, Im-Ny., 8.xii. 1979, ex. "decaying log"

C. Two vials from Smith Island, North Andamans, *B.Nandi and Party* coll. — (19) F.C.No. N₁/22.12.79, 22.xii.1979, ex. "decaying log" and (20) F.C.No. N₅/22.12.79, Im-Ny., 22.xii.1979, ex. "decaying stump"

D. Three vials from Little Andamans, as follows:

B. Nandi and Party coll.—2 vials from Hut Bay, such as— (21) Ramkrishnapur, F.C.No. 2/N, 21.xi. 1978, ex. "Lalpatti log" and (22) Vivekanandanagar, 13.i.1980, F.C.No. N₂/13.1.80, ex. "unknown log" *T.N. Khan and party* coll. —(23) 16 km. from Little Andaman, 11.x.1981, F.C.No. K₃/11.10.81, ex. "Badam log"

E. One vial from Great Nicobar Island, as follows :

P.K.Maiti and Party coll.— (24) Great Nicobar, Dec. '75, ex "earthen covering on the tip of a stump"

Measurements (in mm) :

Soldiers (10 exs.)—Length of head with rostrum 1.45-1.63; Length of head without rostrum 0.91-1.00; Length of rostrum 0.53-0.63; Max. width of head 0.94-1.04; Max. height of head 0.59-0.68; Max. length of pronotum 0.15-0.22; Max. width of Pronotum 0.43-0.48; No. of antennal segments 12.

Distribution : ANDAMAN ISLANDS : *South Andaman* : Chidyatapu, Wright Myo, Dhanikhari, Chouldhari, Havelock Island and Rutland island. *Middle Andaman* : Bakultala. *North Andaman* : Smith Island. *Little Andaman* : Hut Bay (all present record).

Previously, it has also been recorded from *South Andaman*: Port Blair, Chidyatapu, Ferrargunj. *North Andaman* : Interview Island. *Little Andaman* : Kwate-tu-kwage (type-locality), Tokoibuea, Benyabobera and Ingitekudda. ELSEWHERE: None.

34. *Naustitermes matangensis matangensiformis* (Holmgren)

1. *Eutermes* (*Eutermes*) *matangensiformis* (Holmgren) :

1913. Holmgren K. Sv. Vet. Akad. Handl., **50** (2) : 185, Im., S. and W. Type-localities: Sarawak (Borneo) and Nankauri Island (Nicobars).

1913-14. Holmgren, Zool. Jahrb. (Abt. Syst.), **36** (2-3) : 265, Malacca and Borneo.

2. *Eutermes* (*Eutermes*) *javanicus* John :

1925. John, Treubia, **6** (3-4) : 394, Sumatra.

3. *Eutermes* (*Eutermes*) *timoriensis* John :

1925. John, Treubia, **6** (3-4) : 398, S. and W., Padang, West Sumatra.

4. *Eutermes tdjemberensis* Kemner :

1934. Kemner, K. Sv. Vet. Akad. Handl. (3) **13** (4) : 128-129, S., Djember, East java.

5. *Nasutitermes matangensiformis* (Holmgren) :

1949. Snyder, Smiths, misc. Coll., **112** : 286 (Syn.)

1965. Ahmad, Bull. Amer. Mus. nat. Hist., **131** (1) : 76-77, Im., S. and W., Thailand.

1975. Akhtar, Bull. Dept. Zool. Univ. Panjab (N.S.), Art. 7, pp. 138-139, S., Bangladesh.

6. *Naustitermes matangensis matangensiformis* (Holmgren) :

1956. Roonwal and Sen-Sarma, Indian J. agric. Sci., **26** (2) : 27-29, (Syn.).

1959. Prasad and SenSarma, Indian Coun. Agr. Res., pp. 51-52, (Syn.).

1966. Roonwal and Maiti, Treubia, **27** (1) : 113-116, Indonesia.

1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4) : 162-163, Im., S. and W.. Little Andaman and Car Nicobar Island.

1977. Maiti, *Proc. zool. Soc.*, **30** : 133. South-east Asia.

1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 105. Andaman and Nicobar.

Material —Fifty vials with S. and W. of which 2 vials with sev. Im., from Andamans and Nicobars, as follows :—

A. Eighteen vials, 16 with sev. S. and W. and only 2 vials with sev. Im. (from Neil and Havelock Islands) from South Andamans, as follows :—

P.K.Maiti and Party coll.— 2 vials from Manjari, Chidyatapu, such as— (1) 8.i.1976, ex. “dead stump” and (2) F.C. No. 8, 8.1.1976, ex. “gallery on a tree”; 2 vials from Kalapahar, Rutland Island, such as— (3) F.C. No. 1, 9.1.1976, ex. “gallery as well as nest inside of mangrove tree” and (4) F.C. No. 6, 9.i.1976, ex. “decaying log” ; 3 vials from Shippighat, such as— (5) F.C. No. M₄/26.7.78, 26.vii.1978, ex. “dead tree” and (6) F.C. No. M₅/26.7.78, 26.vii.1978, ex. “Rain tree”; 2 vials from Garacharma, such as— (7) F.C. No. M_{1a}/18.8.79, 18.vii.1979, ex. “sap wood of Didu log” and (8) F.C. No. M₁₂/18.8.79, 18.vii.1979, ex. “unknown log”; (9) Bidnabad, 1979, ex. “decayed stump” *B. Nandi and Party* coll.—(10) Jerwa Creek, Baratang, F.C. No. N₁/3.1.80, 3.i.1980, ex. “Nabbey log”; 2 vials from haddo, Port Blair, such as—(11) F.C. No. N₂/27.10.81, 27.x.1981, ex. “gallery on a tree trunk” and (12) F.C. No. N₆/29.10.81, 29.x.1981, ex. “gallery on tree trunk” ; (13) Mathura, F.C. No. N₈/7.10.81, 7.x.1981, ex. “gallery on tree trunk” *S.K. Chakraborty and Party* coll.— 2 vials from Neil Island, such as— (14) Im. F.C. No. C₃/25.5.79, ex. “carton nest Bara Bhelwa tree” and (15) F.C. No. C₂/28.5.79, 28.v.1979, ex. “decaying log”; (16) Havelock Island, Im., F.C. No. C₉/2.6.79, 2.vi.1979, ex. “decaying branch of a White Dhoop tree”; (17) Baratang, F.C. No. C₁/8.6.79, 8.vi.1979, ex. “under bark of unknown log” *T.N. Khan and Party* coll.— (18) Neil Island, F.C. No. K₂/21.6.80, 21.vi.1980, ex. “unknown stump”

B. Three vials, all with S. and W., from Middle Andamans, as follows :

P.K.Maiti and Party coll.— all from Long Island, such as— (19) F.C. No. M₂/8.2.79, 8.ii.1979, ex. “Cocco log” ; (20) F.C. No. M₄/9.2.79, 9.ii. 1979, ex. “Cocoanut log” and (21) F.C. No. M₅/9.2.79, 9.ii. 1979, ex. “Cocco log”

B. One vial from North Andamans, as follows : *P.K.Maiti and Party* coll.— (22) Aerial Bay, F.C. No. M₂/22.2.79, 22.ii.1979, ex. “log”

D. Four vials, all with S. and W., from Little Andaman, as follows :

B.Nandi and Party coll.— (23) Hut Bay, F.C. No. N_{4a}/20.xi.1978, ex. “Black Chuglam log” *T.N. Khan and Party* Coll.— (24) South Bay, F.C. No. K₁/30.9.81, 30.ix.1981 ex. “rotten unknown log” (25) 16 km. far off from Hut Bay, F.C. No.

K₈/1.10.81, 1. x. 1981, ex. "unknown stump"; (26) Quarry, F.C. No. K_{4a}/2.10.81, 2.x.1981, ex. "under bark of *Myristica* log"

E. Twenty-four vials, all with S. and W. from Nicobars, as follows :

P.K.Maiti and Party coll.— 5 vials from Great Nicobar Island, such as—(27) Magar Nulla, Campbell Bay, F.C. No. 6, 29.xii. 1975, ex. "dead log" (28) Magar Nulla, F.C. No. 6, 27.xii.1975, ex. "carton plastering on huge tree"; 2 vials from Rajendra nagar, such as— (29) F.C.No. 31. 20.xii.1975, ex. "log" and (30) F.C. No. 34, 30.xii. 1975, ex. "decaying log"; (31) Campbell Bay, F.C. No. 8, 26.xii.1975, ex. "dead stump" *B. Nandi and Party* coll.— 4 vials from Kamorta Island, Nancowry, such as—(32) F.C. No. N₂/11.11.78, 11.xi.1978. ex. "Rain tree log" ; (33) F.C. No. N₁/12.11.78, 12.xi.1978, ex. "Rain tree log" (34) F.C. No. N₃/11.11.78, 11.xi. 1978, ex. "Rain tree log" and (35) F.C. No. N₁/13.11.78, 13.xi.1978, ex. "Pynma log"; 3 vials from Sahas, Champin Island, such as— (36) F.C. No. N₃/16.11.78, 16.xi 1978, ex. "Biju stump"; (37) F.C. No. N_{3e}/16.11.78, 16.xi 1978, ex. "Cocoanut tree"; (38) F.C. No. N₁/16.11.78, 16.xi.1978, ex. "Biju stump" 7 vials from Campbell Bay, Great Nicobar, such as—(39) F.C. No. N₁/20.11.78, 20.xi.1978, ex. "Keya tree"; (40) 13.xii.1978, ex. "decaying log";(41) F.C. No.N₃/21.12.78, 2.xii.1978, ex. "Badam stump"; (42) F.C. No. N₃/8.12.78, 8.xii. 1978, ex. "decaying log" (43) F.C. No. N_{6a}/30.11.78, 30.xi.1978, ex. "decaying log"; (44) F.C. No. N_{3a}/27 11.78, 27.xi. 1978, ex. "decaying log" and (45) F.C. No. N_{3e}/1.12.78, 1.xii. 1978, ex. "Bursa log" (46) Lakshman Beach, Campbell Bay, 12.xii.1978, ex. "log" and (47) R.R.Camp, Campbell Bay, 13.xii.1978; ex. "decaying log" *T.N. Khan and Party* coll.— 2 vials from Nancowry, such as (48) F.C. No. K₈/4.8.80, 4.viii.1980, ex. "Bamboo"; (49) F.C. No. K₁/6.8.80, 6.viii.1980, ex. "unknown log"; (50) Galathea River, Great Nicobar, F.C. No. K₄/15.8.80, 15.viii. 1980.

Measurements, (in mm) :

Imagos (10 exs.)—Length of head to side base of mandibles 1.16-1.21; Max. width of head (with eyes) 1.48-1.50; Max. diameter of eye 0.53-0.58; Min. diameter of eye 0.48-0.50; Distance of eye from lower margin of head 0.06-0.08; Max. diameter of ocellus 0.22-0.24; Min. diameter of ocellus 0.15-0.16; Eye-ocellus distance 0.02-0.04; Max. length of postclypeus 0.15-0.20; Max. width of postclypeus 0.58-0.62; Max. length of labrum 0.34-0.38; Max. width of labrum 0.48-0.50; Length of pronotum 0.68-0.72; Width of pronotum 1.14-1.21; Length of forewing with scale 10.76-12.28; Length of forewing scale 0.72-0.76; Length of hindwing with scale 10.38-1.43; Length of hindwing scale 0.58-0.60; No. of antennal segments 15.

Soldiers (10 exs.).—Length of head with rostrum 1.58-1.96; Length of head without rostrum 0.98-1.30; Length of rostrum 0.60-0.72; Max. width of head 0.96-1.34; Max. height of head 0.68-0.80; Max. length of pronotum 0.22-0.34; Max. width of pronotum 0.53-0.68; No. of antennal segments 13-14.

Distribution— ANDAMAN AND NICOBAR ISLANDS : South Andamans Garacharma, Bidnabad, Baratang, Shippight, Chidyatapu, Mathura, Neil Island,

Havelock Island and Rutland Island. *Middle Andamans* ; Long Island. *North Andamans*: Aerial Bay *Little Andamans* : Hut Bay and South Bay. *Nicobars* : Nancowry ; Champin Island, Kamorta; Great Nicobar Island: Campbell Bay, Rajendra Nagar and Laksman Beach.

Previously also recorded from *South Andaman* : Port Blair, Chidyatapu. *Little Andaman* : Bedeabdulu, Gaje, Tailanda, Entizebera. *Great Nicobar Island* : Nancowry : Kamorta. *Car Nicobar island* : Tamalu, Swai, Campbell Bay
ELSEWHERE : Malay Peninsula, Indonesia (Java, Sumatra, Borneo) and Thailand.

Remarks— This is a very common species in the Malayan mainland and its Archipelagos and is found in the greatest abundance throughout the Andamans and Nicobars. The fairly large collection studied in the present account indicates that it is a very variable species. The shape, size and colouration of the head and rostrum in particular show some wide range of variation. Typically, the Head minus the rostrum is round, but in many instance, the head of individuals in the same or in different colony become subround to somewhat oval. Likewise, the width of rostrum at base also varies. Dorsal margin of the head either substraight to straight with weak to very weak rostral hump. Instances are not uncommon where the population inhabiting in different islands seems to be altogether different species. Detailed study usually eliminates such confusion.

However, the largest size of the species keeps its identity distinct from all other members of the genus occurring in these areas.

35. *Naustitermes triloki* Bose

Nasutitermes triloki Bose :

1980. Bose, *Rec. zool. Surv. India*, 77 (1-4) : 105-108, S. and W., *Type-locality*: Havelock Island, South Andamans, India.

Material —Fourteen vials from Andamans and Nicobar Island, as follows:—

A. Eight vials with S. and W., one of which with a Im. (deal.), from South Andamans, such as—*P.K.Maiti and Party* coll.— (1) Rutland Island, F.C. No. 8, 9.i.1976, ex “decaying log” (2) 1 deal., Chidyatapu, F.C. No. 1,10.i. 1976, ex “stump” *S.K. Chakraborty and Party* coll.— 2 vials Neil Island such as— (3) F.C. No.C₃/26.5.79, 26.v. 1979, ex “Under bark of White Bombway log”; (4) F.C. No.C₄/29.5.79, 29.v. 1979, ex “decaying tree”.*B. Nandi and S.K. Chakraborty* coll.— (5) Chouldari, F.C. No.N₈/1.10.81, 11.x.. 1981, ex “felled log”; 2 vials from Chidyatapu, such as— (6) F.C. No.N₁₁/18.10.81, 18.x.1981, , ex “gallery

on a dead trunk"; and (7) F.C. No.N₁₂/18.10.81, 18.x.1981, ex "decayed fallen log"; (8) Rutland Island, F.C. No.N₄/19.10.81, 19.x.1981, ex "Dead portion of a living tree" R. M. Sharma and Party coll.—(9) Rutland Island, Coll. No. 22(2914) 21.i.1982.

B. Three vials with S. and W. from Middle Andamans, such as— P.K. Maiti and Party coll. — (10) Long Island, F.C. No.M₂/9.2.79, 9.ii.1979, ex "Cocco log"; 2 vials from Bakultala, such as— (11) F.C. No.M₁₃/12.2.79, 12.ii.1979, ex "log" and (12) F.C. No.M₁/14.2.79, 14.ii.1979, ex. "fallen log"

C. One vial with S. and W. from North Andamans, such as—(13) Smith Island, B. Nandi and party coll.—22.xii. 1979, F.C. No.N₁/22.12.79, ex "decaying log"

D. One vial with S. and W. from Great Nicobar Island, such as— (14) Lakshman Beach, Campbell Bay, P.K.Maiti and Party coll.— 28.xii. 1975, F.C. No. 2, ex "decaying log lying on ground"

Measurements (in mm) :

Imagos (deal) (1ex.)—Length of head to side base of mandibles 1.00; Max. width of head (with eyes) 1.25; Max. diameter of eye 0.48; Min. diameter of eye 0.38; Distance of eye from lower margin of head 0.08; Max. diameter of ocellus 0.21; Min. diameter of ocellus 0.16; Eye-ocellus distance 0.04; Max. length of postclypeus 0.20; Max. width of postclypeus 0.52; Max. length of labrum 0.34; Max. width of labrum 0.43; Length of pronotum 0.58; Width of pronotum 0.90; Length of forewing scale 0.68; Length of hindwing scale 0.53.

Soldiers (10 exs.)—Length of head with rostrum 1.35-1.48; Length of head without rostrum 0.82-0.88; Length of rostrum 0.55-0.99; Max. width of head 0.76-0.90; Max. height of head 0.49-0.58; Max. length of pronotum 0.15-0.20; Max. width of pronotum 0.38-0.43; No. of antennal segments 12.

Distribution : ANDAMAN AND NICOBAR ISLANDS: *South Andamans* : Chidyatapu, Chouldari, Neil Island, Rutland Island; *Middle Andamans* : Bakultala, Long Island; *North Andamans* : Smith Island; *Great Nicobar Island* : Campbell Bay.

Previously also recorded from —*South Andamans* : Havelock Island. (type-locality). ELSEWHERE : None.

Remarks— The species has recently been described based on soldier caste only by Bose (1980) from Havelock Island, South Andaman. The imago (dealate) is described here for the first time from Chidyatapu. The present study indicates that the species is distributed throughout the Andamans and even in the Great Nicobar Island. However, the slender rostrum with fairly pointed apex and with numerous short hairs on the head-dorsum can be used as the most diagnostic characters of the species.

36. *Hospitalitermes blairi* Roonwal and Sen Sarma

Hospitalitermes blairi Roonwal and Sen Sarma :

1956. Roonwal and Sen Sarma, *Indian J. agric. Sci.*, **27** (1) : 29-36, S. and W. *Type-locality* : Corbyn's cove, Port Blair, South Andamans.
1960. Prasad and Sen Sarma, *I.C.A.R. Mongor.*, No. 10.29, pp. 10-11, S. and W..
1970. Roonwal and Bose, *Rec. zool. Surv. India*, **62** (3-4) : 118, 120, (key)
1980. Bose, *Rec. zool. Surv. India*, **77** (1-4) : 108, S. and W. Andamans and Great Nicobar Island.

Material —Twelve vials, all with S. and W. from Andamans, as follows :

A. Ten vials from South Andamans, such as—*P.K. Maiti and Party* coll. (1) Monglutan, F.C. No. 3, 18.xii.1975, ex. "nest in trunk"; (2) Sippighat, F.C. No. M₁/26.7 78, 26.vii.1978, ex. "Rain tree"; (3) Dhanikhari, September 1979; (4) Dhanikhari forest, Sept., 1979. *B. Nandi and Party* coll.— (5) Dilthamam Tank, 24.xii.1978, ex. "Jamun tree" 4 vials from Chidyatapu, such as—*P.K. Maiti and Party* coll.—around F.R.H. campus— (6) F.C. No. 6,20. i. 1976, ex. "gallery and nest on 5 ft. above the ground on big tree trunk"; (7) F.C. No. 1.12.1.1976, ex. "foraging in column on tree trunk at 7.00 A.M."; (8) Mundapahar, F.C. No. 3.i.1976, ex. "foraging in column on a dead log"; and *B. Nandi and S.K. Chakraborty* coll.— (9) F.C. No. N₅/18.x.1981, ex. "foraging on ground" One vial from Rutland Island, *R.M. Sharma and Party* coll.— (10) Barakhari, coll. No. 10(2911), 21.i.1982.

B. One vial from North Andamans; Rabindrapalli, Diglipur, *B. Nandi and Party* coll. (ii) —F.C. No. N₄/20.12.79, 20.xii.1979, ex. "decaying log"

C. One vial (12) from Little Andaman, forest around near R.R. colony, *T.N. Khan and Party* coll. — F.C. No. K₁/27.9.81, 27.ix.1981, ex. "foraging on ground"

Measurements (in mm):

Soldiers (10 exs.)—Length of head with rostrum 1.68-1.80; Length of head without rostrum 1.10-1.24; Length of rostrum 0.53-0.60; Max. width of rostrum 0.12-0.14; Min. width of head 0.68-0.73; Max. width of head 1.02-1.14; Posterior buldge of head 0.40-0.54; Min. height of head 0.56-0.61; Max. height of head 0.72-0.86; Max. length of pronotum 0.36-0.43; Max. width of Pronotum 0.60-0.72; Pronotum Index (Length/Max. width) 0.61-0.71 Length of hind femur 1.75-1.96; Antennal segments : Length of segment-3/length of segment-2—2.40-2.50; No of antennal segment 14.

Distribution — ANDAMAN AND NICOBAR ISLANDS : *South Andamans* : Port Blair, Monglutan, Sippighat, Dhanikhari, Dilthmam Tank, Chidyatapu, Mundapahar and Rutland Island. *North Andamans* : Diglipur : Rabindrapally. *Little Andaman* : Forest around R. R. colony.

Previously, also recorded from *South Andamans* : Port Blair, Corbyn's cove (Type-locality), Wright Myo, Shoal Bay, Cowriaghat, Rangachang, Burma Nulla, Chidyatapu and Humphrygunj. *Middle Andamans* : Rangat Bay Jetty. ELSEWHERE : None.

Remarks— *Hospitalitermes blairi* is a well established species throughout Andamans including Little Andaman and so far unknown in the Nicobars. The head-shape varies considerably with regard to the lateral and postero-median bulging of head-capsule as well as to constriction behind the antennal flaveolae. Head dorsum varies from weakly to strongly depressed.

37 *Hospitalitermes Kali* sp.nov.

Material —One vial with sev. S. and W. (maj. and min.) from Nancowry, T.N. Khan and Party coll., 3 viii. 1980, F.C. No. K_g/3.8.80, ex. "foraging on ground"

Description :

1. IMAGO : Unknown

2. SOLDIER (Fig. 9, a-d) : Head blackish brown, much paler anteriorly including the rostrum; antennae light brown; pronotum and abdominal tergites blackish brown. Head and pronotum without any long hairs; tergites with minute hairs; legs and sternites with long hairs. Total body-length (excluding antennae, but including rostrum) 4.10-4.50 mm.

Head without rostrum pear-shaped, much constricted below the antennal flaveolae; lateral sides bulging out more posteriorly; posterior margin broadly rounded. Rostrum thin and cylindrical, much more than half the head-length without rostrum, a few minute hairs at the tip. In profile, dorsal margin of head with rostrum fairly incurved; basal rostralhump very weakly developed; posterior head-bulge fairly developed. Fontanelle gland and tube indistinct. Antennae with 14 segments, basal two segments much darker than the others; segment 3 almost two and a half times longer than 2 and only slightly longer than 4, 2 smallest, 5-8 onwards almost equal in length and 9-14 gradually decreasing in length. Mandibles highly vestigial, each with a spine-like lateral processes lying almost at the middle of outer margin; margin between spine-like processes and molar area straight in both the mandibles; spines much longer than molar area, molar area weakly convex.

Pronotum strongly saddle-shaped, much narrower than head-width; anterior lobe smaller than posterior one, anterior margin weakly convex and lined by

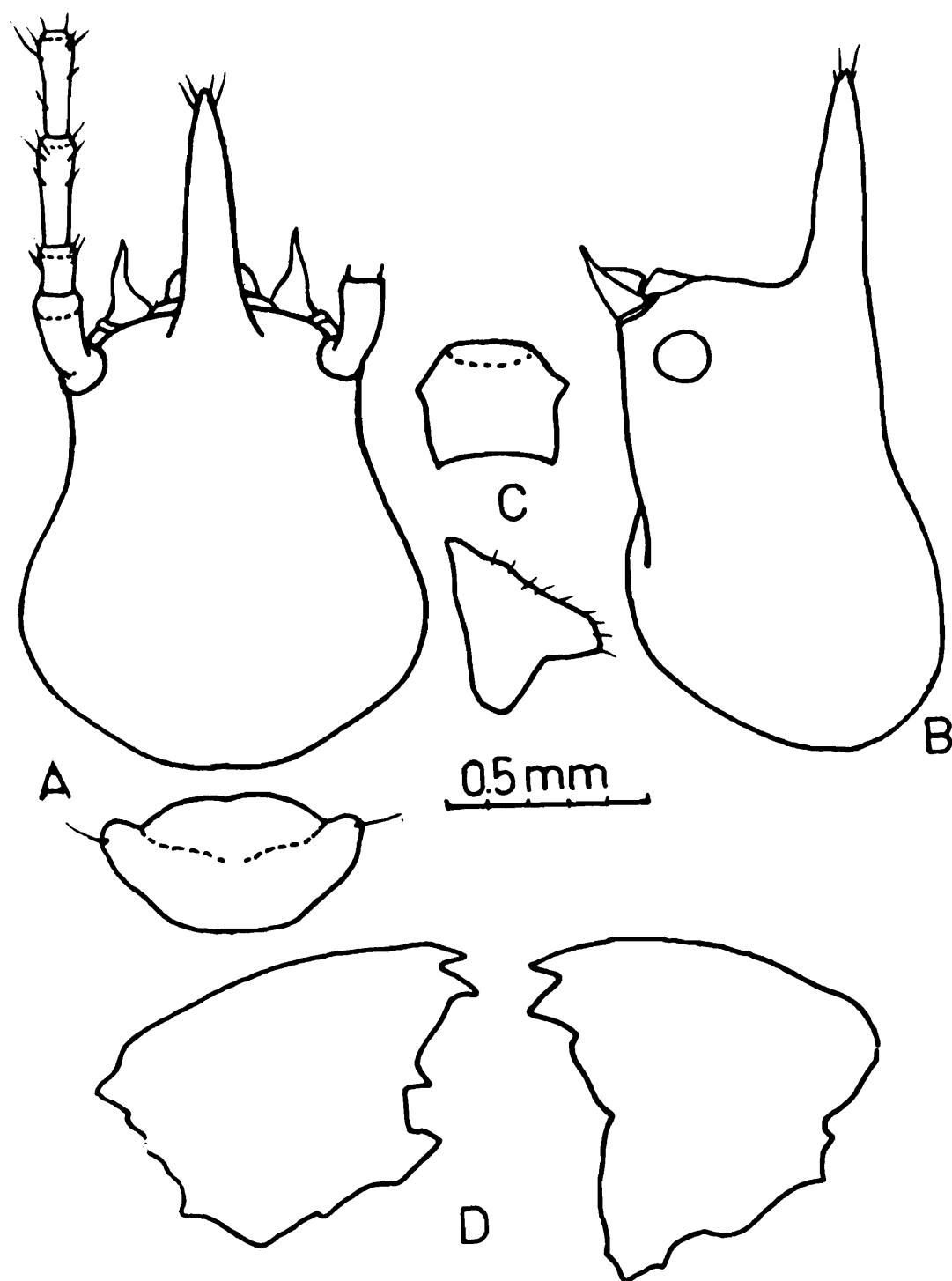


Fig. 9. *Hospitalitermes Kali* sp. nov. Soldier
 A. Head and Pronotum, in dorsal view
 B. Head and pronotum, in lateral view
 C. Postmentum D. Worker's mandibles.

minute hairs, without any median notch; lateral corners narrowly rounded; posterior margin weakly convex with a very weak median emargination; a whitish median line dividing the pronotum into two equal halves. Legs slender femur strongly chitinated, posterior femur longer and extending upto the abdominal tip; apical tibial spur formule 2:2:2; Tarsi 4-jointed.

Abdomen oblong, with a few scattered minute hairs on posterior margin of each tergites. Cerci 2-jointed. Styli absent.

Measurements (in mm) etc., Soldiers

	Holotype	Range (10 exs.)
Length of head with rostrum	1.68	1.64-1.72
Length of head without rostrum	1.13	1.09-1.15
Length of rostrum	0.55	0.53-0.58
Max. width of rostrum	0.21	0.19-0.24
Min. width of head	0.76	0.72-0.78
Max. width of head	1.00	0.98-1.02
Posterior buldge of head	0.43	0.43-0.53
Min. height of head	0.63	0.58-0.63
Max. height of head	0.76	0.75-0.76
Rostrum-head Index I (Rostrum-length/head-length without rostrum)	0.43	0.46-0.53
Rostrum-head Index II (Max. rostrum-width/Max. head width)	0.21	0.19-0.24
Head buldge Index (Posterior head-buldge/head-length without rostrum)	0.38	0.38-0.47
Head contraction Index (Min. head-width/Max. head-width)	0.76	0.73-0.78
Head Index I (Max. width/length without rostrum)	0.88	0.85-0.90
Head Index II (Max. height/length without rostrum)	0.67	0.65-0.70
Head Index III (Max. height/Max width)	0.76	0.74-0.77
Max. length of pronotum	0.38	0.36-0.38
Max. width of pronotum	0.68	0.63-0.68
Pronotum-Index (Length/Max.width)	0.56	0.55-0.60
Length of hind femur	1.80	1.70-1.86

Antennal segments : Length of segment-3/length of segment-2	2.63	2.60-2.67
No. of antennal segments	14	14

3. WORKER (MAJOR) : Head-capsule and postclypeus dark brown, labrum paler and antennae pale brown; thorax brown; coxae and femur pale brown; tibiae and tarsi pale-yellow; abdominal tergites pale brown, sternites much paler. Head sparsely hairy; pronotum with short hairs; tergites scantily and sternites densely hairy.

Head-capsule subsquarish, a little wider than long; Y-suture distinct. Fontanelle covered with a white translucent, narrow and long plate, situated medially at the junction of two frontal sutures and slightly depressed. Antennae with 15 segments; segment 3 almost double the length of 2 and longer than 4, 2 smallest, 5-8 onwards gradually increasing and 9-15 gradually decreasing in length. A pair of suboval white spots present on each side behind the antennal flaveolae. Postclypeus swollen, width almost double the length and divided medially by a deep median line with few hairs. Anteclypeus strip-like, translucent and apilose. Labrum dome-shaped, much broader than long with few long bristles. Mandibles thick, light brown, inner margin much darker. Left mandible with one apical and two marginal teeth; apical well developed, a little shorter than 1st marginal, thinner and finger-like, cutting edge wavy; 2nd marginal shorter than 1st marginal, well developed, directed posteriorly, triangular and widely separated from the 1st; molar plate short. Right mandible also with one apical and two marginal teeth and well developed molar plate; apical a little shorter than 1st marginal, 1st marginal triangular, 2nd short and placed with inwardly directed long cutting edge; molar margin with undulating surface.

Pronotum strongly saddle-shaped, much narrower than head-width, broader than long, anterior margin straight with weak emargination; antero-lateral corners deeply incised, posterior margin broadly rounded. Legs long and slender, hind femur reaching beyond the abdominal tip.

Abdomen oblong, tergites with rows of small hairs on their posterior margin. Cerci 2-jointed, styli absent.

4. WORKER (MINOR) :

Slightly smaller than major worker; head comparatively paler and antennae darker; hairs, etc. as in major worker.

Head subsquarish, a little broader than long; Y-suture distinct. Fontanelle as in major worker. Antennae 15 segmented; segment 2 shortest, segment 3 a little longer than either 2 or 4, 5-9 gradually increasing, and 10-15 gradually decreasing in length, Postclypeus, anteclypeus, labrum, mandibles. etc. as in major worker.

Pronotum as in major worker, except the anterolateral corners very weakly incised. Abdomen as in major worker.

Measurements (in mm)

	Worker (major) (5 exs.)	Worker (minor) (5 exs.)
Length of head to side base of mandibles	1.09-1.15	0.86-0.96
Max. width of head	1.15-1.18	1.00-1.09
Max. height of head	0.62-0.64	0.56-0.58
Max. length of labrum	0.34-0.35	0.30-0.34
Max. width of labrum	0.45-0.48	0.46-0.48
Max. length of pronotum	0.48-0.50	0.38
Max. width of pronotum	0.76-0.81	0.65-0.68

Type specimens—All type specimens, in spirit from a single source with same data as given under 'material' deposited as follows :

(a) *Holotype* : Holotype 1 Soldier, in a vial (Z.S.I. Reg. No. 3184/H₁₁) deposited in Z.S.I., Calcutta.

(b) *Paratypes and Paramorphotypes* : (i) Paratypes 5 Soldiers and Paramorphotypes 6 Workers (3 major and 3 minor) in a vial (Z.S.I. Reg. No. 3185/H₁₁) deposited in Z.S.I., Calcutta. (ii) 2 Soldiers and Paramorphotypes 2 Workers (major and minor) in a vial, deposited F.R.I., Dehra Dun. Rest of the material is kept as *holotype-lot* in Z.S.I., Calcutta.

Type-locality — Nancowry, Nicobar Island.

Distribution— Known only from type-locality.

Comparison— This species is very close to *H. blairi* Roonwal and Sen Sarma from the Andamans, and *H. nicobarensis* sp. nov. from the Great Nicobar, but differs from them as follows :

1. From : *H. blairi* — *Soldier* : (i) Comparatively smaller species; head blackish brown; head narrower with thicker rostrum (*vs.* comparatively larger species); head reddish brown; head much wider with thinner rostrum. (ii) 3rd antennal segment more than two and a half times as long (2.60-2.67 times) as 2nd (*vs.* 3rd not more than two and a half times as long (2.40-2.50 times) as 2nd. (iii) All antennal segments pale yellow in colour, except, 1 and 2 (*vs.* all the segments comparatively darker.)

2. From *H. Nicobarensis* — *Soldier* : Vide, under *H. nicobarensis* sp. nov.

38. *Hospitalitermes nicobarensis* sp. nov.

(a) *Material* — 2 vials with sev. S. and W. from Great Nicobar Island, P.K. Maiti and Party coll., as follows : (1) Lakshman Beach, Campbell Bay, F.C. No. 5, 28.xii.1975, ex. "moving on decaying log"; (2) Rajendra Nagar, F.C. No. 32, 30.xii.1975, ex. "log"

Description—

1. IMAGO- Unknown

2. SOLDIER (Fig. 10, a-c) : Head blackish brown, paler anteriorly including the rostrum; antennae and abdomen yellowish brown; pronotum dark brown. Head devoid of any hairs; pronotum with a few minute hairs; abdominal tergites with minute hairs. Total body length (excluding antennae, but including rostrum) 4.23-4.55 mm.

Head without rostrum pear-shaped, much constricted below the antennal faveolae; lateral sides much bulging out; posterior margin rounded with a very weak emargination. Rostrum thin and cylindrical, its maximum width slightly less than half the head-length, with a few small hairs at the tip and with a pair of suboval white spots, one on each side of head just behind antennal flaveolae. In profile, dorsal margin of head-capsule very much incurved and posterior head-bulge strongly pronounced. Fontanelle gland not distinctly visible. Antennae with 14 segments, basal two joints much darker than others; segment 2 smallest, 3 almost three times as long as 2 and slightly longer than 4, 5-8 onwards almost equal in length, 9-14 gradually decreasing in length. Mandibles highly vestigial, each with a spine-like lateral process lying almost at the middle of outer margins; margin in between lateral process and molar area substraight; molar area weakly convex; lateral process almost equal in length of molar area.

Pronotum strongly saddle-shaped, much narrower than head, anterior lobe smaller with a weakly outcurved anterior margin lined with minute hairs and without any median notch or emargination; lateral corners broadly rounded; posterior margin somewhat rounded with very indistinct median emargination;

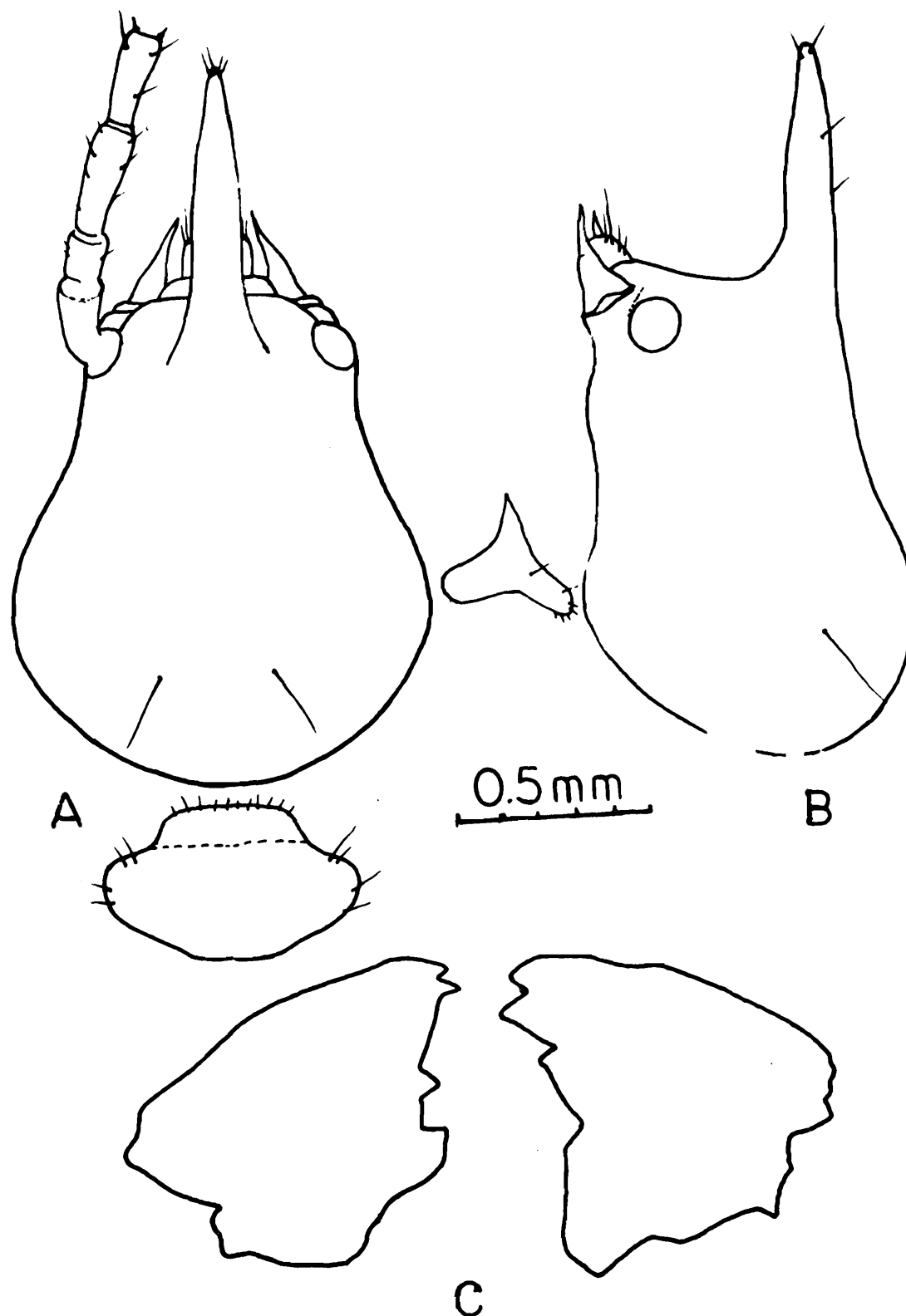


Fig. 10. *Hospitalitermes nicobarensis* sp. nov. Soldier

A. Head and Pronotum, in dorsal view

B. Head and pronotum, in lateral view

C. Worker's mandibles.

a whitish median line dividing the pronotum into two equal halves. Legs very long, posterior femora much longer than the others and extending much beyond the abdominal tip, apical tibial spur formula 2:2:2, tarsi 4-jointed.

Abdomen oblong, without any distinct long hairs on tergites, but with a few minute hairs on posterior margin of each tergites.

Measurements (in mm.) etc., Soldiers (10 exs.)

	Holotype	Range
Length of head with rostrum	1.91	1.78-1.96
Length of head without rostrum	1.30	1.19-1.30
Length of rostrum	0.60	0.58-0.68
Max. width of rostrum	0.19	0.14-0.19
Min. width of head	0.76	0.72-0.85
Max. width of head	1.15	1.14-1.24
Posterior buldge of head	0.53	0.48-0.58
Min. height of head	0.68	0.58-0.72
Max. height of head	0.94	0.86-0.96
Rostrum-head Index I (Rostrum - length/head-length without rostrum)	0.46	0.46-0.53
Rostrum-head Index II (Max. rostrum width/Max. head-width)	0.16	0.12-0.16
Head buldge Index (Posterior head buldge/head-length without rostrum)	0.41	0.40-0.45
Head contraction Index (Min. head width/Max. head-width)	0.66	0.63-0.70
Head Index I (Max. width/length without rostrum)	0.88	0.88-0.96
Head Index II (Max. height/ length without rostrum)	0.72	0.67-0.78
Head Index III (Max. height/ Max width)	0.82	0.75-0.82
Max. length of pronotum	0.43	0.38-0.43
Max. width of pronotum	0.70	0.65-0.70
Pronotum Index (Length / Max. width)	2.09	1.96-2.16
Length of hind femur	1.89	1.86-1.92
Antennal segments : Length of segment-3/length of segment-2	2.73	2.67-3.22
No. of antennal segments	14	14

3. WORKER (MAJOR) : Head-capsule and postclypeus dark brown; labrum and antennae pale brown; thorax and abdominal tergites smoky brown with yellowish tinge; coxae and femur yellowish brown; tibia and tarsi pale yellow. Head sparsely hairy; pronotum with short hairs; tergites scantily hairy and sternites densely pilose.

Head-capsule subsquarish, a little wider than long; Y-suture prominent. Fontanelle covered with a white, translucent, narrowly elongate plate, situated medially at the junction of two frontal sutures, weakly depressed. Antennae with 15 segments, segment 3 almost as long as 2, segment 2 shortest and a little longer than 4, segment 5-8 gradually increasing and 9-15 gradually decreasing in length. A pair of suboval white spots present on either side behind the antennal flaveolae. Postclypeus swollen, with almost twice the length and divided longitudinally by a deep median line and with long bristles. Anteclypeus distinct, translucent and apilose. Labrum domeshaped, broader than long with few long bristles. Mandibles thick and stout, light brown in colour with inner margin darker. Left mandible with one apical and two marginal teeth; apical well developed, a little shorter than 1st marginal; 1st marginal comparatively thinner, finger-like, cutting edge wavy; 2nd marginal well developed, short, widely separated from the 1st marginal. Right mandible also with one apical, two marginal teeth and well developed molar plate; apical little shorter than 1st marginal, 1st marginal triangular, 2nd marginal short and molar plate with undulating margin.

Pronotum strongly saddle-shaped, much narrower than head-width, broader than long; anterior margin convex without emargination; antero-lateral corners deeply incised; posterior margin broadly rounded. legs long and slender; hind-femur reaching beyond the tip of abdomen.

Abdomen suboval, short and thick, Cerci 2-jointed. Styli absent.

4. WORKER MINOR :

A little smaller than major worker; colour, hairs etc. as in major worker.

Head squarish, a little broader than long; Y-suture prominent. Fontanelle as in the major worker. Antennae with 15 segments, segment 2 shortest, segment 3 a little longer than 2 and 4, 4 subequal to 2, 5-9 gradually increasing in length, 10-15 gradually decreasing in length. Postclypeus, anteclypeus, labrum, mandibles, etc. as in major worker.

Pronotum as in major worker, except the anterolateral corners very weakly incised.

Abdomen as in worker major.

Measurements (in mm)

	Worker (major) (5 exs.)	Worker (minor) (10 exs.)
Length of head to side base of mandibles	1.07-1.10	0.86-0.96
Max. width of head	1.18-1.20	1.00-1.04
Max. height of head	0.63-0.65	0.55-0.58
Max. length of labrum	0.30-0.34	0.30-0.34
Max. width of labrum	0.48	0.46-0.48
Max. length of pronotum	0.50-0.53	0.38
Max. width of pronotum	0.76-0.80	0.65-0.68

Type-specimens— All type-specimens, in spirit, from a single vial with same data as given in (i) under 'Material' deposited as follows :

(a) *Holotype* : Holotype 1 Soldier, in a vial (Z.S.I. Reg. No. 3186/H₁₁) deposited in Z.S.I., Calcutta.

(b) *Paratypes and Paramorphotypes* (i) Paratypes 5 Soldiers and Paramorphotypes 6 Workers (3 major and 3 minor) in a vial (Z.S.I. Reg. No. 3187/H₁₁) deposited in Z.S.I., Calcutta. (ii) Paratypes 2 Soldiers and Paramorphotypes 2 Workers (major and minor) in a vial, deposited in F.R.I., Dehra Dun. Rest of the material from the same vial is kept as *holotype-lot* in Z.S.I., Calcutta.

Type-locality— Lakshman Beach, near Campbell, Bay, Great Nicobar Island.

Distribution— Great Nicobar Island : Lakshman Beach, near Campbell Bay (Type-locality) and Rajendra Nagar.

Comparison— This species is very close to *H. blairi* Roonwal and Sen Sarma from the Andamans, and *H. kali* sp. nov. from Nancowry, *H. rufus* (Haviland) from Indonesia and Malaya, and *H. schmidtii* Ahmad from Lembh Island, but differs from them as follows in the characters of the Soldier.

1. From : *H. blairi* —(i) Larger species, head-length with rostrum 1.78-1.96 mm, head blackish brown (vs. smaller species, head-length with rostrum, 1.42-1.74mm., head reddish brown). (ii) 3rd antennal segment two and a half times to three times (2.67-3.22 times) as long as 2nd (vs. 3rd not more than two and a half times as long as 2nd). (iii) Hind femus much longer (vs, shorter).

2. From *H. kali*— (i) Larger species (vs. smaller species, head-length with rostrum 1.64-1.72 mm.). (ii) Rostrum thin, rostrum head index (max. width of

rostrum/max. width of head) 0.12-0.16 (vs. rostrum thick, rostrum-head index 0.19-0.24). (iii) 3rd antennal segment more than two and a half times to three times as long as 2nd (vs. 3rd more than two and a half times, but less than three times (2.60-2.67 times). (iv) Hind femur much longer (vs. much shorter).

The species differs from *H. rufus* (Haviland) and *H. schmidtii* Ahmad possessing more long and thin rostrum and more depressed head-dorsum in profile, in contrast to short and thick rostrum and less depressed head-dorsum in two other species.

ZOOGEOGRAPHICAL ANALYSIS

Termites are predominantly tropical insects, with their greatest abundance in the equatorial rain forests. The islands of Andaman and Nicobar situated well within the Tropics with its southern most island of Great Nicobar approaching to the equatorial belt, provide some ideal conditions to support a fairly rich termite fauna. But the long water gap from the mainland creates a acute problem for termites with their weak constitution to colonize these islands. In spite of this fact, the present study shows that the termite fauna is not at all poor but exists to a magnitude of 38 species, which represents roughly 12% of the total fauna of the Indian mainland.

However, the species belong to 10 genera under three families, Kalotermitidae, (9 spp.), Rhinotermitidae (13 spp.) and Termitidae (17 spp.). The families not represented in the area, are Mastotermitidae (found only in Australia), Stylotermitidae, Hodotermitidae, and Serritermitidae (only in South America). The maximum number of seven species belongs to the genus *Nasutitermes* and six to *Schedorhinotermes*, followed by the reduction to a number of four to *Microcerotermes*, three each to *Neotermes*, *Glyptotermes* and *Hospitalitermes* and two each to *Glyptotermes*, *Prorhinotermes* and *Odontotermes*. This shows that the rhinotermitid-species are proportionately richer than those of the other families. This is no surprise due to the fact that the members of these families are well known for their greater adaptability for insular life. On the other hand, the genus *Odontotermes*, which is usually represented by maximum number of species in the adjacent landmasses, is only represented by two species. Even, it is totally absent in the Great Nicobar island (Maiti, 1977a and, Mitra and Maiti, 1992).

There is no doubt that the fauna is predominantly Oriental in origin, in view of the location of these islands almost at the centre of the Oriental Region. Interestingly enough, some 20 species are endemic to these islands (55.5% of the total), while the remaining 16 species share their distribution with different territories of the Orient.

Of course, three widely distributed species in the tropic, namely, *Cryptotermes bengalensis*, *C. dudleyi* and *Coptotermes havilandi* are also found in the area. Keeping these three species apart, other 13 species are certainly found in the faunal elements of Indian and Indo-Malayan sub regions including their Archipelagos. Some three species, *Coptotermes gaurii*, *C. heimi*, *Prohrinotermes flavus* are also found in the Indian subregion and the rest in the Malayan Peninsula and it's Archipelagos.

The scrutiny of distribution pattern of species within the islands show some interesting finding. Some 11 species occur widely in both the Andaman and Nicobar islands, of which 6 species are endemic in the area, while 13 species restrict themselves in the Andaman groups and 12 species in the Nicobar with 7 endemic species in each.

The remarkable endemism of the fauna has been explained by Roonwal and Bose (1970) by the fact that the chance of immigrant introduced in the area is certainly less. So, the pioneer species thrives without any appreciable dilution by the immigrants and any evolution which took place must have occurred in the island itself (Roonwal and Bose, 1970).

Whatever may be the faunal composition, certain question may, however, be raised as to how these islands have been colonized by termites. These insects might have reached these islands through some direct land connection during the past geologic time or by some artificial means, such as, wood raft, human agency, etc. or by overseas dispersal by flight. Though it is difficult to reach any definite conclusion, yet it initiates some argumental discussion based on some facts of historical origin, habit and dispersal of termites supported by some circumstantial evidences.

SUMMARY

The monograph deals with the taxonomic account and zoogeographical analysis of the termite-fauna of the islands of Andaman and Nicobar, Indian Ocean. These tropical Islands being the summits of a submerged mountain chain in the Bay of Bengal and Indian Ocean, provide an ideal condition to support a fairly rich termite fauna, though separated from the Oriental mainlands by long water gaps. The history of termite study of this area dates back to 1885, when Brauer first reported two undetermined termite species. Since then as many as 25 species have been reported from the areas by different authors during the period 1885-1982 mainly based on some stray collections made mostly by different survey parties. But, no serious attempt has been made to explore the termite-fauna.

Extensive faunal exploration has been undertaken since 1975, particularly under a D.S.T project entitled "Ecological interaction and economic status of the

Xylophagous insects of the islands of Andaman and Nicobar" during the period 1978-1981. The present study is mainly based on these collection contained in more than 700 vials from numerous localities in different islands.

As many as 38 species has been dealt with in the present monograph, of which 24 species are already known from the area, 9 new to science and 5 recorded for the first time. Each has been treated with regard to its current scientific name, synonymies, diagnostic characters, measurements and distributional ranges, taxonomic status, etc. The range of distribution of almost all the species has been extended even to some unexplored islands. A running key dealing with the characteristics of the families, genera and species has been provided based on soldier caste only. Literature review, illustrations, references, etc. have certainly enriched the paper to bring out a self content volume. Lastly, a brief account on the zoogeographical analysis of the termite fauna of these islands has also been incorporated.

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