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Contributions to the Knowledge of the Bark and Timber beetles (Scolytidae : Coleoptera) of the Andaman and Nicobar Islands

by

P. K. MAITI
N. SAHA

Issued by the Director
Zoological Survey of India, Calcutta

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OF THE
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A CONTRIBUTION TO THE KNOWLEDGE OF THE BARK—AND TIMBER—BEETLES (SCOLYTIDAE : COLEOPTERA) OF THE ISLANDS OF ANDAMAN AND NICOBAR, INDIA.

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P. K. MAITI and **N. SAHA**

Zoological Survey of India, Calcutta

Edited by the Director, Zoological Survey of India.

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INTRODUCTION

General : The bark-and the timber-beetles belonging to the coleopterous family Scolytidae are one of the most fascinating groups of forest insects. These beetles are well known for their cryptobiotic mode of life, subsocial organisation, unique association with ambrosia fungi and lastly, for their economic importance. They cause considerable damage to live, dying and dead trees in the forest stands, to felled and stored logs in the extraction centres as well as in depots, and even to petioles, fruits and seeds of different plants.

The islands of Andaman and Nicobar situated in the Indian Ocean with its varied physiography, climate, forest and vegetation provide some ideal habitats for these insects. But our knowledge on the scolytid fauna of these insular areas does not at all commensurate with the economic importance of this group. The fauna is extremely poorly known with regard to its composition, taxonomic status, synonym, ranges of variation, distribution and biological features, etc. Though quite a number of species is known from the area, these are mainly based on stray collection. Species are poorly described even in different foreign languages in a number of scattered publications. No key is available for easy recognition of different taxa. Such lacunae are certainly due to the fact that uptil now, no serious attempt has been made to survey systematically the entire insular area to explore these beetles and to bring out a selfcontent comprehensive monograph on the beetles.

Moreover, the difficult terrain set with impenetrable forest and lack of inter island communication, etc., pose lots of problems for total exploration. However, to fill up these lacunae, an attempt has been made for the first time to explore the scolytid beetles of these islands under a special DST (Government of India, New Delhi) project "Ecological interaction and economic status of the Xylophagous insects of the islands of Andaman and Nicobar" under the guidance of the senior author during the period 1978-1981. The present monograph is based on the collection and observation made during this period on these beetles occurring in these islands. The study is further augmented by an excellent collection of both identified and unidentified specimens from the area present in F.R.I., Dehra Dun, India.

However, the main purpose of the present monograph is to bring out a comprehensive account on the scolytid fauna of the islands of Andaman and Nicobar. In order to do so, each species has been dealt with regard to its taxonomic status, synonym, morphological characters, ranges of variation and distribution, taxonomic remarks, biological features, host-plants, etc. For easy recognition of the entire fauna, both generic and specific keys have been provided.

Further, the species already reported from the area whose representative materials are not available for study, have been dealt with on the basis of published literature. All the species are uniformly described as regards to their salient characters for easy comparison with the allied species. In the item of remarks under each species, specific diagnostic features as well as field biological notes including host-plants are also incorporated. The existing literature on these beetles from the area are also chronologically reviewed in details. The list of collecting localities, list of species-host, and host-species, illustrations, spot maps, bibliography, etc. are the added features of the monograph. However, any faunal account will never be complete, unless it takes into account the physiography, climate, vegetation, etc. of the area concerned. Reasonably, these environmental factors are briefly incorporated.

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 Mentawei groups) of Sumatra in the south. About 324 islands in the north situated between latitude 10°31′ and 13°41′ N and longitude 92°11′ and 93°07′ E, constitute the Andaman group covering an area of about 6332 sq km of which only 18 are inhabited. On the other hand, only 24 islands in the south situated between latitude 6°40′ and 9°30′ N and longitude 92°30′ and 94°10′ E constitute the Nicobar group with a land area of about 1961 sq km of which only 12 are inhabited.

Geologically, this submarine mountain range is found on the Ocean bed at the expense of a narrow, but deep oceanic furrow (geosyncline) sometimes during the Cretaceous period (*c.* 110 million years ago) of the Mesozoic Era. Then through further evolution, including elevation and partial submergence for several times, a few peaks including the South Andaman and Great Nicobar appear on the scene sometimes in the Upper Oligocene (*c.* 30 million years ago) (Karunakaran, 1962 ; Karunakaran and Roy, 1967). Most of these islands support low ranges of hills enclosing narrow valleys.

The Saddle Peak (*c*, 732 m) in the North Andaman is the highest mountain peak of the Andaman group and the Mt. Thullier (*c*, 700 m) 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°C (January) and 34°C (April), while the minimum between 16°C (January) and 23°C (April-June) and the mean diurnal range is about 11°C. The relative humidity varies from 66 to 93 per cent, being maximum during the months of May to November. These islands receive the rainfall with an annual average of about 300 cm under the influence of both the South-West (May to September) and North-East (October to December) monsoon, 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 some are as follows :—

(i) Tropical evergreen forest occupying mostly the hill tops ;
(ii) Deciduous forest on the slopes ;
(iii) Semi-evergreen forest in the main valleys ,
(iv) Tidal and Swamp forest along the creeks ; and
(v) Beach forest.

However, the vegetation of the Andaman group is mostly of Burmese type, while that of the Nicobar group is of Malayan type.

List of abbreviations used :

alt., Altitude ; c., Circa ; coll., Collector or Collected by ; det., Determined by ; E., East ; ex., Extracted from ; exs., Examples ; F.R.I., Forest Research Institute, Dehra Dun ; Km, Kilometre ; mm, Millimetre ; N., North ; S., South ; W., West ; Z.S.I., Zoological Survey of India.

HISTORY

Literature review :

The Scolytid fauna of the islands of Andaman and Nicobar, is known so far in a very disolute manner. Though quite a number of species and subspecies are reported so far from the area, but great majority of them are poorly described and scattered over a number of papers published in different languages. However, Blandford was the first author to described a single species *Xyleborus andamanensis* Blandford and to report *X. exiguus* Walker from Andamans as early as in 1896a. In the same year, the author

(1896b) also referred to a species *Dactylipalpus transversus* Chapuis from Nicobar. After a decade or so, Hagedorn (1910) reported the occurrence of the former two species from the area. Later on, Stebbing (1914) reported three more species under the genus *Xyleborus* Eichhoff, of which two species have been synonymised and the other remained undescribed till to-day. The species *X. adumbratus* Blandford which was later on considered by Beeson (1930) as *X. vicarius* Eichhoff. However, *X. vicarius* does not stand as a valid one, now rather is treated as *X. torquatus* (Schedl, 1966). The other species, *X. (Progenius) laeviusculus* Blandford has also been considered as a synonym of *X. bidentatus* Motschulsky. The third speices, *X. nilgiriensis* still remains as an undescribed species in the literature (Schedl, 1972). Another species *Diamerus curvifer* (Walker) has been reported from Andaman by Eggers (1927) on the material sent to him by Sampson. In the year, 1930, our knowledge of the scolytid beetles of the islands of Andaman and Nicobar, has much been enhanced by Beeson in his biological contribution on Indian scolytidae. He dealt with the following species along with the description of a new species and its single variety.

1. *Xyleborus andamanensis* Blandford
2. *X. andrewesi* Blandford
3. *X. bicolor* Blandford
4. *X. bidentatus* (Motschulsky)
5. *X. brevidentatus* Eggers
   [Synonym of *X. bidentatus* (Motschulsky)]
6. *X. cognatus* Blandford
7. *X. corpulentus* Eggers
8. *X. exiguus* Walker
9. *X. incurvus* Eggers
   [Synonym of *Leptoxyleborus concisus* (Blandford)]
10. *X. indicus* Eichhoff
    (Synonym of *X. piceus* Motschulsky)
11. *X. interjectus* Blandford
12. *X. kraatzi* Eichhoff
    (Synonym of *X. perforans* Wollaston)
13. *X. major* (Stebbing)

14. *X. nepos* Eggers

15. *X. perparvus* Sampson

16. *X. pumilus* Eggers

17. *X. recidens* Sampson

18. *X. rodgeri* Beeson

19. *X. rodgeri* var. *privatus* Beeson
(Synonym of *Xyleborus rodgeri* Beeson)

20. *X. semigranosus* Blandford
[Synonym of *Xylosandrus crassiusculus* (Motschulsky)]

21. *X. sexspinosus* Motschulsky
(Synonym of *Eccoptopterus spinosus* Olivier)

22. *X. submarginatus* Blandford
(Synonym of *X. similis* Ferrari)

23. *X. vicarius* Eichhoff
(Synonym of *X. torquatus* Eichhoff)

Thus, a total of 23 species belonging to a single genus *Xyleborus* Eichhoff has been dealt with by Beeson (1930), of which only 4 species are already known from the area. As such, some 19 species seem to be a real addition to the existing fauna. But, as a result of further advancement of taxonomic knowledge on Indian scolytids, many changes have taken place both in the nomenclature as well as taxonomic status of different species. The scrutiny of present day literature has brought some 8 species under the synonymy of other species belonging to same or different genera as follows : *Xyleborus brevidentatus* Eggers has been synonymised with *X. bidentatus* (Motschulsky) by Schedl (1952), *X. kraatzi* Eichhoff with *X. perforans* Wollaston, *X. indicus* Eichhoff with *X. piceus* Motschulsky by Wood (1969), *X. semigranosus* Blandford with *X. semiopacus* Eichhoff by Scheld (1959) and subsequently *X. semiopacus* with *Xylosandrus crassiusculus* Motschulsky by Wood (1969), *X. vicarius* Eichhoff with *X. torquatus* Eichhoff by Schedl (1966), *X. sexspinosus* with *Eccoptopterus spinosus* Olivier and *X. submarginatus* Blandford with *X. similis* Ferrari. Moreover, in the present study, *Xyleborus incurvus* Eggers has been treated as a synonym of *Leptoxyleborus concisus* (Blandford) and *Xyleborus rodgeri* var. *privatus* Beeson of *X. rodgeri* Beeson. Thus, whatever may be the nomenclatural changes of these species referred to above, all are new additions to the Andaman fauna, except only 2 species, namely, *Xyleborus bidentatus* (Motschulsky) and *X. torquatus* Eichhoff

already reported from the area. As such, some 17 species have been added to the existing fauna by Beeson (1930). In the same year in 1930, Eggers also described a species *Xyleborus brevidentatus* which has been synonymised by Schedl (1952) with *X. bidentatus* (Motschulsky), a species already known from the area. Beeson (1935) described a species *Ptilopodius ramosus* from many a locality from the Orient including Little Andaman and Car Nicobar which has been much earlier recognised by him in 1922 from Sundarbans, West Bengal and remained undescribed. *Xyleborus exiguus* Walker already known from the area was once again referred by Beeson (1935). The same author in 1939, further described two more species under the genus *Coccotrypes* Eichhoff, namely, *C. trevori* Beeson from Nicobar and *C.* (=*Thamnurgides*) *litoralis* Beeson from Andaman and also reported the occurrence of *Coccotrypes* (=*Thamnurgides*) *vulgaris* (Eggers) from the Middle Andaman. Another species, *Hypothememus eupolyphaga* Beeson was also described by Beeson (1940) from the Andamans which had recently been synonymised with *Hypothenemus areccae* (Hornung) by Wood (1961). While discussing the biology of the Indian scolytid species in his book, Beeson (1941) reported the occurrence of some 10 species from the area, of which only three species, namely, *Scolytomimus insularis*, *Stephanoderes glabripennis* Hopkins and *Webbia* 30-*spinosus* Sampson were the real addition to the known fauna. *Scolytomimus insularis*, an undescribed species of Beeson, has been described recently by Schedl (1962) as *Scolytocleptes insularis*. At present, the members of the genus *Scolytocleptes* Schedl are mostly included under the genus *Scolytomimus* Blandford.

Schedl described three species, namely, *Xyleborus criticus* in 1950, *Scolytocleptes insularis* (already referred to above) in 1962, and *Poecilips nigronitens* in 1975. The same author also in 1969, reported some two more species, namely, *Diamerus curvifer* Walker and *Xyleborus nutans* Schedl from the Andamans and in 1971 reported the presence of a few species those were present at the Zoological Museum of the University of Copenhagen, namely, *Hypocryphalus opacus* Schedl, *Poecilips longior* Eggers, *P. vulgaris* (Eggers), *Xyleborus bidentatus* (Motschulsky), *X. exiguus* (Walker), *X. funerius* Lea, *X. indicus* Eichhoff and *X. torquatus* Eichhoff. All the above mentioned species were recorded for the first time from Nicobar , though some of them were already reported from the Andamans.

Beaver and Browne (1975) reported the occurrence of six more species, namely, *Cyrtogenius brevior* Eggers, *Hypothenemus glabripennis* (Hopkins) *Webbia trigintispinatus* Sampson, *Xyleborus andrewesi* Blandford, *X. exiguus* Walker and *Poecilips longior* Eggers. All the species were already known from the Andamans, except the first one from Nicobar.

Recently, Kumar and Chandra (1977) described the males of *Xyleborus bidentatus* already known from the area. But, its male is already described in the name of *Xyleborus riehli* Eichhoff, which has been synonymised under *X. bidentatus*.

Beaver and Browne (1978), more recently, reported some four species, namely, *Xyleborus exigiuus* Walker, *X. andamanensis* Blandford, *Poecilips longior* Eggers and *Hypothenemus glabripennis* Hopkins, all of which were already known from the islands of Andaman.

The list of species so far reported from the islands of Andaman and Nicobar is as follows according to their current scientific names.

Subfamily (I) HYLESININAE Erichson

Tribe (i) HYLESININI Erichson

1. *Dactylipalpus transversus* Chapuis
2. *Hylesinus despectus* Walker

Tribe (ii) DIAMERINI Hegedorn

3. *Diamerus curvifer* (Walker)

Subfamily (II) SCOLYTINAE Latreille

Tribe (i) DRYOCOETINI Lindemann

4. *Coccotrypes litoralis* (Beeson)
   (=*Thamnurgides litoralis* Beeson)
5. *Coccotrypes longior* (Eggers)
   (=*Poecilips longior* Eggers)
6. *Coccotrypes nigronitens* (Schedl)
   (=*Poecilips nigronitens* Schedl)
7. *Coccotrypes opaciforns* (Beeson)
   (=*Thamnurgides opaciforns* Beeson)
8. *Coccotrypes trevori* Beeson
9. *Coccotrypes vulgaris* (Eggers)
   [=*Poecilips vulgaris* (Eggers)]
10. *Cyrtogenius brevior* (Eggers)

Tribe (i) XYLEBORINI Leconte

11. *Ambrosiodmus nepos* (Eggers)
(=*Xyleborus nepos* Eggers)

12. *Eccoptopterus spinosus* (Oliver)
(=*Eccoptopterus sexspinosus* Motschulsky)

13. *Euwallacea andamanensis* (Blandford)
(=*Xyleborus andamanensis* Blandford)

14. *Euwallacea interjectus* (Blandford)
(=*Xyleborus interjectus* Blandford)

15. *Leptoxyleborus incurvus* (Eggers)
(=*Xyleborus incurvus* Eggers)

16. *Microperus perparvus* (Sampson)
(=*Xyleborus perparvus* Sampson)

17. *Microperus recidens* (Sampson)
(=*Xyleborus recidens* Sampson)

18. *Notoxyleborus major* (Stebbing)
(=*Xyleborus major* Stebbing)

19. *Webbia trigintispinatus* Sampson
(=*Webbia* 30-*spinatus* Sampson)

20. *Xyleborinus andrewesi* (Blandford)
(=*Xyleborus andrewesi* Blandford)

21. *Xyleborinus exiguus* (Walker)
[=*Xyleborus exiguus* (Walker)]

22. *Xyleborus bicolor* Blandord

23. *Xyleborus bidentatus* Motschulsky

24. *Xyleborus cognatus* Blandford

25. *Xyleborus corpulentus* Eggers

26. *Xyleborus criticus* Schedl

27. *Xyleborus funerius* Lea

28. *Xyleborus nilgiriensis* Hagedorn (nom. nud.)

29. *Xyleborus nutens* Schedl

30. *Xyleborus perforans* Wollaston

31. *Xyleborus piceus* (Motschulsky)
(=*Xyleborus indicus* Eichhoff)

32. *Xyleborus pumilus* Eggers

33. *Xyleborus rodgeri* Beeson

34. *Xyleborus rodgeri* var. *privatus* Beeson

35. *Xyleborus similis* Ferrari

36. *Xyleborus torquatus* Eichhoff

37. *Xyleborus vicarius* Eichhoff

38. *Xylosandrus crassiusculus* (Motschulsky)
(=*Xyleborus semigranosus* Blandford)

Tribe (iii) XYLOCTONINI Eichhoff

39. *Scolytomimus insularis* (Schedl)
(=*Scolytocleptes insularis* Schedl)

40. *Scolytomimus philippinensis* (Eggers)
(=*Xyloctonus andamanus* Beeson, in lit.)

Tribe (iv) CRYPHALINI Lindemann

41. *Hypocryphalus opacus* Schedl

42. *Hypothenemus areccae* (Hornung)

43. *Hypothenemus glabripennis* (Beeson)
(=*Stephanoderes glabripennis* Beeson)

44. *Ptilopodius ramosus* Beeson.

From the above list, a number of species, namely, *Xyleborus funerius* Lea, *X. nutans* Schedl and *X. nilgiriensis* Hagedorn (nom. nud.) have not been dealt with in the present monograph due to lack of material as well as any literature on them. The first species is deposited in the Copenhagen University Museum which is not available for study and the last two species are unknown to us. Mention may be made that the species *X. nepos* Eggers was earlier synonymised under *X. funerius* Lea by Schedl 1939, but Wood (1975) considered the species as a valid one.

Present faunal status :

As a result of present study, as many as 17 species belonging to 11 genera have been recorded for the first time from these insular areas including the recognition of two new species. The species are as follows :

Subfamily (i) SCOLYTINAE

Tribe (i) DRYOCOETINI

1. *Coccotrypes fallax* Eggers
   (=*Poecilips fallax* Eggers)
2. *Ozopemon obanus* Hagedorn

Tribe (ii) XYLEBORINI

3. *Anaxyleborus resecans* (Eggers)
4. *Arixyleborus mediosectus* (Eggers)
5. *Arixyleborus rugosipes* Hopkins
6. *Cnestus bicornioides* (Schedl)
7. *Cnestus suturalis* (Eggers)
8. *Euwallacea velatus* (Sampson)
9. *Webbia turbinatus* sp. nov.
10. *Xyleborus haberkorni* Eggers
11. *Xyleborus lantanae* Eggers
12. *Xyleborus shiva* sp. nov.
13. *Xyleborus sundaensis* Eggers
14. *Xylosandrus discolor* (Blandford)
15. *Xylosandrus ursinus* (Hagedorn)
    (=*Xyleborus ursinus* Hagedorn)

Tribe (iii) CRYPHALINI

16. *Hypothenemus javanus* (Eggers)
17. *Hypothenemus birmanus* (Eichhoff)

From the foregoing historical account, it is clear that our knowledge on the scolytid fauna of the islands of Andaman and Nicobar, has progressed slowly during the period from 1968 to 1971. During this period, as many as 44 species have been reported of which some three species, namely, *Xyleborus funerius* Lea, *X. nutans* and *X. nilgiriensis* have not been included in the present study due to lack of material and literature. However, in the present study, another 17 species including two new species have been recognised from the area for the first time to bring to a total of 58 species altogether. The genus *Xyleborus* Eichhoff is alone represented by 14 species and followed by the genus *Coccotrypes* Eichhoff containing some 8 species. There are 12 genera represented by single species only.

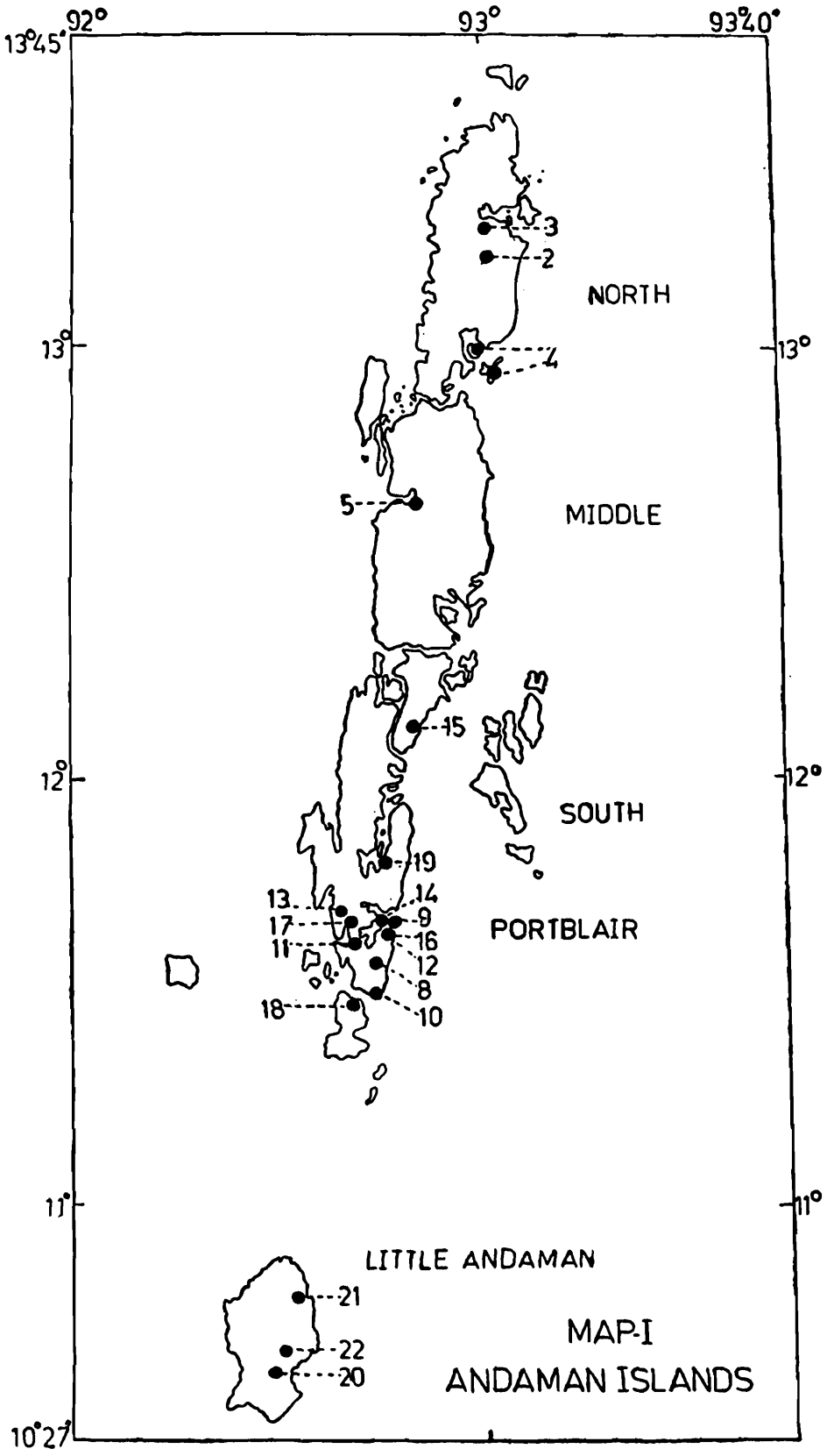
This is a pretencious claim to mention that the entire fauna has been covered in the present account. More than 15 species have been excluded from this monograph, of which some of them are not properly identified at the moment and others are not represented by the sufficient material.

Though the fauna of this insular area is predominantly Oriental in origin, it contains a number of exotic species also. Due to the insular characteristic of these land masses, the biogeographical analysis of the scolytid beetles would be highly interesting, which would be discussed in details elsewhere.

LIST OF COLLECTING LOCALITIES (MAPS- I and II)

Serial No.	Name of Localities	Name of Collector with year
A.	NORTH ANDAMAN	C.F.C. Beeson (1930) B. M. Bhatia (1925, '28, '29 and '30).
1.	Bonington	C. F. C. Beeson (1930)
2.	Diglipur	B. N. Nandi (1979)
3.	Lakshmipur, 7 km N. W of Diglipur	B. N. Nandi (1979)
4.	Stewart Sound	C. F. C. Beeson (1930)

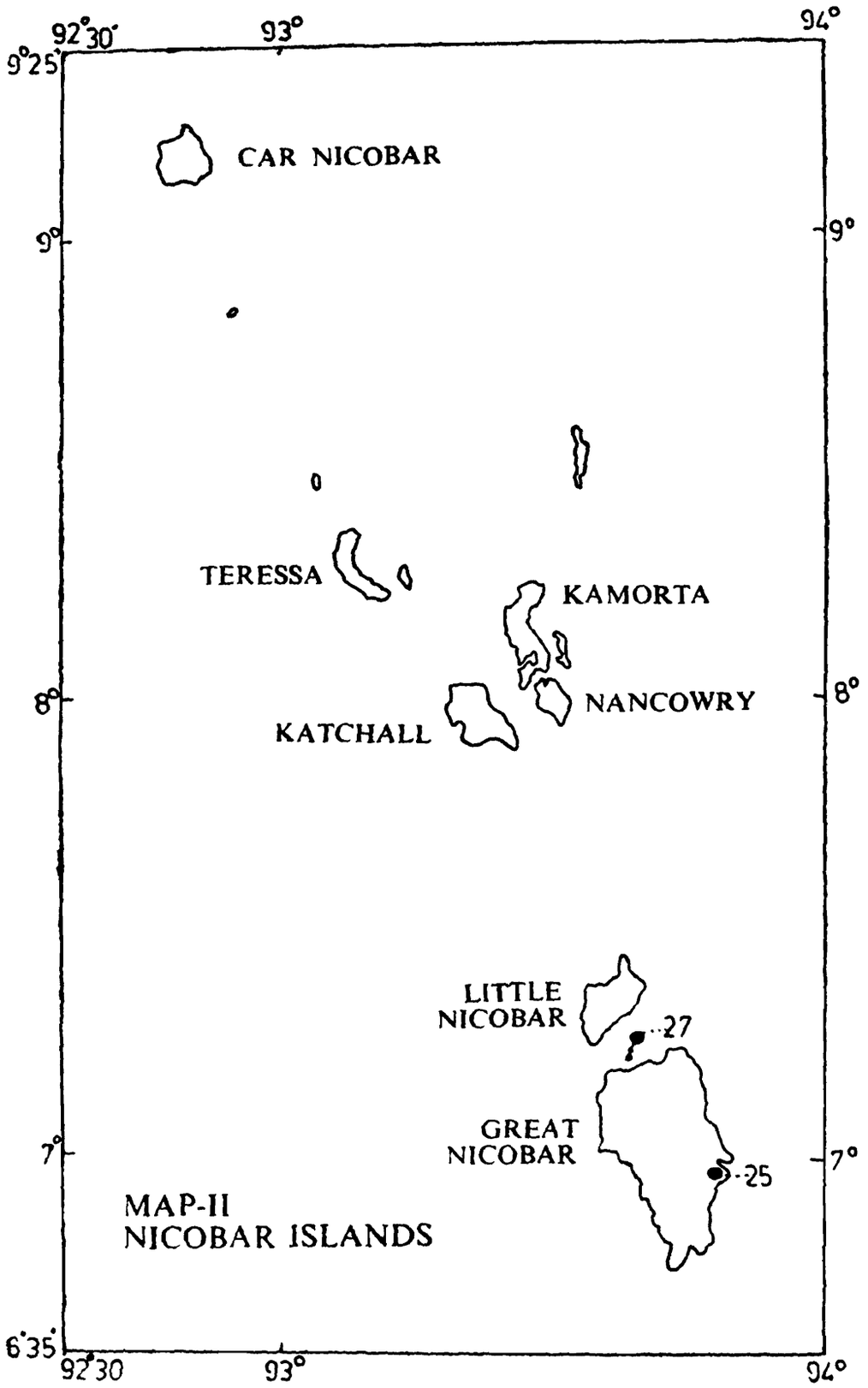
Serial No.	Name of Localities	Name of Collector with year
B.	MIDDLE ANDAMAN	B. M. Bhatia (1928, '29)
5.	Bakultala, 5 km W. of Rangat	B. N. Nandi (1979)
6.	Long Island	C. F. C. Beeson (1930)



Number indicated in the Map corresponds to those under 'List of Collecting Localities'

Serial No.	Name of Localities	Name of Collector with year
C.	SOUTH ANDAMAN	C. F. C. Beeson (1930) B. M. Bhatia (1925, '30)
7.	Alexandra Mangrove	B. Mitra (1928)
8.	Bimliton, 13 km of S. W of Port Blair	B. N. Nandi (1979)
9.	Chatham	B. M. Bhatia (1928) C. F. C. Beeson (1930)
10.	Chidyatapu, 38 km S. of Port Blair	B. N. Nandi (1981)
11.	Chouldhari, 18 km N. of Port Blair	B. N. Nandi (1981) P. K. Maiti (1978)
12.	Dilanipur	B. N. Nandi (1981)
13.	Ferrarganj, 45 km of Port Blair	B. N. Nandi and party (1981)
14.	Haddo	B. N. Nandi and party (1981)
15.	Jaroacreak, 14 km N. E. of Baratang Jetty	B. N. Nandi and party (1981)
16.	Port Blair	C. F. C. Beeson (1930) P. K. Maiti (1979)
17.	Pungibalu	B. N. Nandi (1981)
18.	Rutland Island, 45 km S. of Port Blair	B. Mitra (1982)
19.	Wright Myo, 60 km N. W of Port Blair	B. N. Nandi and party (1981) T N. Khan (1981) T N. Khan and B. Mitra (1981)
D.	LITTLE ANDAMAN	
20.	Quary, Hut Bay	B. N. Nandi and party (1978) B. Mitra (1982)
21.	Dugon creak, Hut Bay	T. N. Khan and B. Mitra (1981)

Serial No.	Name of Localities	Name of Collector with year
22.	Timber extraction centre, 16 km from Hut Bay	T N. Khan and B. Mitra (1981) ; B. Mitra (1982)



Number indicated in the Map corresponds to those given under 'List of Collecting Localities'

Serial No.	Name of Localities	Name of Collector with year
	E. CAR NICOBAR	Forest Entomologist (1930)
	F. NANCOWRY GROUP	
23.	Nancowry	B. N. Nandi and T. N. Khan (1980)
24.	Kamorta	B. N. Nandi (1978) T. N. Khan (1978)
	G. LITTLE NICOBAR	Forest Entomologist (1930)
	H. GREAT NICOBAR	
25.	Campbell Bay	B. N. Nandi (1978) T. N. Khan (1978)
26.	Forest, 36 km. from Campbell Bay	B. N. Nandi and party (1978)
27.	Kondul	Forest Entomologist (1930)

MATERIAL AND METHODS

Material : The present monograph is mainly based on the material collected under a DST project entitled, "Ecological interaction and economic status of the Xylophagous Insects of the islands of Andaman and Nicobar" under the guidance of the senior author during the period 1978-81. This collection has been augmented by an excellent collection of both unidentified and authentically identified material present in the Forest Research Institute, Dehra Dun. Moreover, the type-specimens of the relevant species available in this Institute, have also been fully utilized. The species not represented by any material at our disposal have been dealt with by the help of existing literature.

Methods : The dry, set and pinned material was studied under a Stereoscopic Binocular Microscope. For detailed microscopic observations, different body parts have been processed and mounted on glass slides. These slides are also studied under Stereoscopic Microscope. The taxonomic classification of the scolytid beetles as proposed by Wood (1978) has been follwed in the present account. For illustration, Cemera Lucida diagrams have been drawn with the aid of Wild Stereoscopic Binocular (Wild M_3).

TAXONOMIC ACCOUNT

Key to the genera and species :

1 (6). Basal margin of each elytron procurved and armed with a series of weak or strong marginal crenulations ; head wider, usually visible from above ; pronotum weakly declivous on anterior half ; usually unarmed, if at all armed, armed with some crenulations antero-laterally ; body with scales or deeply divided setae

Subfamily : Hylesininae

2 (3). Scutellum not visible ; antennal club flattened with distinct oblique septum from the base, but without any suture ; tibial grooves in the mid-and hind-legs present

Genus : *Diamerus* Erichson

— Elytral basal margin weakly cranulate and elevated ; elytral apex terminating into a tubercle ; pronotal surface with large deep close punctures, except on postero-median portion ; interpuncture space pronounced ; body length 3.70-4.70 mm

D. curvifer (Walker)

3 (2). Scutellum visible ; antennal club without any septum, but either with or without any suture ; tibial groove in the mid-and hind-legs absent

4 (5). Antennal club unmarked by any suture ; female with microsporangium at the anterior fourth of pronotum ; eyes elongately entire

Genus : *Dactylipalpus* Chapuis

— Large species, 9.50-10.0 mm ; microsporangium at anterior fourth of pronotum transverse, measuring about 1.30 mm ; in female, frons shiny and with large deep punctures

D. transversus Chapuis

5 (4). Antennal club with three distinct transverse sutures ; pronotum in females without any microsporangium ; eyes elongate, but feebly emarginate

Genus : *Hylesinus* Fabricius

— Elytral interstriae uniseriately subasperate at base and subgranulate towards apex ; pronotal surface with close deep punctures of irregular shape ; interpuncture space very much reduced ; in males, antennal funicle with fine long hairs ; body length 2.70-3.00 mm

H. despectus Walker

6 (1). Basal margin of each elytron with substraight transverse line across the body and without any crenulation ; head somewhat narrower, partly or entirely concealed from dorsal aspect ; pronotum weakly to strongly declivous on anterior half and usually armed with many asperities, more distinct on antero-median area(except *Webbia* Hopkins, with distinct asperities on antero-lateral area) ; body devoid of deeply divided setae, but sometimes with scales

Subfamily : Scolytinae

7 (18). Metepisternum largely covered by elytra ; its groove for reception of costal flange obsolete ; metepisternum with a small transverse callus at its anterior end ; antennal club strongly flattened, never obliquely truncate ; antennal funicle with 4-5 segments (Tribe : Cryphalini)

8 (9). Antennal club devoid of any septum or suture ; eyes entire

Genus : *Ptilopodius* Hopkins

— Pronotum strongly produced anteriorly accommodating about 6-8 teeth, median one usually much larger ; anterior tibiae and tarsi with a few plumose long hairs ; body length 1.35-1.50 mm

P. ramosus Beeson

9 (8). Antennal club with sutural lines usually marked by hairs and sometimes partly septate ; eyes shallowly emarginate

10 (17). Antennal club with 3 sutural lines marked by hairs, sutural line 1 transverse and partly septate

Genus : *Hypothenemus* Westwood

11 (14). Frons with a weak transverse concentric carina at upper level of eyes, weakly concave or flattened below the carina ; small species, not more than 1.60 mm

12 (13). Anterior margin of pronotum with 4 distinct asperities, asperities on anterior slope of pronotum large in size and not more than 25 ; transverse carina of frons prominent ; body 2.2 times as long as wide

H. javanus (Eggers)

13 (12). Anterior margin of pronotum with 6 asperities; asperities on anterior slope of pronotum small in size and numerous, more than 40 ; transverse carina on frons not so prominent ; body 2.5 times as long as wide

H. areccae (Hornung)

14 (11). Frons uniformly convex without any transverse carina ; large species, more than 1.90 mm in length

15 (16). Anterior margin of pronotum with 4 asperities, only median pair comparatively large ; declivital interstriae not elevated ; posterior portion of pronotum and elytral interstriae with scale-like setae ; body length 1.90 mm

H. birmanus (Eichhoff)

16 (15). Anterior margin of pronotum with 4 asperities, all nearly of equal size; declivital interstriae 1, 3, 5, 7 and 9 strongly elevated ; pronotum and elytral interstriae devoid of any scale-like setae ; body length 2,10 mm

H. glabripennis (Hopkins)

17 (10). Antennal club with 3 sutural lines either weakly or strongly procurved, but without any septum.

Genus : *Hypocryphalus* Hopkins

— Body length 1.50 mm; elytral surface dull and covered with thick punctures; anterior margin of pronotum with 4 distinct close asperities

H. opacus Schedl

18 (7). Metepisternum exposed, visible throughout its length, not entirely covered by elytra, but slightly more than its dorsal half covered by elytra in locked position ; with a conspicuous groove for reception of costal flange throughout ; antennal club variable in shape, either flat or obliquely truncate ; antennal funicle with 3-5 segments

19 (22). Eyes strongly emarginate to completely divided ; antennal funicle with 6-7 segments ; antennal club strongly flattened and much enlarged ; elytra almost straight without any posterior declivity ; abdomen conspicuously ascending towards apex ; tarsi always retractile into meso-and meta-tibial groove

Genus : *Scolytomimus* Blandford

20 (21). Antennal club with single oblique septum ; antennal funicle with 7 segments ; eyes elongate and deeply emarginate ; entire declivous portion of pronotum with distinct asperities ; interstriae 3, 4, 6 and 7 obsolete between other interstriae towards elytral apex ; comparatively small species

S. insularis (Schedl)

21 (20). Antennal club with two oblique septa ; antennal funicle with 6 segments ; eyes completely divided into two parts ; median declivous portion of pronotum with a few distinct asperities ; every alternate interstrie obsolete towards elytral apex ; comparatively large species

S. philippinensis (Eggers)

22 (19). Eye entire to fairly deeply emarginate, but never completely divided ; antennal funicle with 3-5 segments ; antennal club weakly flattened or obliquely truncate ; elytra posteriorly declivous, abdomen slightly ascending towards apex ; tarsi sometimes retractile, but without any meso-and meta-tibial groove

23 (42). Meso-and meta-thorasic tibiae more slender and more abruptly narrowed on apical fourth ; lateral and apical margins armed with fewer coarser teeth ; eyes very shallowly emarginate ; pronotum with a raised line on basal or lateral margins ; pregular area not depressed ; both sexes of similar size and body form (except dwarfed and deformed males in *Coccotrypes* and *Ozopemon*)

(Tribe : Dryocoetini)

24 (25). Antennal club without any distinct basal corneous portion ; protibiae with 5 socketed teeth

Genus : *Cyrtogeneus* Strohmeyer

— Elytral strial punctures very close, large and deep ; elytral declivity very steep and convex ; interstria 1 strongly impressed on declivital face ; striae 1, 2 and 3 sinuate, apically curved towards suture ; interstriae 1, 2 and 3 wider than on disc, each bearing a uniseriate row of rather widely placed pointed granules ; body length 1.70-2.40 mm

C. brevior (Eggers)

25 (24). Antennal club with distinct basal corneous portion; pro-tibiae with 4-5 socketed teeth

26 (27). Antennal club somewhat flattened, basal corneous portion with procurved margins on both the faces ; frons devoid of any aciculation

Genus : *Ozopemon* Hagedorn

— Elytral declivital face steep, surface opaque and flat ; but impressed along interstria 2 ; pronotum with weak asperities throughout and body densely pilose ; large species, 4.70-5.60 mm

O. obanus Hagedorn

27 (26). Antennal club obliquely truncate, posterior face with distinct procurved suture ; with strongly to weakly aciculate frons [except, in *C. longior* (Eggers) and *C. fallax* (Eggers)]

Genus : *Coccotrypes* Eichhoff

28 (29). Pronotal surface smooth and shiny without any asperities, but with extremly fine scattered punctures

C. nigronitens (Schedl)

29 (28). Pronotal surface with distinct scale-like asperities or granules; punctures either present or absent, if at all present, present only on posterior third

30 (31). Elytral apex strongly acuminate ; frons without any carinula, but rugosely reticulate with obscure punctures ; body length 3.15-3.25 mm

C. fallax (Eggers)

31 (30). Elytral apex broadly or ovately rounded ; frons with or without any carinula ; body length 1.50-3.10 mm

32 (37). Elytral strial punctures with microhairs

33 (34). Species short and stout ; pronotal surface somewhat angularly convex ; body length 2.10-2.25 mm

C. trevori Beeson

34 (33). Species long and cylindrical ; pronotal surface uniformly and weakly convex

35 (36). Frons with distinct carinule, but without any punctures ; elytral interstriae with uniform thin setae throughout ; posterior third of pronotum without any puncture, but with indistinct asperities ; space in between asperities roughened ; declivital face somewhat abrupt ; lateral sides of pronotum not distinctly margined on basal half

C. opacifrons (Beeson)

36 (35). Frons with a few weak carinulae only just above epistomal margin and with distinct punctures ; elytral interstriae with thin setae on disc and stout ones on declivity ; posterior third of pronotum with large deep close punctures and space between asperities smooth and shiny ; declivital face gradually sloping ; lateral sides of pronotum distinctly margined on basal half

C. vulgaris (Eggers)

37 (32). Elytral strial punctures without any microhair

38 (39). Frons without any carinulae, rather with distinct punctures ; species long and slender, 2.7 times as long as broad

C. longior (Eggers)

39 (38). Frons with distinct carinulae ; body comparatively broad, 2.5 times as long as broad.

40 (41). Species large 2.60-3.10 mm ; declivital face steeply convex, but interstriae 1-3 somewhat flattened

C. litoralis (Beeson)

41 (40). Species small, 2.00-2.10 mm ; declivital face steeply convex but not flattened

C. cyperi (Beeson)

42 (23). Meso-and meta-thorasic tibiae expanded to just beyond middle, then arcuately tapered to apex, its apical two-thirds on outer margin armed with a row of numerous small, closely set teeth of equal size, these usually supplemented in same row by submarginal hairs on posterior face ; eyes either shallowly or deeply emarginate ; pronotum without raised line on basal and lateral margins ; pregular area depressed ; males dwarf and deformed ; pronotum highly modified

(Tribe : Xyleborini)

43 (52). Scutellum not visible, if at all visible, only on anterior declivous slope of elytral basal margin ; scutellar emargination not prominent

44 (47). Antennal funicle with 3-4 segments ; elytral apex completely truncated, truncate margin forming circumdeclivital costa with spine-like processes (spine-like process absent in male); pronotal asperities on antero-lateral corners comparatively prominent

Genus : *Webbia* Hopkins

45 (46). Declivital face with one large tubercle towards lower half ; sutural interstriae not elevated ; female with distinct circumdeclivital spines, males lacking these spines ; comparatively large species, body length 2.50 mm

W. turbinatus sp. nov.

46 (45). Declivital face without any large tubercle ; sutural interstriae much elevated and broadened ; circumdeclivital costa of each elytron bearing 15 distinct spines; body length 3.00 mm

W. trigintispinatus Sampson

47 (44). Antennal funicle with 5 segments ; elytral apex not truncate, rather either excavate or continuous ; pronotal asperities more prominent on antero-median portion

48 (51). Antennal club with one distinct suture on posterior face and basal corneous portion on anterior face with procurved anterior margin ; declivital face plano-convex ; elytral basal margin outcurved between sutural line and humeral callus ; meta-tibia with socketed teeth, metatarsi not compressed

Genus : *Microperus* Wood

49 (50). Elytral disc weakly and reticulately roughened ; declivital face opaque and obliquely steep ; strial lines obsolete, without any distinct puncture ; all the declivital interstriae with uniseriate close granules ; body length 1.70-1.78 mm

M. perparvus (Sampson)

50 (49). Elytral disc smooth and shiny ; declivital face not opaque but very steep ; strial lines with distinct punctures ; declivital interstriae except 2 with sparse granules ; body length 1.80 mm

M. recidens (Sampson)

51 (48). Antennal club without any suture on posterior face and basal corneous portion on anterior face with recurved anterior margin ; declivital face excavated ; elytral basal margin substraight ; metatibiae enlarged, devoid of any socketed row of teeth on margin; metatarsi compressed

Genus : *Eccoptopterus* Motschulsky

— Posterior two-thirds of elytra excavated, excavated margin with three distinct pointed tubercles gradually decreasing in length posteriorly ; pronotum almost as long as elytra ; pronotum with a few prominent asperities on anterior margin and with a very distinct summit ; body length 2.80 mm

E. spinosus (Olivier)

52 (43). Scutellum distinctly visible from above, variable in shape and size ; scutellar emargination prominent

53 (56). Scutellum small and conical, not filling up the entire scutellar space, scutellum surrounded by closely set hairs; postero-lateral margins of elytral declivity bearing series of tubercles, but devoid of carina ; anterior margin of pronotum unarmed

Genus : *Xyleborinus* Reitter

54 (55). Elytral apex strongly tapering posteriorly ; declivital interstria 2 with sparse minute granules ; interstriae 1 and 3 with pointed tubercles throughout and on other interstriae upto 7 only towards apex

X. andrewesi (Blandford)

55 (54). Elytral apex rather broadly rounded ; declivital interstria 2 without any granules except only a few at the commencement of declivity ; interstriae 1 and 3 with blunt tubercles throughout and on other interstriae up to 7 only towards apex

X. exiguus (Walker)

56 (53). Scutellum fairly large, triangular or rounded, filling the entire scutellar space, without any hairs surrounding scutellum ; postero-lateral margins of declivity either with carinae or bearing series of tubercles ; anterior margin of pronotum either armed or unarmed

57 (58). Antennal club not exactly obliquely truncate, but dorso-ventrally flattened ; basal corneous portion with strongly angularly procurved anterior margin

Genus : *Notoxyleborus* Schedl

— Species large and robust ; body length 5.00-5.20 mm ; antero-median portion of pronotum produced bearing teeth

N. major (Stebbing)

58 (57). Antennal club distinctly obliquely truncate or dorso-ventrally flattened ; basal corneous portion on anterior face with substraight or recurved apical margin

59 (60). Elytral declivity sharply truncated with complete distinct elevated circumdeclivital costa from base to apex

Genus : *Anaxyleborus* Wood

— Declivital face with 3 complete and 3 incomplete striae ; pronotal basal margin distinctly bisinuate ; species blackish in colour ; body length 2.53 mm

A. rececans (Eggers)

60 (59). Elytral declivity not truncated; if at all truncate [only in *Xylosandrus discolar* (Blandford)], truncate margin without any circumdeclivital costa

61 (64). Antennal funicle with four segments

Genus : *Cnestus* Sampson

62 (63). Declivital face convex, without any granules or tubercles ; postero-lateral margins of declivity feebly carinate, but not elevated ; posterior half of pronotum with inconspicuous sparse punctures ; antero-median portion of pronotum feebly produced ; body length 2.35 mm

C. suturalis (Eggers)

63 (62). Declivital face feebly impressed medially and interstriae 3 and 4 with setiferous granules ; postero-lateral margins of declivity carinate and distinctly elevated ; posterior half of pronotum with large close punctures ; antero-median portion of pronotum distinctly produced ; body length 2.50-2.70 mm

C. bicornioides (Schedl)

64 (61). Antennal funicle with five segments

65 (70). Procoxae narrowly to widely separated

Genus : *Xylosandrus* Reitter

66 (67). Procoxae, subcontiguous ; declivital face with distinct strial puncture ; large robust species, more than 4.00 mm in length

X. ursinus (Hagedorn)

67 (66). Procoxae widely separated ; declivital face without any strial puncture, rather with granules ; small species, not more than 2.50 mm in length

68 (69). Declivital face regularly arched without any punctures, rather with confused granules over entire surface ; pronotal summit slightly below middle, below of which punctate ; interpuncate space smooth with only sparse hairs, but postero-median portion without any tuft of hairs, only with sparse hairs, body length 2.20-2.50 mm

X. crassiusculus (Motschulsky)

69 (68). Declivity abrupt, face without any punctures, striae with a single row of close minute tubercles and interstriae with confused granules ; pronotal summit at posterior one third, below of which granulate, roughened between granules and postero-median portion with tuft of yellowish hairs along with sparse hairs ; body length 1.90-2.00 mm

X. discolor (Blandford)

70 (65). Procoxae contiguous

71 (74). Protibiae inflated on posterior surface and inflated surface with granules

Genus : *Arixyleborus* Hopkins

72 (73). Interstriae ridged with minute tubercles almost from base to the elytral apex ; postero-lateral margins of declivity without any carina ; broad and stout species ; body length 1.70 mm

A. rugosipes Hopkins

73 (72). Interstriae ridged with tubercles, only near commencement of declivity ; postero-lateral margins of declivity with distinct carinae ; narrow and slender species ; body length 2.0 mm

A. mediosectus (Eggers)

74 (71). Protibiae on posterior face not exactly inflated, but always devoid of any granules

75 (78). Elytral declivity excavate, entire excavate margin uneven and with granules or or tubercles ; deceivital striae incomplete, elytral apex distinctly emarginate [except in *coptoborus pumilus* (Eggers)]

Genus : *Coptoborus* Hopkins

76 (77). Species large, 3.55-3.65 mm ; elytral apex with broad emargination ; one pair of tubercles slightly within the declivity

C. emarginatus (Eichhoff)

77 (76). Species small, 1:90-2.0 mm ; each elytral apex individually round, forming very weak emargination ; one pair of tubercles well within the declivity

C. pumilus (Eggers)

78 (75). Elytral declivity not excavated, declivital face either flat, convex or feebly concave ; declivital striae complete ; elytral apex without any emargination

79 (80). Declivital interstriae with multiseriate rows of squamous setae

Genus : *Leptoxyleborus* Wood

— Pronotum subquadrate ; postero-lateral margins of declivity distinctly carinate up to interstria 7 ; body length 2.50-2.75 mm

L. concisus (Blandford)

80 (79). Declivital interstriae without any squamous seta

81 (82). Pronotal asperities extending up to basal margin

Genus : *Ambrosiodmus* Hopkins

— Pronotum with weak granule-like asperities extending nearly up to base; declivital interstria 2 with 4-5 distinct tubercles in row ; body length 3.00-3.40 mm

A. nepos (Eggers)

82 (81). Pronotal asperities not extending up to posterior margin, rather confined only on the anterior half above the summit

83 (88). Posterior face of antennal club with two distinct sutures

Genus : *Euwallacea* Hopkins

84 (85). Elytral declivital striae feebly impressed ; interstrial hairs on declivity shorter and stouter than those on disc ; protibiae with 4-6, and meso-and meta-tibiae with 6-8 marginal teeth ; body length 3.10-3.20 mm

E. andamanensis (Blandford)

85 (84). Elytral declivital interstriae not at all impressed ; interstrial hairs uniform throughout ; protibiae with 7-9 and meso- and meta-tibiae with 11 marginal teeth.

86 (87). Species small, 2.40-2.45 mm ; frons with indistinct punctures ; elytral declivity steep ; body length 2.40-2.50 mm

E. velatus (Sampson)

87 (86). Species large, 3.50-4.00 mm ; frons with distinct punctures ; elytral declivity rather gradually sloping ; body length 3.65-4.00 mm

E. interjectus (Blandford)

88 (83). Posterior face of antennal club without or with one suture apically (except *X. bidentatus* Motschulsky, *X. lantanae* Eggers, *X. sundaensis* Eggers, with two sutures on posterior face, and antero-median portion of pronotum produce to accommodate asperities)

Genus : *Xyleborus* Eichhoff

89 (94). Posterior face of antennal club with two distinct sutures

90 (91). Declivital face with one distinct tubercle at the middle of interstria 2 and also with uniseriate setiferous granules ; elytra converging posteriorly into a narrowly rounded apex ; body length 3.50-3.70 mm

X. bidentatus (Motschulsky)

91 (90). Declivital face without any granule or tubercle ; elytral apex very broadly rounded

92 (93). Elytral disc uniformly convex up to commencement of declivity ; striae on the declivital face in uniform rows marked by punctures ; body length 4.10 mm

X. lantanae Eggers

93 (92). Elytral disc weakly incurved in between elytral base and commencement of declivity ; striae on declivital face obsolete, particularly at the apical half and with irregular punctures ; body length 4.30 mm

X. sundaensis Eggers

94 (89). Posterior face of antennal club without any suture or if present, only apically

95 (110). Species long and slender, 2.5-3.0 times as long as wide ; anterior margin of pronotum unarmed

96 (97). All the declivital interstriae with granules ; body length 2.10-2.25 mm

X. piceus (Motschulsky)

97 (96). All the declivital interstriae with granules except interstria 2, but a few granules may be present at commencement of declivity

98 (101). Declivital interstria 1 comparatively wider than others, accommodating one large tubercle

99 (100). Tubercle on sutural interstria placed more or less at middle of declivity ; frons with close punctures and median line ; elytral apex narrowly rounded ; postero-lateral margin of declivity with granules and declivital face rather abrupt ; body length 2.30-2.50 mm

X. similis Ferrari

100 (90). Tubercle on sutural interstria placed more posteriorly ; frons with a few sparse punctures and without any median line ; elytral apex feebly emarginate; postero-lateral margins of declivity without any granules and declivital face not abrupt, rather gradually sloping ; long slender species, body length 1.85 mm

X. shiva sp. nov.

101 (98). Declivital interstria 1, or both 1 and 3, comparatively wider than others, bearing a few tubercles or granules

102 (105). Postero-lateral margins of declivity distinctly carinate up to interstria 7

103 (104). Declivital interstriae 1 and 3 weakly elevated bearing 3 to 4 setiferous small tubercles, other interstriae with granules ; body length 1.75-1.85 mm

X. bicolor Blandford

104 (103). Declivital interstria 1 feebly elevated bearing 2-3 setiferous tubercles, other interstriae with obsolete granules ; body length 1.75 mm

X. rodgeri Beeson

105 (102). Postero-lateral margins of declivity acutely elevated, beset with tubercles, without forming any carina

106 (107). Frons with coarse deep punctures, surface of elytral declivity coarse opaque, comparatively darker than disc ; declivital tubercles distinctly slender and pointed, elytral disc densely hairy ; body length 3.00-3.45 mm

X. cognatus Blandford
X. torquatus Eichhoff*

107 (106). Frons with fine shallow punctures, surface of elytral declivity smooth and shiny, almost same colour as in disc, declivital tubercles bluntly large, elytral disc less hairy

108 (109). Elytral apex steeply declivous, granules on interstria 3 comparatively larger than those on the sutural interstria, body length 2.04-2.20 mm

X. criticus Schedl

109 (108). Elytral apex less steeply declivous, granules on interstriae 1 and 3 of almost equal size ; body length 2.10-2.35 mm

X. perforans Wollaston

110 (95). Species short and stout, more or less twice as long as wide ; anterior margin of pronotum distinctly armed with asperities

111 (112). Species small, 1.70-2.10 mm ; both the interstriae 2 and 3 each with only one distinct tubercle at the commencement of declivity, rest of the declivital face with with uniseriate minute indistinct granules ; strial puncture large and distinct

X. haberkorni Eggers

112 (111). Species large 2.0-2.15 mm ; declivital face without any tubercle, rather with minute granules more distinct on upper half of declivity ; entire declivital face with fine pubescence ; strial punctures minute

X. corpulentus Egger

Taxonomic treatment of species :

Subfamily (I) HYLESININAE Erichson

Tribe (i) HYLESININI Erichson

Genus : **Dactylipalpus** Chapuis, 1869

Dactylipalpus Chapuis, F. 1973. *Synopsis des Scolytidae*, p. 220, *Type-species* : *Dactylipalpus transversus* Chapuis ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 5 ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 66 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 4 ; Wood, S. L. 1978. *Annls. Soc. ent. Fr. (N. S.)*, **14** (1) : 111.

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* Since no material is available for study, diagnostic characters are hardly recognised from the literature.

Dactylopselaphus Gemminger and Harold, 1872. *Cat. Colop.*, **9** ; 2678, *Type-species* : *Dactylipalpus transversus* Chapuis, (New name of *Dactylipalpus* Chapuis); Blandford, W.F.H. 1896. *Ann. Mag. nat. Hist.*, **17** (6) : 320 (Synonymy).

Ethadopselaphus Blandford, W. F. H. 1896. *Ann. Mag. nat. Hist.*, **17** (6) : 321, *Type-species* : *Ethadopselaphus cicatricosus* ; Hagedorn, M. 1910. *Colept. Cat.*, **26** (4) : 5 (Synonymy).

The genus *Dactylipalpus* was erected by Chapuis (1869) to accommodate his two species, of which *D. transversus* Chapuis from Celebes was designated as type-species. Later on, Gemminger and Herold (1872) proposed a genus *Dactylopselaphus* as the new name for *Dactylipalpus*. Blandford in 1896 also described another genus *Ethadopselaphus* based on the type-species, *E. cicatricosus* Blandford from Natal which was also placed under the synonymy of the genus under discussion. However, the genus is now a well established one represented in the Oriental, Papuan, Australian and Ethiopian Regions. Only two species are so far known from the Orient.

1. **Dactylipalpus transversus** Chapuis

Dactylipalpus transversus Chapuis, F. 1873. *Synopsis des Scolytidae*, p. 220, Female, *Type-localities* : Malacca and Celebes ; Blandford, W. F. H. 1896. *Ann. Mag. nat. Hist.*, **17** (6) : 320, Nicobar Island ; Schedl, K. E. 1958. *Indian Forest Rec. (N. S.) Ent.*, **9** (8) : 171, Andaman Island ; Beeson, C. F. C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 287 p.; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 66 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 4, Oriental, Papuan and Austrialian Regions.

Dactylipalpus quadraticollis Chapuis, F. 1873. *Synopsis des Scotytidae*, p. 220, Male, Ternate ; Blandford, W. F. H. 1896. *Ann. Mag. nat. Hist.*, **17** (6) : 320 (Synonymy).

(a) *Material.*—(i) *Identified* : 2 Females from Kamorta, Nicobar Isl., *Ind. Mus. coll., det.* F. W. Sampson ; (ii) 6 Females from Andaman Isl., *Indian Mus. coll., det.* F. W Sampson.

(b) *Description.*—(i) *Female* (Fig. 1, a-d) : Body stout ; head, pronotum, elytra and legs blackish brown ; antennae slightly lighter. Body length 9.50-10.00 mm and nearly twice as long as broad.

Head subrostrate, frons weakly convex except flattened on broad area between and above eyes and arcuately impressed just above epistoma ; surface shining with rather abundant, coarse, sharply impressed, shallow punctures, a small setiferous granule at centre of each puncture ; vestiture consisting of short, stout and semierect setae. Eyes entire and strongly elongate. Antennae very short, scape stout and clubbed, funicle with 7 segments and club subcompressed, subpyriform, closely pubescent and unmarked by any suture.

Pronotum subquadrate, 1.6 times as broad as long, basal margin somewhat bisinuate, lateral margins substraight and weakly narrowing anteriorly, anterior margin substraight with a very weak median emargination, median area with distinct large punctures, space around punctures somewhat transversely granulate, becoming more abundant in lateral areas and becoming asperate in antero-lateral areas in 9-10 rows ; transverse microsporangium measuring 1.3 mm in length, placed on anterior fourth, the areas around it rather depressed and comparatively smooth with numerous small setae ; vestiture of short and stout recumbent setae.

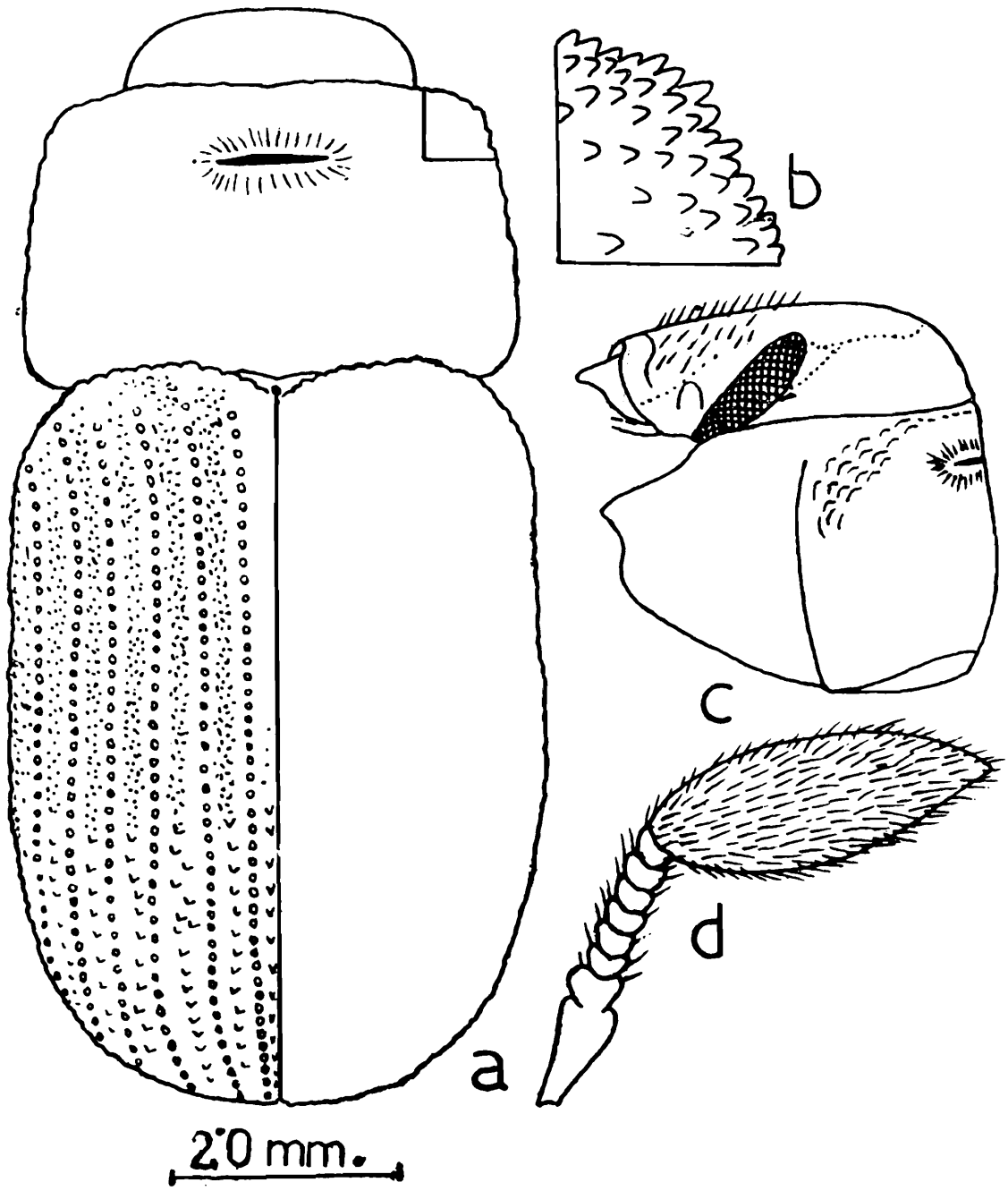

Fig. 1. a-d, *Dactylipalpus transversus* Chapuis Female : a, Dorsal view ; b, Enlarged antero-lateral portion of pronotum ; c, Lateral view of head ; d, Antenna.

Scutellum small and knob-like.

Elytra 2.4 times as long as pronotum and about 1.4 times as long as its width, slightly wider than pronotum ; elytral base with numerous distinct crenulations extending up to sixth interstria and strongly outcurved at the level of third interstria ; sides substraight weakly converging posteriorly with broadly rounded apex ; striae fairly impressed with shallow punctures throughout, more prominent on declivity ; interstriae nearly thrice as wide as striae, convex, subasperate to elytral disc, gradually increasing in size and decreasing in number towards declivital apex. Declivity rather steep, convex and gradually sloping ; interstriae 1 and 2 narrowing towards apex, 3 and 9 united slightly before elytral apex and the rest, 4, 5, 6, 7 and 8 obsolete between ; strial punctures dovoid of setae ; interstriae with small setae.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Island* (Schedl, 1958) ; *Nicobar Island* (Blandford, 1896) ; Nicobar Island : Kamorta (present record). ELSEWHERE : India (Assam), Malaya, Indonesia (Sumatra, Java, the Aru and Buru Islands, and Celebes), Ternate, Philippines. New Guinea and Australia (North Queensland and New South Wales).

(d) *Remarks.*—The species, *Dactylipalpus transversus* Chapuis is the sole representative of the genus *Dactylipalpus* from the Indian subregion, and also occurring in the insular areas of Andaman and Nicobar, as well as from Assam, India. The species is the largest of all the Indian scolytid beetles and found to occur sparsely in the bark of *Manglieta insignis* and *Mesua ferrea* and in ant's nests in eastern India (Beeson, 1941 ; Schedl, 1958)

Genus : **Hylesinus** Fabricius, 1801

Hylesinus Fabricius, J. Ch. 1801. *Systema. Eleutheratorum*, **2** : 390, *Type-species* : *Hylesinus crenatus* Fabricius ; subsequent designation by Westwood, 1938. *Synopsis of the genera of British Insects*, p. 39 ; Hagedorn, M. 1910. *Genera Insectorum*, **111** : 47 ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 471 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 6 ; Wood, S. L. 1978. *Ann. Soc. ent. Fr.* (*N. S.*), **14** (1) : 111.

Ficicis Lea, 1910. *Proc. Roy. Soc. Victoria* (*N. S.*), **22** : 147, *Type-species* : *Ficicis varians* Lea, subsequent designation by Hopkins, 1914. *Proc. U. S. Nat. Mus.*, **48** : 122 ; Schedl, K. E. 1936. *Proc. S. Australia. Mus.*, **5** : 521 (Synonymy).

Leperisinus Reitter, E. 1913. *Wien. ent. Ztg.*, **32** (2) : 41, *Type-species* : *Bostrichus fraxini* Panzer=*Bostrichus varius* Fabricius. Subsequent designation by Swaine, 1918. *Dom. Canada Dep. agric. Ent. Tech. Bull.*, **14** (2) : 70 ; Wood, S. L. 1977. *Gt. Basin Nat.*, **37** (4) : 512 (Synonymy).

Ficiphagus Murayama J. J. 1958. *Yamaguti Univ. Facul. Agric. Bull.*, **9** : 930, *Type-species* : *Ficiphagus goliathoides* Marayama=*Hylesinus procatus* Chapuis; Schedl, K. E. 1962. *Beitr. Ent.*, **12** : 486 (Synonymy).

Fabricius (1801) named the genus *Hylesinus* without designating any type-species to it. Subsequently, Westwood (1838) designated *Hylesinus crenatus* Fabricius from Europe as its type species. However, this genus was continued as a valid one until now with synonymy of three genera. The genus *Ficicis* established by Lea (1910) was synonymised under it by Schedl (1936). Likewise, *Leperisinus* described by Reitter (1913) was also synonymised by Wood (1977). Another genus *Ficiphagus* published by Murayama (1958), based on the species *F. goliathoides* Murayama, was synonymised with *Hylesinus*. The genus is now found both in Old and New Worlds, represented by four species in India of which only one occurs in the Andamans.

2. **Hylesinus despectus** Walker

Hylesinus despectus Walker, F. 1959. *Ann. Mag. nat. Hist.*, **3** (3) : 251, *Type-locality* : Sri Lanka ; Schedl, K. E. 1958. *Indian Forest Rec.* (*N.S.*). *Ent.*, **9** (8) : 172, Oriental and Papuan Regions ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden.*, **35** : 7, Oriental and Papuan Regions including Andaman ; Schedl, K. E. 1975. *Revue suisse Zool.*, **82**(3) : 446, Kerala, India.

Hylesinus granulifer Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** (2) : 516, *Type-locality* : Sri Lanka ; Hagedorn, M. 1910. *Coletop. Cat.*, **26** (4) : 16 (Synonymy).

Hylesinus scobipennis Chapuis, F. 1873. *Synopsis de Scotytidae*, p. 238, *Type-locality* : Sri Lanka ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 16 (Synonymy).

Hylesinus javanus Eggers, H. 1923. *Zool. Meded.*, 7 : 135-136, *Type-locality* : Java, Indonesia ; Beeson, C. F. C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 287 p. ; Schedl, K. E. 1958 *Indian Forest Rec.* (*N.S.*) *Ent.*, **9** (8) : 171 (Synonymy).

Hylesinus similis Eggers, H. 1923. *Zool. Meded.*, 7 : 136-137, *Type-locality* : Sumatra, Indonesia ; Schedl, K. E. 1958. *Indian Forest Rec.* (*N.S.*) *Ent.*, **9** (8) : 171 (Synonymy) ; Schedl, K. E. 1972. *Ent. Arb. Mus. Frey*, **23** : 258.

Hylesinus latior Eggers, in literature ; Schedl, K. E. 1958. *Indian Forest Rec.* (*N.S.*), *Ent.*, **9** (8) : 171 (Synonymy) ; Schedl, K. E. 1979. *Ent. Arb. Mus. Frey*, **28** : 122.

(a) *Material.*—Several examples from different islands as follows : A.16 exs. from Middle Andaman, *B. M. Bhatia coll.*, 1929, as follows : (i) 5 Females and 5 Males, 13.i-6.iv 1929, ex. "*Artocarpus chaplasha*"; (ii) 4 Females and 2 Males, 10. xii. 1928, ex. "unknown wood" B.10 exs. from North Andaman, *B.M.Bhatia coll.*, 1928-1929 ; (iii) 1 Male,

9.i.1929, ex. "Unknown climber"; (iv) 4 Females and 5 Males, 16.xii. 1928, ex. "*Artocarpus chaplasha*" C. 6 exs. from South Andaman : (v) 2 Females and 4 Males, Port Blair, *B. M. Bhatia coll.*, 3.xii. 1925, ex. "under bark of *Ficus callosa*." D.8 exs. from Little Andaman : (vi) 5 Females and 3 Males, Quarry Hut Bay, *B. N. Nandi coll.*, 22.xi. 1978 and 4-14.i.1980, ex. "*Artocarpus chaplasha*" E. 12 exs. from Great Nicobar, *B. N. Nandi coll.*, 1978 : (vii) 2 Females, 38 km. of Campbell Bay, 9.xii. 1978, ex. "*Myristica* sp.; (viii) 6 Females and 2 Males, Campbell Bay, 29.xi1978, ex. "*Mangifera indica*" ; (ix) 1 Male and 1 Female, 36 km. S. of Campbell Bay, 11.xii. 1978, ex. "*Terminalia procera.*" F. 2 exs. from Nancowry : (x) 2 Females from Kamorta, *T N. Khan coll.*, 16.xi.1978, ex. "*Ficus infectoria*"

(b) *Description.*—(i) *Female* : (Fig. 2, a-f) : Body stout, head black ; pronotum, elytra and legs deep greyish brown ; antennae paler than body. Body length 2.7 mm, 2.10 times as long as wide.

Head subrostrate ; frons weakly convex with a distinct impressed area below the level of eyes ; surface reticulate, subgranulately punctate and with recumbent small setae ; epistomal margin weakly convex in front, with a few large setae. Eye elongate and vary weakly emarginate at anterior fourth. Antennal scape long, funicle with 7 segments, club conical with three distinct segments.

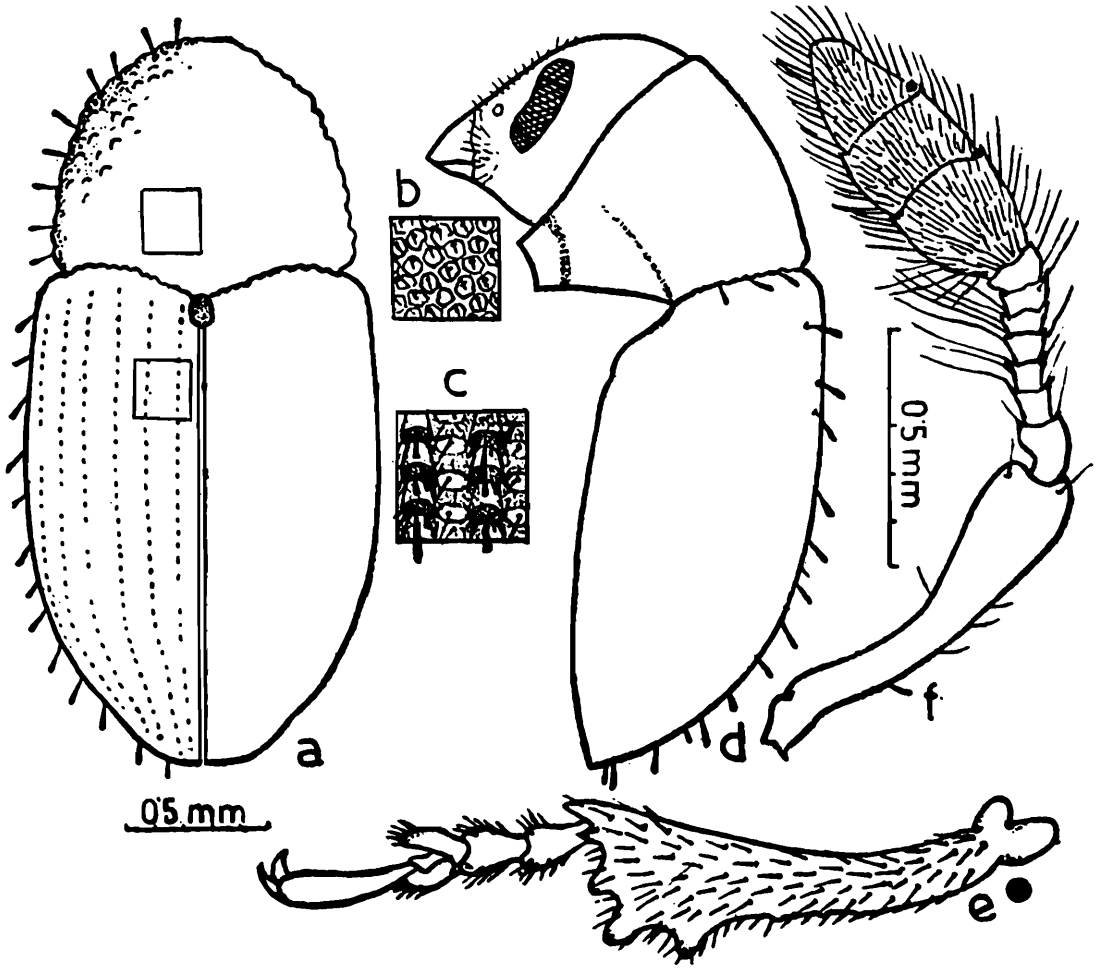

Fig. 2. a-f, *Hylesinus despectus* Walker, Female : a, Dorsal view. b, Enlarged portion of pronotum ; c, Enlarged portion of elytral disc ; d, Lateral view ; e, Protibia & protarsus Male : f, Antenna.

Pronotum almost as long as wide, basal margin bisinuate and anterior margin broadly rounded, lateral sides on basal half elevated, forming a margin and strongly narrowing anteriorly ; dorsal surface with a distinct median line at basal half and transversely impressed on anterior third, surface very closely and deeply punctate ; punctures of irregular size, interpuncture space very much reduced ; antero-lateral angles armed with 9-10 asperities, more or less subasperate towards sides on anterior two-thirds ; vestiture of small semirecumbent stout setae from the punctures and a few erect long stout setae around margin.

Scutellum small, rounded and surface somewhat roughened.

Elytra 1.90 times as long as pronotum, about 1.35 times as long as its width and slightly wider than pronotum ; sides subparallel on basal half, strongly converging posteriorly and terminating into a narrowly rounded apex ; each elytral base with 13-14 crenulations ; striae impressed with distinct punctures, interstriae fairly convex, slightly wider than striae, subasperate at base becoming subgranulate towards apex. Declivity convex ; declivital striae fairly impressed, marked by large deep punctures ; declivital interstriae distinctly ridged with distinct punctures, sparses scale-like setae and granulate asperities ; interstriae 1, 3, 7 and 9 meeting in an elevated ridge at the elytral apex ; rest of the interstriae almost terminating on the base of apical half of declivity except 2 and 4 in obsolete form. Procoxae slightly separated and femur long and slender.

(ii) *Male :* Similar to female except in having frons deeply impressed and antennal funicle with long fine hairs nearly 0.2 mm in length.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Islands* (Schedl, 1966) : North and Middle Andamans ; South Andaman : Port Blair ; Little Andaman : Hut Bay (present record) ; *Nicobar Islands* : Great Nicobar, Campbell Bay; Nancowry and Kamorta (present record). ELSEWHERE : India (Kerala, Tamil Nadu, Maharashtra, Karnataka, Uttar Pradesh and Assam) ; Philippine Isl., Tonkin ; Burma ; Malaya ; Sri Lanka ; Vietnam ; Indonesia (Borneo, Buru, Celebes, Java and Sumatra) ; Enggano Isl. and New Guinea.

(d) *Remarks.—Hylesinus despectus* Walker is a widely distributed species throughout south-east Asia. In the present study, it has been recorded for the first time from the islands of Nicobar, though it has been recorded earlier from the Andamans. The sepcies has been collected in a number of occasions from different host-plants in Indian mainland. In Andaman and Nicobar Islands, collection of the species has been made from the host-plants of *Artocarpus chaplasha, Mangifera indica, Terminalia procera, Ficus infectoria, Myristica* sp., etc. It also infests some unknown climbers.

Tribe (ii) DIAMERINI Hagedorn

Genus : **Diamerus** Erichson, 1836

Diamerus Erichson, W. F. 1836. *Arch. Naturgesch.*, **1** : 57, *Type-species* : *Hylesinus hispidus* Klug ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 6 ; Hopkins, A.D. 1914. *Proc. U. S. nat. Mus.*, **48** : 122 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 11 ; Wood, S. L. 1978. *Ann. Soc. ent. Fr.* (*N.S.*), **14** (1) : 111.

Acanthurus Eichhoff, W. 1886. *Not. Leyden Mus.*, **8** : 24, *Type-species* : *Acanthurus spinipennis* Eichhoff ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 6 (Synonymy).

Lissoclastus Schaufuss, C. 1905. *Insecten-Brose*, p. 71 ; Schedl, K. E. 1959. *Trans. R. ent. Lond.*, **111** : 472 (Synonymy).

This monobasic genus *Diamerus* was erected by Erichson (1836) with designation of type-species *Hylesinus hispidus* Klug from Madagascar. Later on, two genera *Acanthurus* Eichhoff and *Lissoclastus* Schaufuss were synonymised under the genus. However, it is now a widely accepted genus occurring in different parts of the Old World represented by more than 30 species. In India, there are only five species, of which *D. curvifer* (Walker) is found in the Andamans.

3. **Diamerus curvifer** (Walker)

Hylesinus curvifer Walker, F. 1958. *Ann. Mag. nat. Hist.*, **3** (3) : 261, *Type-locality* : Sri Lanka.

Acanthurus spinipennis Eichhoff, W. 1886. *Notes Leyden Mus.*, **8** : 24, *Type-locality* : Sumatra : Indonesia ; Kalshoven, L. G. E. 1959. *Entom. Ber.*, **18** : 93 (Synonymy).

Diamerus dissimilis Hagedorn, M. 1909. *Dt. ent. Z.*, p. 735, *Type-locality* : Burma ; Schedl, K. E. 1959. *Indian Forest Rec.* (*N.S.*) *Ent.*, **10** (2) : 40-41 (Synonymy).

Diamerus curvifer (Walker), Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 6 ; Eggers, H. 1927. *Treubia*, **9** : 392, Andaman ; Beeson, C. F. C. 1941. *Ecology and Control of Forest Insects of Indian and Neighbouring Countries*, 287 p. ; Schedl, K. E. 1959. *Indian Forest Rec.* (*N.S.*) *Ent.*, **10** (2) : 40 ; Schedl, K. E. 1969. *Oriental Ins.*, **2** (1) : 47, Andamans ; Schedl,K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 12, Oriental and Australia Regions.

(a) *Material.*—A. *Identified* : (i) 12 Females and 4 Males from Middle Andaman, *B. M. Bhatia coll.*, 9.xii.1928, ex. "*Macaranga andamanica*" ; (ii) 1 Female and 1 Male from Andaman Isl., (*det.* F. W. Sampson). B. *Unidentified* : 1 Female from Quarry Forest, Little Andaman, *B. Mitra coll.*, 27.vii.1928, ex. 'under bark of a fallen branch of *Dipterocarpus* sp.'

(b) *Description.*—(i) *Female* (Fig. 3, a-e) : Body oval and stout ; head deep black ; pronotum and elytra chestnut brown to black ; antennae and legs deep brown. Body length 4.50-4.70 mm ; 1.8 times as long as wide.

Head globose, very weakly rostrate anteriorly ; frons flatly convex, with dense recumbent hairs, slightly depressed antero-laterally above epistoma epistoma with a deep median groove and with a few erect hairs ;

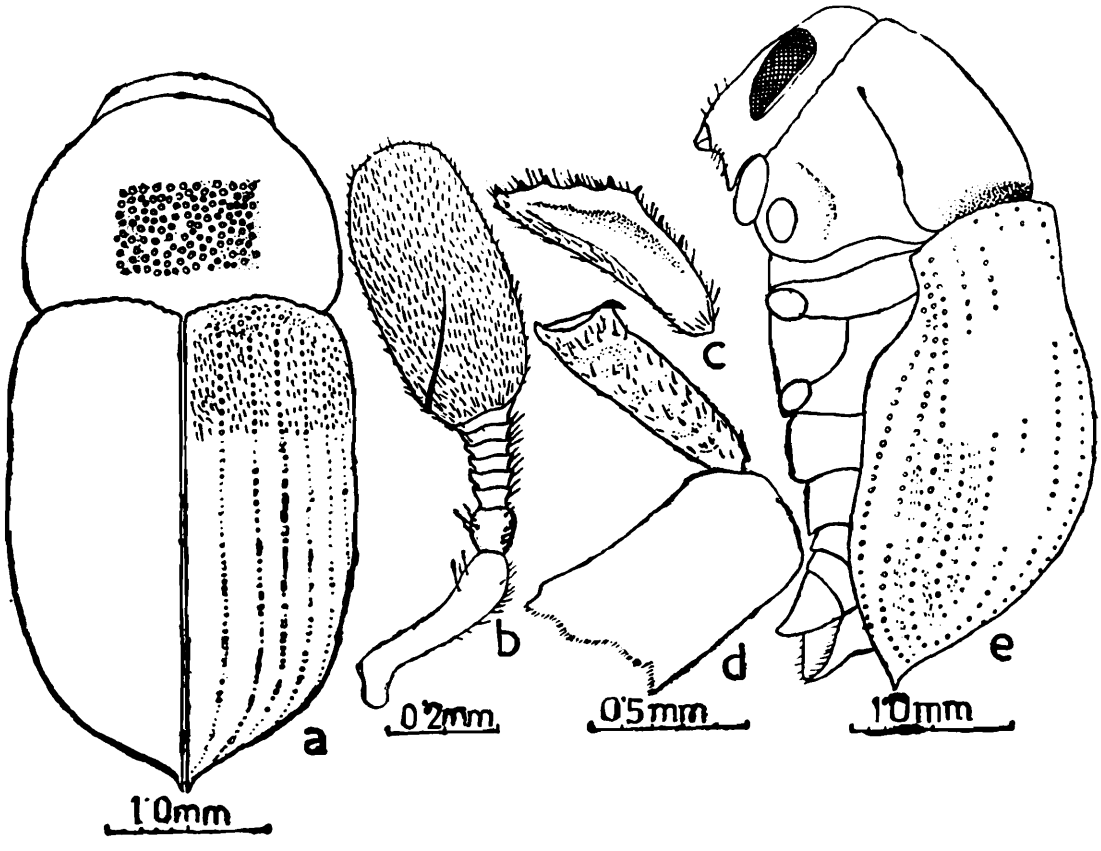

Fig. 3. a-e, *Diamerus curvifer* (Walker), Female : a, Dorsal view ; b, Antenna ; c, Metatibial cavity ; d, Protibia ; e, Lateral view.

entire surface with deep close punctures ; space between punctures rugosely reticulate. Eyes large and elongately oval, slightly narrowed ventrally. Antennal scape short and stout, funicle with 7 segments, club very large with a single angular procurved septum.

Pronotum much wider than long, lateral sides weakly outcurved and gradually narrowing anteriorly with a weak constriction before the apical margin ; anterior margin substraight with fringe of microhairs ; surface weakly convex with dense closely set of large punctures and devoid of any hair ; median line faintly marked.

Scutellum not visible.

Elytra 2.66 times as long as and 1.16 times as wide as pronotum and 1.24 times as long as its own width ; basal margin of each elytron very much outcurved particularly at the level of 5-6 interstriae with weak crenulations up to interstria 7 ; lateral sides weakly outcurved but weakly depressed slightly above the middle, apical third strongly converging posteriorly and terminating into a tuberculate apex ; disc convex, discal striae much impressed, marked by indistinct punctures, interstiae flat and coarse with irregular punctures and rows of scale-like setae. Declivity commencing on apical third with convex and steep face ; declivital striae comparatively deep and wider, marked by close punctures shining within ; interstriae gradually narrowing posteirorly with regular rows of punctures bearing scale-like setae, interstriae 5, 6 and 7 not reaching the apex. Procoxae widely separated ; protibiae inflated on posterior surface with distinct spine-like structure ; meso-and meta-tibiae with tarsal groove on posterior surface.

(ii) *Male* : The males very similar to the females, except the frons more broadly concave, frontal surface with comparatively long setae.

(c) *Distribution.*—ANDAMAN ISLANDS : Andaman Islands (Eggers, 1927) ; Middle Andaman and Little Andaman, Quarry Forest (present record). ELSEWHERE : India (Assam and West Bengal), Burma, Sri Lanka, Malaya, Indonesia (Java, Sumatra and Amboina), Philippines, Indo-china and Australia.

(d) *Remarks.—Diamerus curvifer* (Walker) is the sole representative of the genus found in the Andamans. The large and stout body form along with tuberculate elytral apex help in easy identity of the species. This widely distributed species has been collected under the bark of fallen branches of *Macaranga andamanica* and *Dipterocarpus* sp. only in a few occasions. In India, it is known to be associated with 4 species of *Ficus* and *Artocarpus chaplasha* (Beeson, 1941). Browne (1961) referred to its strong affinities for the trees of the family Urticaceae. The species is very poorly known as regards its biological features.

Subfamily (II) SCOLYTINAE Latreille

Tribe (i) DRYOCOETINI Lindemann

Genus : **Coccotrypes** Eichhoff, 1878

Coccotrypes Eichhoff, W. 1878. *Mem. Soc. Roy. Sci. Leige*, **8** (2) : 57, 308, *Type-species* : *Bostrichus dectyliparda* Fabricius, subseqnuent designation by Hopkins, A. D. 1914.

U. S. Nat. Mus., **48** : 118 ; Wood S. L. 1960. *Insects of Micronesia*, **18** (1) : 46 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 33 ; Wood, S. L. 1978. *Annls. Soc. ent. Fr.* (*N.S.*), **14** (1) : 113 ; Wood, S. L. 1982. *Gt. Basin Nat. Mem.*, no. 6 : 731.

Poecilips Schaufuss, 1897, *Berl. ent. Z.*, **42** : 110, *Type-species* : *Poecilips sannio* Schaufuss, monobasic ; Wood, S. L. 1973. *Gt. Basin Nat.*, **33** : 171 (Synonymy).

Cryphaloides Formenek, 1908, *Ent. Blatt.*, **4** : 91, *Type-species* : *Cryphaloides donisthorpei* Formenek=*Bostrichus carpophagus* Hornung, monobasic ; Schedl, K. E. 1962. *Mitt. miinch. ent. Ges.*, **52** : 95 (Synonymy).

Thamnurgides Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep,*. **99** : 45, *Type-species* : *Thamnurgides persicae* Hopkins=*Coccotrypes advena* Blandford, Original designation ; Schedl, K. E. 1938. *Ent. Ber.*, **10** : 9 (Synonymy).

Spermatoplex Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 48, *Type-species* : *Spermatoplex rhizophorae* Hopkins, Original designation ; Schedl, K. E. 1952. *Ent. Blatt.*, **47-48** : 160 (Synonymised under *Poecilips*).

Dendurgus Eggers, H. 1923, *Zool. Meded.*, **7** : 144, *Type-species* : *Dendurgus rhizophorae* Eggers=*Spermatoplex rhizophore* Hopkins, present designation ; Eggers, H. 1927. *Treubia*, **9** : 390 (Synonymy).

This large and diverse genus, *Coccotrypes*, was established by Eichhoff (1878) to accommodate some six species from Africa and Asia without designating any type-species. *Bostrichus dactyliperda* Fabricius had been designated by Hopkins (1914) as the type-species of the genus. Afterwards the genera *Poecilips* Schaufuss, *Cryphaloides* Formenek, *Thamnurgides* Hopkings, *Spermatoplex* Hopkins and *Dendrurgus* Eggers were synonymised under this genus. The inclusion of all these genera has certainly enlarged the range of character diversity as well as the distribution. As such, the genus as we conceive today contains a heterogeneous group of species, earlier assigned to different genera referred to above. In India, about 3 dozen species are known to occur, while some 8 species have so far been recognised from the Islands of Andaman and Nicobar. This is the second largest genus of scolytid beetles represented in the Andamans and Nicobars.

4. **Coccotrypes cyperi** (Beeson)

Thamnurgides cyperi Beeson, C. F. C. 1929. *Insects of Samoa* (*Coleoptera*), **4** (4) : 230, *Type-locality* : Apia, Samoan Island ; Beeson, C.F.C. 1939. *Indian Forest Rec.* (*Ent.*), **5** (3) : 303, India, Burma, Java and Samoa ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 300 p.

Thamnurgides indicus Eggers, H. 1936. *Ann. Mag. nat. Hist.*, **17** (10) : 631, *Type-locality* : Sakalaspur, Karnataka, India ; Wood, S. L. 1978. *Gt. Basin Nat.*, **38** (4) : 397 (Synonymy).

Xyleborus conspeciens Schedl, K. E. 1936. *Archiv. Inst. Biol. Veg. Rio de Janeiro*, **3** : 110 ; *Type-locality* : not given, presumably Brazil ; Wood, S. L. 1973. *Gt. Basin Nat.*, **33** (3) : 179 (Synonymy).

Dryocoetes insularis Eggers, H. 1940. (nec. Eggers, 1940 : 129), *Arb. Morph. Tax. Ent. Berlin-Dahlem*, **7** : 127 ; Schedl, K. E. 1962. *Carrib. J. Sci.*, **2** : 63 (Synonymy).

Coccotrypes insularis Eggers, H. 1940 (nec. Eggers 1940 : 127), *Arb. Morph. Tax. Ent. Berlin-Dahlam*, **7** : 129 ; Schedl, K. E. 1962 *Carribo J. Sci.*, **2** : 63 (Synonymy).

Poecilips eggersi Schedl, K. E. 1952. *Dusenia*, **3** : 347 (Replacement name of *Coccotrypes insularis* Eggers) ; Wood, S. L. 1973. *Gt. Basin. Nat.*, **33** (3) : 180 (Synonymy).

Dryocoetes subimpressus Eggers, H. 1940. *Arb. Morph. Tax. Ent. Berlin-Dahlem*, **7** : 127, Female, *Type-locality* : Trois Rivieres Guadeloupe, West Indies; Wood; S. L. 1977, *Gt. Basin. Nat.*, **37** : 384 (Synonymy of *Coccotrypes indicus*).

Poecilips piliforns Browne, F. G. 1970. *J. nat. Hist.*, **4** : 568, *Type-locality* : Nilgiri Hills, India ; Schedl, K. E. 1972. *Ent. Arb. Mus. Frey*, **23** : 257 (Synonymy).

Coccotrypes indicus (Eggers), Wood, S. L. 1977. *Gt. Basin Nat.*, **37** (3) : 384.

Coccotrypes cyperi (Beeson), Wood, S. L. 1978. *Gt. Basin Nat.*, **38** (4) : 397, Hawaiian and Tahiti Isls. ; Wood, S. L. 1982. *Mem. Gt. Basin Nat.*, no. 6.

(a) *Material.*—1 ex. from Wright Myo, South Andaman, *T N. Khan coll.*, 25 x. 1982, ex. "Sap-wood of *Salmalia* log."

(b) *Description.*—(i) *Female* (Fig. 4, a-e) : Head, pronotum and elytra reddish brown to blackish brown ; antennae and legs rather slightly paler. Body length 2.00-2.12 mm and 2.5 times as long as wide.

Head globose ; frons flatly convex ; median area smooth and shiny, broadening towards vertex ; a few longitudinal distinct cariniculae converging towards epistomal surface with a few scattered long hairs and deep punctures ; epistoma with a fringe of erect hairs. Eyes elongately oval with weak angular emargination. Antennal scape elongate, funicle with 5 segments ; club suboval and obliquely truncate, segment 1 corneous ; on anterior face, basal corneous portion with weakly procurved apical margin ; truncated face with two inconspicuous sutures marked by erect setae ; posterior face with one distinct procurved suture.

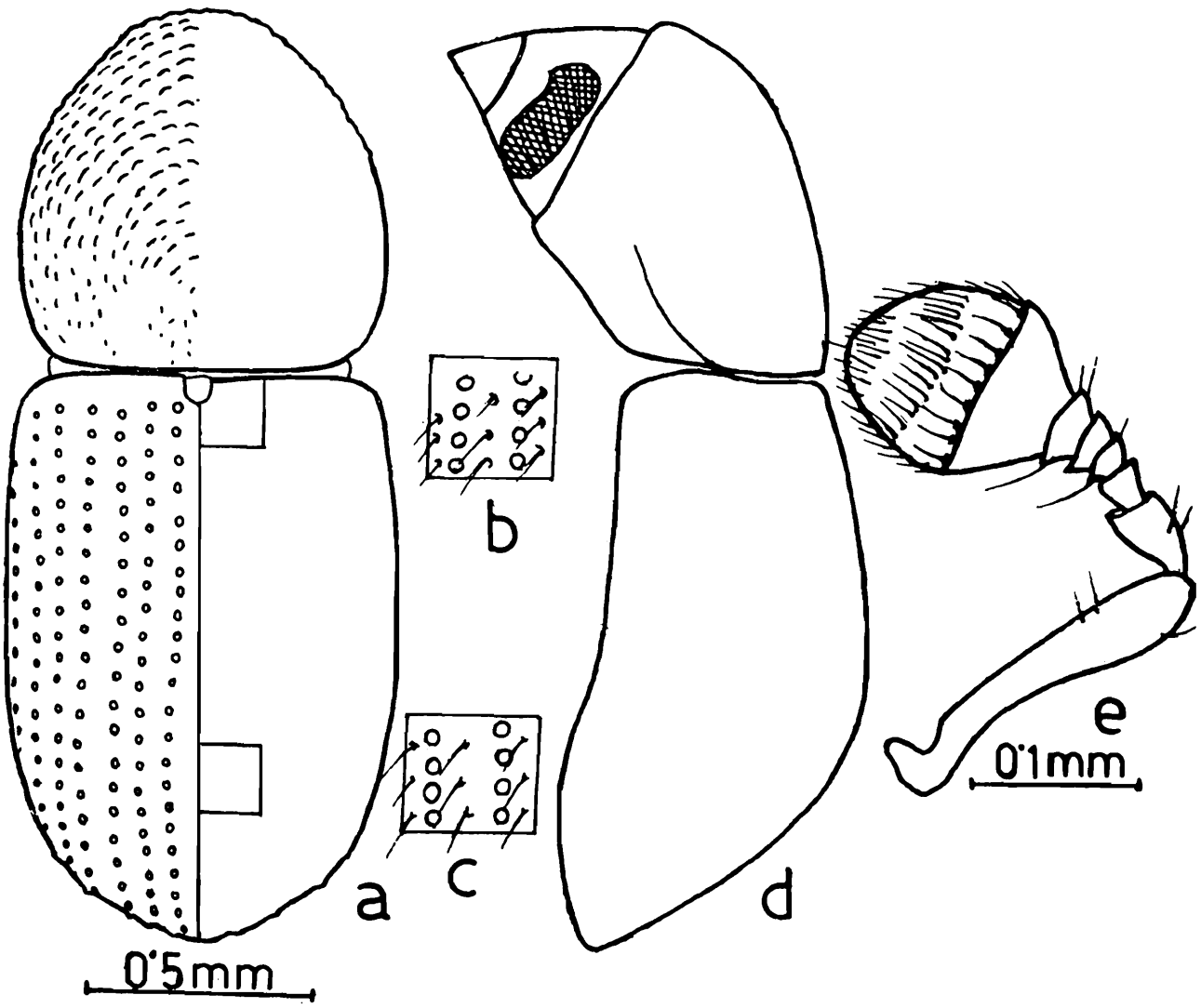

Fig. 4. a-e, *Coccotrypes cyperi* (Beeson), Female : a, Dorsal view ; b, England portion of elytral disc ; c, Enlarged portion of elytral declivity ; d, Lateral view ; e, Antenna.

Pronotum as long as broad or slightly broader ; basal margin broadly outcurved and subcarinate beyond basal half ; basal angles obtuse and dis tinctly margined ; anterior margin broadly rounded ; in profile, dorsal mar-margin uniformly and weakly curved, without any distinct summit ; ante-terior half with close, small and flattened asperities becoming elongate pos-tero-laterally and granulate posteriorly ; entire surface with long erect hairs more dense towards margins and also with small recumbent hairs.

Scutellum moderate in size, smooth and shiny ; somewhat elongate with subround apex.

Elytra 1.30-1.50 times as long as broad and 1.50-1.58 times as long as pronotum ; basal margin subtruncate ; lateral sides subparallel nearly up to basal two-thirds ; apex subacuminate ; discal striae not impressed,

but marked by small and shallow punctures, each devoid of microhair and each placed at a distance of more than its diameter ; interstriae flat with uniseriate setiferous granules. Declivity steep with convex face ; striae and interstriae as on the disc. Procoxae subcontiguous, protibiae with 4 and meso-and meta-tibiae each with 5 teeth.

(ii) *Male* : Male is not recognizable in the material under study.

(c) *Distribution.*—ANDAMAN ISLANDS : South Andaman, Wright Myo (present record). ELSEWHERE : India (Assam, West Bengal, Kerala and Tamil Nadu) ; Burma ; Indonesia (Java) ; Somoa ; Indo-china ; Brazil, North America, West Indies, Hawaiian and Tahiti Isls.

(d) *Remarks* .—Since the description of the species in 1929 by Beeson from Samoa, a number of species belonging to different genera has been synonymised under the species. Recently, Wood (1978) has transferred the species to the genus *Coccotrypes*. As such, it is a widely distributed species in different parts of the world. But, the species recorded here from the sapwood of *Salmalia* log for the first time from South Andaman.

However, the biological information is only limited to the records of some host-plants (Beeson, 1939 and 1941) in India and neighbouring countries. The species is well known as a borer of bark and fruit of these plants.

5. **Coccotrypes fallax** (Eggers)

Poecilips fallax Eggers, H. 1929. *Treubia*, **9** : 899, *Type-locality* : Java, Indonesia ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 292 p, Bengal to Java ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 49-50 ; Browne, F. G. 1961 *Malay. Forest Rec.*, no. 22, p. 93-94, India (Bengal), Indo-china and Indonesia (Java).

(a) *Material.*—(i) 25 exs., Little Nicobar, *Forest Entomologist coll.*, 1930, ex. "Lankki"; (ii) 5 exs., Little Nicobar, *Forest Entomologist coll.*, 1930, ex. "seeds of *Bruguiera gymnorhiza*"

(b) *Description.*—(i) *Female* (Fig. 5, a-b) : Body fairly long and cylindrical, slightly tapering towards elytral apex ; head, pronotum and elytra pale brown to dark brown ; legs and antennae much paler. Body length 3.15-3.25 mm ; 2.6 times as long as wide.

Head globose ; frons moderately convex, surface rugosely reticulate, obscurely punctate and with both semirecumbent and erect haris, median area slightly elevated ; epistomal margin with fringe of hairs. Eyes suboval with shallow emargination. Antennal scape moderately elongate, funicle with 5 segments, club somewhat globose and obliquely truncate ; segment

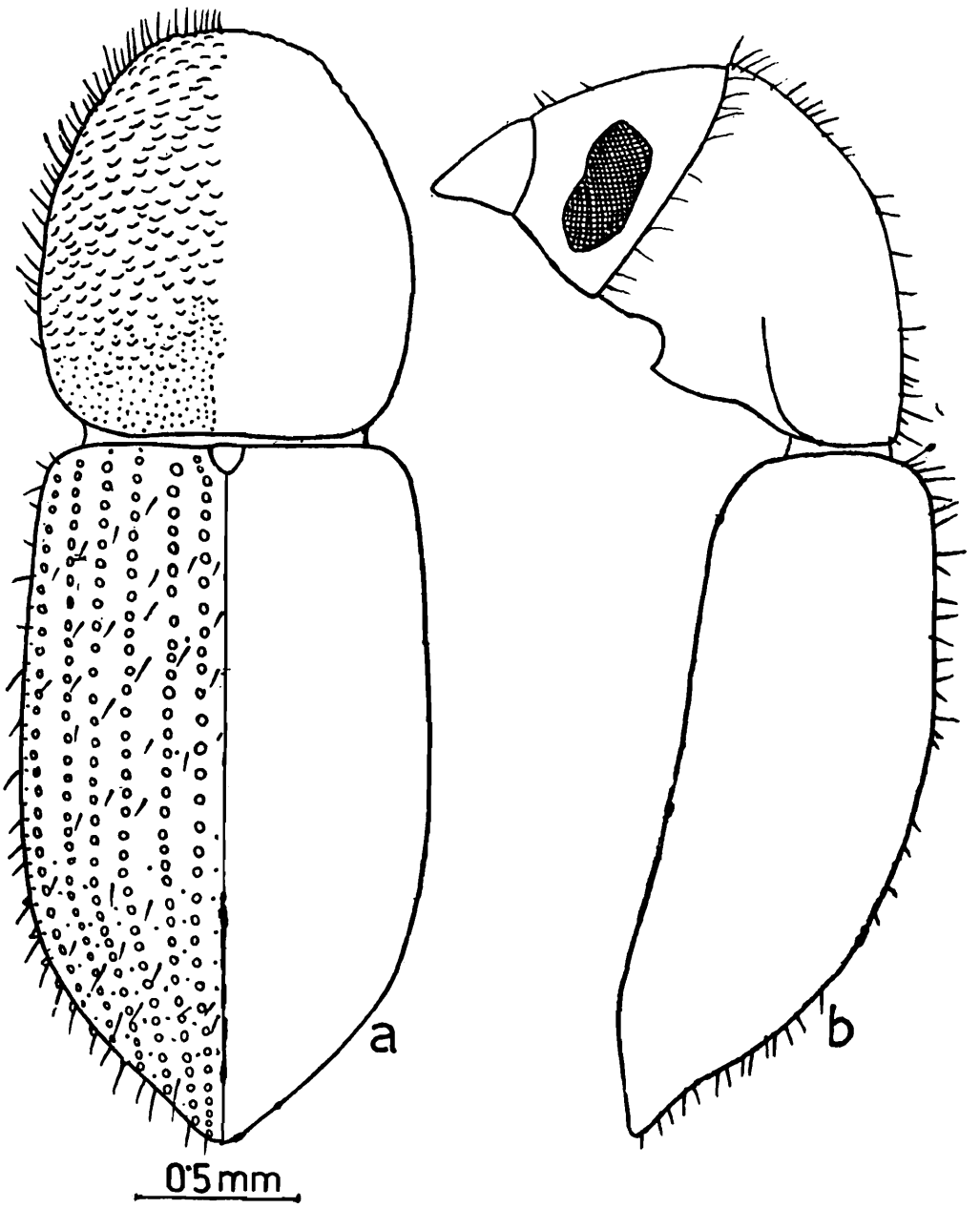

Fig. 5. a-b, *Coccotrypes fallax* (Eggers), a, Dorsal view, b, Lateral view.

1 corneous ; on anterior face, basal corneous portion with weakly procurved apical margin ; truncate face with two distinct sutural lines marked by hairs ; posterior face with one procurved suture.

Pronotum almost as long as wide ; basal margin substraight, basal half somewhat margined laterally ; sides moderately outcurved, widest a little behind the middle whence weakly narrowing anteriorly with a broadly rounded anterior margin ; anterior declivous portion with small and close asperities ; basal half with sparse and granulate asperities ; overall surface dull and coarsely reticulate particularly in between asperities and granules, and with sparse erect hairs throughout, specially on anterior half.

Scutellum broadly tongue-shaped.

Elytra 1.9 times as long as and as wide as pronotum at base and 1.70-1.77 times as long as its width ; basal margin substriaght, lateral margins subparallel up to slightly more than basal half whence coverging posteriorly terminating into an acuminate apex ; striae weakly impressed, marked by distinct punctures, each placed a distance of its own diameter ; interstriae flat and reticulate with uniseriate row of minute punctures. Elytral declivity steep with convex face and commencing before the apical one-third ; declivital striae more impressed, striae 1, 2 and 3 weakly outcurved and again incurved towards apex ; interstrial punctures with long erect hairs. Procoxae moderately separated from each other, protibiae with 4, meso- and meta-tibiae each with 5 teeth.

(c) *Distribution.*—NICOBAR ISLANDS : Little Nicobar (present record). ELSEWHERE : Indonesia (Java) and Micronesia.

(d) *Remarks.*—The species, *Coccotrypes fallax* (Eggers), can easily be distinguished from all other species of the genus occurring in the islands of Andaman and Nicobar by its characteristic acuminate elytral apex. However, the material studied from these islands is slightly bigger and with more flat elytral declivity as compared to those from Micronesia studied by Wood (1961).

Beeson (1941) reported the species to bore the fruits and green seedlings of Rhizophoraceae in Mangrove swamps from Bengal to Java. In the present study, the species has been recorded from the fruits of *Bruguiera gymnorhiza* in the Nicobar Island.

6. **Coccotrypes litoralis** (Beeson)

Thamnurgides litoralis Beeson, C. F. C. 1939. *Indian Forest Rec.* (*N.S.*) *Ent.*, **5** (3) : 291 and 305, *Type-localities* : Khulna, Bangladesh and North Andaman ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 300 p.

Poecilips litoralis (Beeson), Schedl, K. E. 1975. *Oriental Ins.*, **9** (4) : 452, Anamalai Hills, South India.

(a) *Material.—Identified* : 1 *Paratype* from North Andaman, *C. F. C. Beeson coll.*, 10.iii.1930, ex. "germinating seedling of *Rhizophora mucronata*" Beeson (1939) referred to the material from Khulna, Bangladesh as *Holotype* and *Paratypes* ; but one specimen from North Andaman also was designated as Paratype as seen in F. R. I. collection, Dehra Dun.

(b) *Description.*—(i) *Female* (Fig. 6, a-d) : Body short and stout ; head, pronotum, legs and elytra raddish brown. Body length 2.60 mm (2.70-3.10 mm, in some cases).

Head globose, frons almost flat, with some coarse longitudinal carinulae converging towards emarginate epistomal margin ; median line distinct and expanded shortly above eipstoma into an elongate triangular smooth area ; frons with a few fine hairs and fringe of hairs at the middle of epistomal margin. Eyes elongately oval with a feeble emargination. Antennal scape slender, funicle with 5 segments, club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with two sutural lines marked by hairs ; posterior face with one procurved suture.

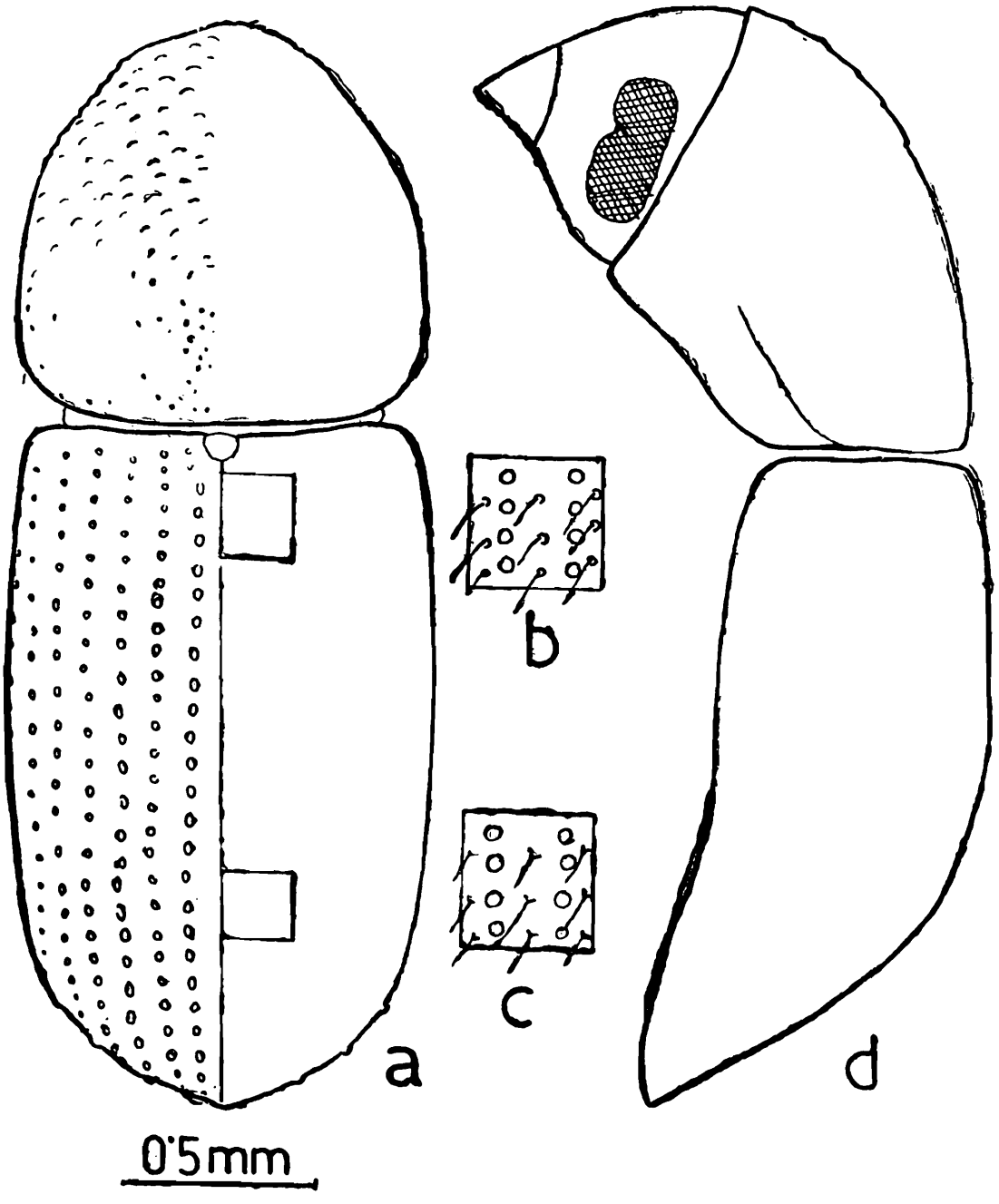

Fig. 6. a-d, *Coccotrypes litoralis* (Beeson), a, Dorsal view ; b, Enlarged portion of elytral disc ; c, Enlarged portion of elytral declivity ; d, Lateral view.

Pronotum as long as broad or slightly broader ; basal margin substraight ; lateral sides outcurved, widest almost at middle ; anterior margin broadly rounded ; lateral margins somewhat subcarinate up to slightly more than half ; surface plano-convex ; anterior slope with moderately large, close, subtriangular asperities becoming flattened and imbricate posterolaterally ; basal portion with punctures on somewhat rugose surface ; posterior half with a smooth median line, entire surface with long erect and short recumbent hairs.

Scutellum distinct and subround.

Elytra 1.60 times as long as and slightly wider than pronotum, 1.40 times as long as wide, basal margin substraight ; lateral sides subparallel up to two-thirds, then converging posteriorly into narrowly rounded apex ; striae not impressed, punctures rather small, close and without any microhair ; interstriae rugose with a serives of granules bearing long erect hairs. Declivity steeply covex, flattened transversely upto the striae 3, strial punctures much larger than dorsally, stria 1 depressed, interstria 1 scarcely widened, inclined towards stria 1, interstriae 2 and 3 subequal in width, 4 weakly convex, all with minute granules throughout bearing ususally long erect hairs. Procoxae contiguous, pro-, meso- and meta-tibiae each with 4, 5 and 6 teeth respectively.

(ii) *Male* : Male is not recognized in the material at hand.

(c) *Distribution.*—ANDAMAN ISLANDS : North Andaman (Beeson, 1939). ELSEWHERE : India (Anamalai Hills) and Bangladesh.

(d) *Remarks.*—The species was originally described as *Thamnurgides litoralis* Beeson, which was later on transferred to the genus *Poecilips* Schaufuss by Schedl (1975). But both these genera *Thamnurgides* and *Poecilips* are now a days considered as *Coccotrypes* Eichhoff. Hence, we are considering the species here as *Coccotrypes litoralis* (Beeson).

Since its first record in 1939 from North Andaman, the species is still now not available to any collector from anywhere in these islands. The species is so far known to be a borer of fruits and radicles of germinating seedlings of some mangrove plants. It has been recorded only once at an altitude of 1100 m of the Anamalai Hills in the mainland of southern India (Schedl, 1975).

7. **Coccotrypes longior** (Eggers)

Poecilips longior Eggers, H. 1927. *Philipp. J. Sci.*, **23** : 83-84, Female, *Type-locality* : The Philippines ; Schedl, K. E. 1971. *Steenstrupia*, **1** : 148. Nicobar ; Beaver, R. A.

and Browne, G. F. 1975. *Oriental Ins.*, **9** (3) : 294, Nicobar Isl. ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 595, Indonesia (Borneo and Java), Sri Lanka, India (Nicobar Isl.), Malaya, Thailand, Vietnam and Philippines.

Poecilips silvestris Beeson, C.F.C. 1951. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 292 p., India ; Schedl, K. E. 1972. *Ent. Arb. Mus. Frey*, **23** : 251 (Synonymy).

(a) *Material*—(i) 2 exs., from Forest 16 km from Hut Bay, Little Andaman, *T N. Khan and B. Mitra coll.*, 1. x. 1981, ex., 'sap wood of unknown log' ; (ii) 2 exs., from Dugon creak, Little Andaman, *T N. Khan* and *B. Mitra coll.*, 5. x. 1981, ex. "unknown log."

(b) *Description.*—(i) *Female* (Fig. 7, a-c) : Body long and cylindrical ; colour yellowish to deep black, antennae and legs paler. Body length 1.76 mm and 2.7 times as long as wide.

Head globose ; frons flatly convex with smooth and distinct median line from epistomal margin to vertex surface finely reticulate with large distinct punctures, somewhat granulate towards epistomal margin ; surface with sparse erect hairs ; epistomal margin with fringe of hairs. Eye elongately

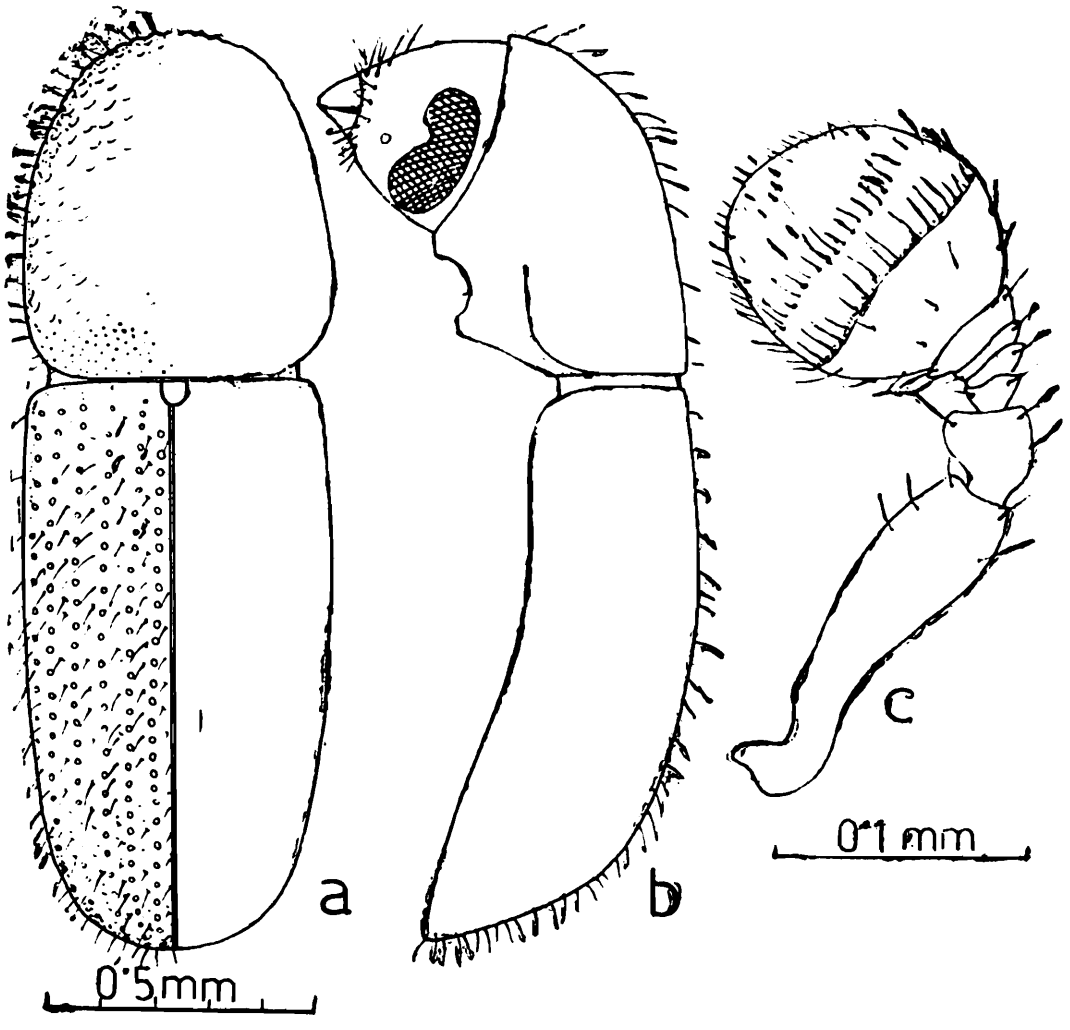

Fig. 7. a-c, *Coccotrypes longior* (Eggers), a, Dorsal view ; b, Lateral view ; c, Antenna.

oval, nearly one-third of its width emarginate. Antennal scape slender, funicle with 5 segments, club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with weakly procurved apical margin ; truncated face with two sutural lines marked by setae ; posterior face marked by one strongly procurved suture.

Pronotum slightly longer than broad ; both posterior and lateral margins weakly outcurved and anterior margin broadly rounded ; lateral margins subcarinate beyond the middle ; in profile, very weakly convex, without any distinct summit ; anterior slope with small, close and subtriangular asperities becoming elongate postero-laterally ; entire surface finely reticulate ; posterior one-third with large punctures ; surface with erect hairs, those at anterior and lateral areas becoming longer ; posterior half with a short and smooth median line.

Scutellum somewhat tongue-shaped.

Elytra 1.64 times as long as pronotum and 1.7 times as long as its width ; basal margin substraight ; lateral margins subparallel up to basal two-thirds whence gradually converging posteriorly ; posterior margin broadly rounded ; discal striae not so impressed but marked by large and distinct punctures devoid of microhair ; interstriae slightly wider than striae, smooth and shiny with indistinct minute punctures and short erect hairs. Declivity steep with weakly convex face ; striae 1,2 and 3 more feebly impressed than others ; interstriae with distinct punctures and hairs. Procoxae contiguous ; protibiae with 4, meso-and meta-tibiae each with 5 teeth.

(ii) *Male* : No male is available for study.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : Andaman Islands : Little Andaman : Hut Bay and Dugon Creak (present record) ; Nicobar Island (Schedl, 1971). ELSEWHERE : Sri Lanka, Indonesia, Malaysia, Vietnam, Philippines and Thailand.

(d) *Remarks.*—The species can easily be distinguished from all other representatives of the genus occurring in Andamans by the frons without having any carinule, rather with distinct punctures on either side of elevated median line. This is a very widely distributed species in different areas of the Oriental Region. It is recorded for the first time from Little Andaman infesting some logs only, in addition to its earlier record from Nicobar.

8. **Coccotrypes nigronitens** (Schedl)

Poecilips nigronitens Schedl, K. E. 1975. *Oriental Ins.*, **9** (4) : 455, *Type-locality* : Andaman Island, India.

(a) *Material.*—Since no material is available for study, the following morphological characters are based on the original description of the species.

(b) *Description.*—Body pitch black, brightly shining, without noteworthy pubescence. Body length 2.50 mm, 2.5 times as long as wide.

Frons convex with very fine, rather dense punctation, median line distinct. Pronotum slightly longer than wide, trapezoid in outline, widest near the base ; sides subparallel on the basal third, whence narrowing anteriorly into a broadly rounded apex, with a subapical feeble constriction ; disc brightly shining ; entire surface slightly convex with scattered extremely fine punctures.

Scutellum moderate in size, subrectangular and impunctate.

Elytra slightly wider and 1.8 times as long as pronotum ; sides parallel on basal half, gradually coverging posteriorly and terminating into an angularly rounded apex ; disc brightly shining, with rows of medium sized remotely placed punctures, the entire punctures becoming somewhat finer, but more densely placed on the declivity ; declivity commencing beyond the basal half of the elytra, declivital face obliquely convex.

(c) *Distribution.*—ANDAMAN ISLANDS : *Andaman* (Schedl, 1975). ELSEWHERE : None.

(d) *Remarks.*—In the present study, the species has been transferred to the genus *Coccotrypes* Eichhoff.

9. **Coccotrypes opacifrons** (Beeson)

Thamnurgides opaciforns Beeson, C.F.C. 1939. *Indian Forest Rec.* (*N.S*) *Ent.*, **5** (3) : 294-295 and 305, Female, *Type-locality* : Buxa Division, West Bengal ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 300 p.

(a) *Material.*—A. *Identified* : 7 *Paratypes* from Middle Andaman, *B. M. Bhatia coll.*, 9. xii. 1928, ex. "*Terminalia bialata*" ; [Beeson (1939) described the species, *Thamnurgides opacifrons* based on the material from West Bengal, Assam and Middle Andaman, and designated the *Holotype* and *Paratypes* from the examples from Buxa, West Bengal. The examination of the representative collection of the species in F. R. I., Dehra Dun,

indicates that some examples from Middle Andaman are also labelled by Beeson as Paratypes. These paratypes are studied in the present account].

B. *Unidentified* : 4 exs. from Wright Myo, South Andaman, *T N. Khan and B. Mitra coll.*, 24. x. 1981, ex. "sapwood of an unknown log"

(b) *Description.*—(i) *Female* (Fig. 8, a-b) : Body long and cylindrical ; head, pronotum and elytra deep reddish brown ; legs and antennae slightly paler. Body length 1.90-2.00 mm and 2.8 times as long as wide.

Head globose, moderately narrowing anteriorly ; frons plano-convex and dull, with a few fine longitudinal carinulae becoming more dense near epistome ; vertex granulate ; median line elevated, smooth and shiny ; epistomal margin with fringe of hairs and frons with sparse long hairs. Eye elongate and less than one-third of its width emarginated. Antennal scape short ; funicle with 5 segments ; club globose, obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous protion with weakly procurved apical margin ; truncated face with two sutural lines marked by setae ; posterior face with one procurved suture.

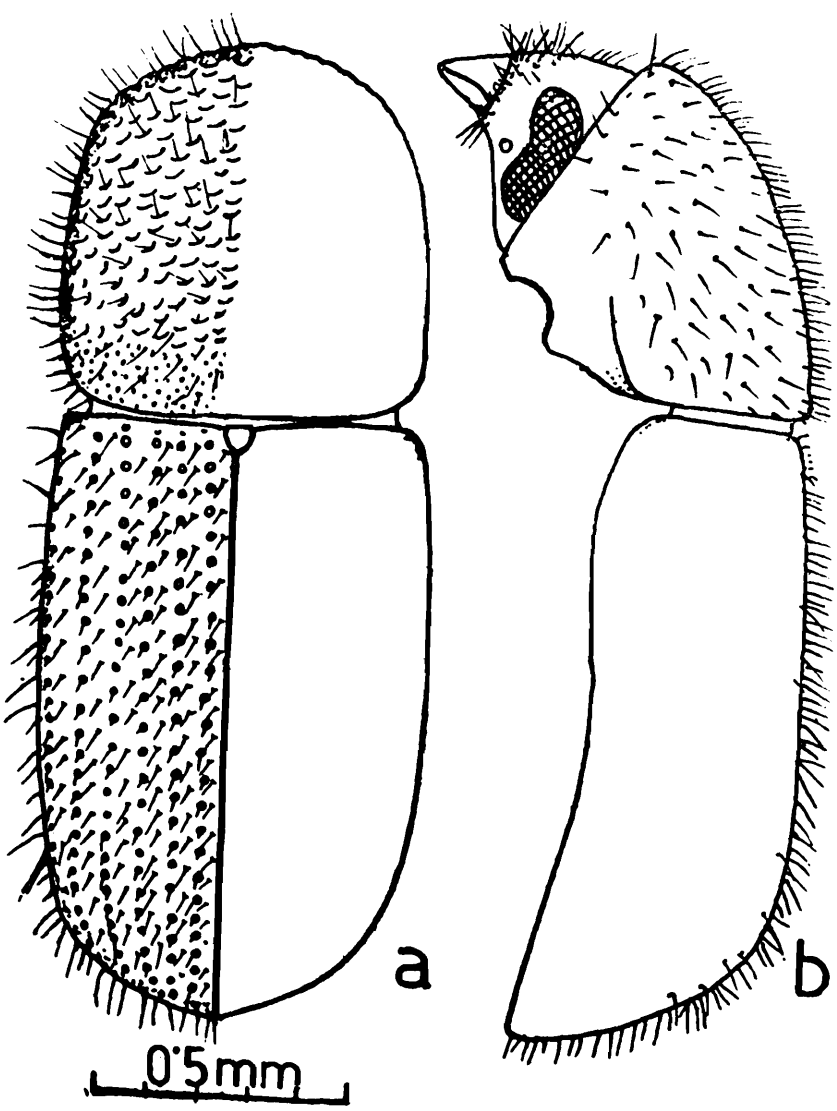

Fig. 8. a-b, *Coccotrypes opacifrons* (Beeson), a, Dorsal view ; b, Lateral view.

Pronotum nearly as long as or slightly longer than wide ; basal margin substraight ; lateral sides subparallel up to basal two-thirds and indistinctly emarginate on basal half ; anterior margin broadly rounded ; surface plano-convex, anterior half with small dense asperities ; asperities on posterior half becoming more elongate, imbricate and contiguous in lines ; pilose on basal margin ; median line absent ; entire surface intermixed with short bent and long erect hairs.

Scutellum shiny and tongue-shaped.

Elytra 1.6-1.7 times as long as and as wide as pronotum, 1.65 times as long as its width ; basal margin substraight ; sides subparalled up to basal two-thirds, then converging posteriorly with broadly rounded apical margin ; discal striae not impressed, but marked by shallow close punctures, each puncture with microhair ; interstriae fiat with uniseriate minute punctures and long erect hairs. Declivity abrupt with convex face ; striae 1 and 2 feebly impressed, strial punctures with microhairs ; interstriae with sparse uniseriate minute granules and long erect hairs. Procoxae subcontiguous, protibiae with 4 and meso-and meta-tibiae each with 5 teeth.

(ii) *Male* : Males are not recognised in the material studied.

(c) *Distribution.*—ANDAMAN ISLANDS : *Andaman Island* : Middle Andaman (Beeson, 1939) and South Andaman, Wright Myo (present record). ELSEWHERE : India (Assam and West Bengal).

(d) *Remarks.*—The specimens from South Andaman measuring 1.90 mm, are smaller than the existing known range of species (2.00-2.20 mm) from Middle Andaman. From Andaman, the species is recorded only from *Terminalia bialata*, though it has been recorded from the bark of some seven hosts from the mainland of India as referred to by Beeson (1939, '41).

10. **Coccotrypes trevori** Beeson

Coccotrypes trevori Beeson, C.F.C. 1939. *Indian Forest Rec.* (*N.S.*) *Ent.*, 5 : 282, *Type-locality* : Kondul, Nicobar Islands ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of Indian and Neighbouring Countries*, 286 p., Nicobars.

(a) *Material.—Identified* : (i) *Holotype* and *Paratypes* from Kondul Island, Nicobars, *Forest Entomologist coll.*, 1930, ex. 'seeds of unidentified palm, "hailwah" ; (ii) 44 exs. from Little Nicobar, *Forest Entomologist coll.*, 1930, ex. "seeds of *Areca catechu*"

(b) *Description.*—(i) *Female* (Fig. 9, a-d) : Body short and stout ; head, pronotum, elytra and legs reddish brown to blackish brown. Body length 2.10-2.25 mm ; 2.3 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons plano-convex, with some longitudinal coarse carinulae converging anteriorly, subgranulate at intervals ; median line expanding into a smooth narrow V-shaped area, surface with thin minute hairs and epistomal margin with fringe of erect hairs. Eyes oval, weakly emarginate. Antennal scape long ; funicle with 5 segments, club elongately oval and obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with two sutural lines marked by setae ; posterior face with one distinct procurved suture.

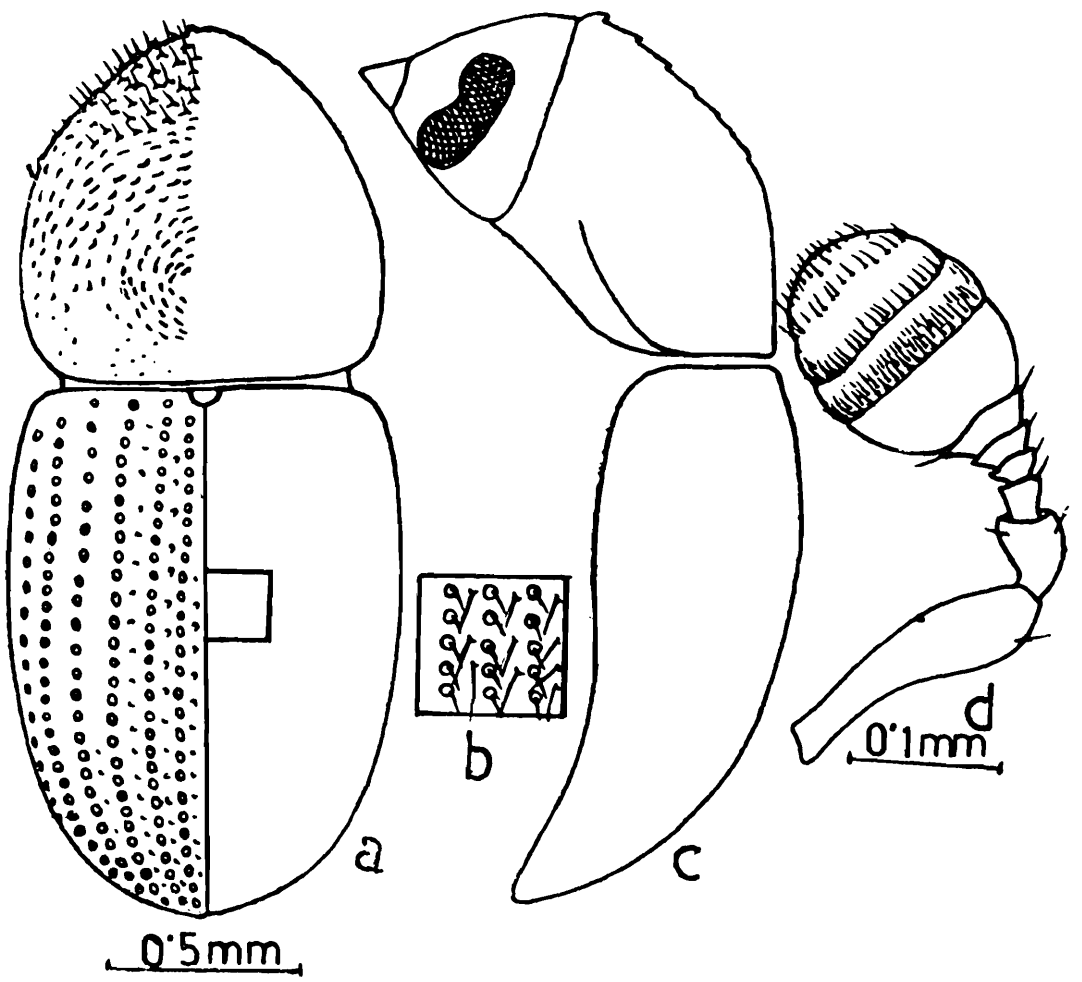

Fig. 9. a-d, *Coccotrypes trevori* Beeson, a, Dorsal view ; b, Enlarged portion of elytral disc ; c, Lateral view ; d, Antenna.

Pronotum as wide as long or slightly wider ; basal margin substraight with a very weak ridge continued up to basal two-thirds of lateral margins ; sides broadly rounded, widest a little behind the middle ; gradually narrowing anteriorly into a narrowly rounded apex, accommodating a few continuous asperities ; in profile, dorsal margin somewhat angularly convex ;

anterior slope with close asperities, asperities irregular in shape and size, somewhat rounded and becoming elongate laterally ; asperities on basal third rather granulate.

Elytra 1.45-1.55 times as long as pronotum and 1.33 times as long as wide ; elytral base somewhat truncate ; lateral sides substraight, converging posteriorly into a rounded apex ; striae on elytral disc and declivity not at all impressed, with close shallow punctures and microhairs ; discal interstriae fiat with uniseriate small punctures replaced by small granules towards apex, each with one long erect hair. Declivital face convex and smooth ; strial punctures comparatively large with microhairs ; interstriae smooth but granulate with erect hairs.

(ii) *Male.* : Males are not recognizable in the collection studied.

(c) *Distribution.*—NICOBAR ISLANDS : Kondul and Little Nicobar (Beeson, 1939). ELSEWHERE : None.

(d) *Remarks.*—The specific identity of the species is quite clear in having pronotum with distinctly declivous anterior portion and narrowly rounded apical margin accommodating a few contiguous transverse asperities.It is a distinct species, thereby its status remains unchanged following its discovery in 1939. However, the species is known to occur in the seeds of *Areca catechu* in the Nicobars. The species seems to be restricted to the Nicobar groups.

11. **Coccotrypes vulgaris** (Eggers)

Dendurgus vulgaris Eggers, H. 1923. *Zool. Meded.*, **7** : 151, *Type-localities* : Mentawei, Sumatra, Borneo and New Guinea.

Thamnurgides vulgaris (Eggers), Eggers, H. 1925. *Ent. Odd. Nar. Mus. Praze*, **3** : 153 ; Beeson, C. F. C. 1929. *Insects of Samoa*, **4** (4) : 228, Samoa ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 301 p., Bengal to New Guinea.

Poecilips brevior Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 84, *Type-locality* : Luzon, Philippines ; Schedl, K. E. 1971. *Ent. scand. suppl.*, **1** : 274 (Synonymy).

Poecilips vulgaris (Eggers), Schedl, K. E. 1942. *Tijdschr. Ent.*, **85** : 3, Java ; Schedl, K. E. 1951. *B. P. Bishop Mus. Occ. Paper*, **20** (10) : 135, Oriental Region ; Beeson, C.F.C. 1939. *Indian Forest Rec. (N.S.) Ent.*, **5** (3) : 307, India (Middle Andaman, Assam, Bengal), Burma, Indonesia, (Borneo, Java, and Sumatra) and New Guinea.

(a) *Material.—Identified* : 3 exs. from Middle Andaman, *B. M. Bhatia coll.*, 9. xii. 1982, ex. "unknown creeper," *det.* as *Thamnurgides vulgaris* Eggers by Beeson.

(b) *Description.*—(i) *Female* (Fig. 10, a-e) : Body short ; head, pronotum and elytra reddish brown ; antennae and legs rather paler. Body length 1.90 mm and 2.55 times as long as wide.

Head globose ; frons flatly convex, with a prominent smooth median line running from epistoma to vertex ; area just above epistomal margin with a few carinulae, rest of the surface with distinct large punctures and with scattered, fine bent hairs ; epistomal margin with fringe of hairs. Eyes elongately oval and feebly emarginate. Antennal scape slender, funicle with 5 segments, club subglobose and obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reduced with procurved apical margin ; truncated face with two indistinct sutural lines marked by setae ; posterior face marked by one distinct strongly procurved suture.

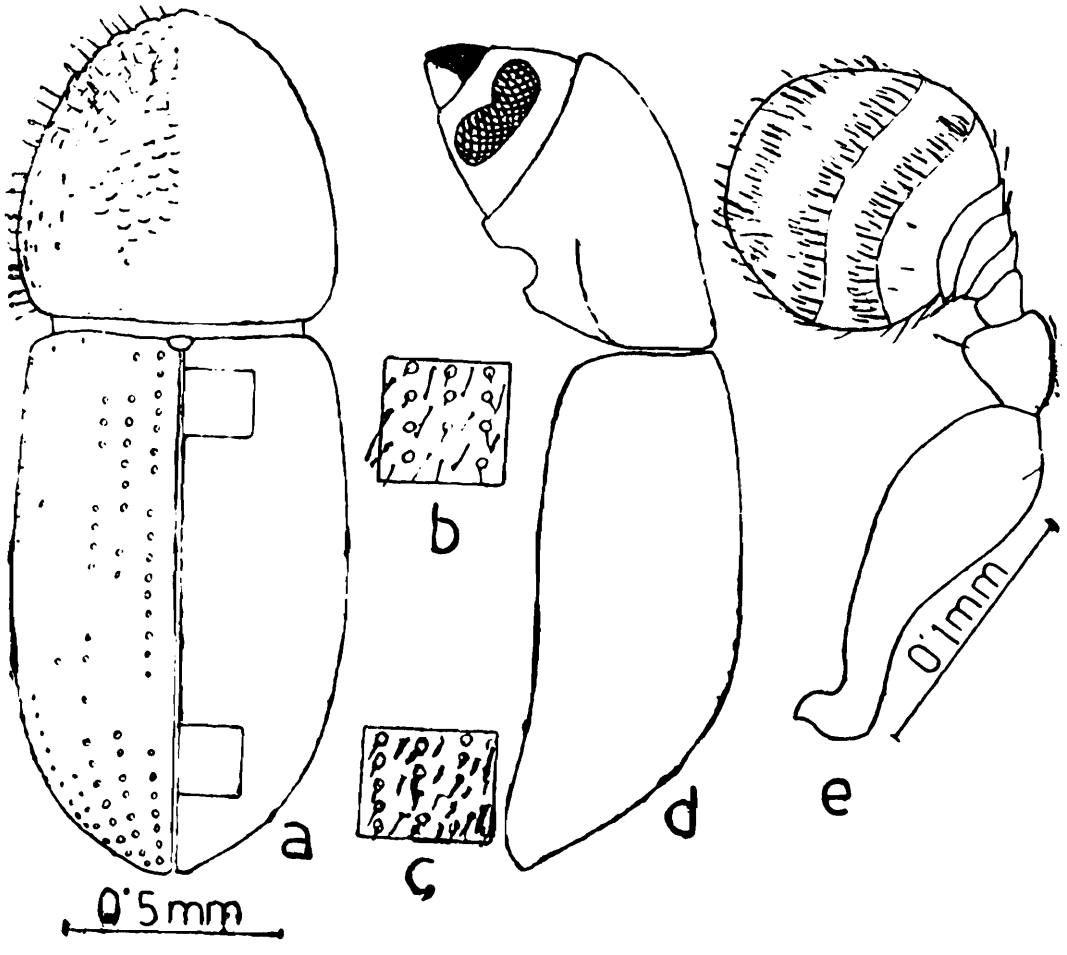

Fig. 10. a-e, *Coccotrypes vulgaris* (Eggers), a, Dorsal view ; b, Enlarged portion of elytral disc ; c, Enlarged portion of elytral declivity ; d, Lateral view ; e, Antenna.

Pronotum almost as long as broad ; basal margin substraight ; lateral sides weakly outcurved, somewhat margined laterally beyond the middle ; broadly rounded anteriorly ; in profile, dorsal margin feebly convex, without having any prominent summit ; anterior slope with small, close and subtriangular asperities becoming gradually elongate laterally and imbricate centrally ; posterior surface with large, deep and close punctures and space between punctures rather smooth and shiny ; presence of long recumbent hairs anteriorly and laterally.

Scutellum subtriangular.

Elytra 1.6 times as long as pronotum and 1.6 times as long as its width ; basal margin truncate ; lateral sides subparallel up to basal two-thirds, whence narrowing posteriorly, terminating into a narrowly rounded apex; discal striae not impressed, marked by shallow and close punctures ; interstriae as wide as or slightly wider than striae with sparse shallow punctures bearing thin hairs. Declivity gradually sloping with weakly convex face, striae 1, 2 and 3 complete and comparatively impressed with more close punctures with microhairs ; interstriae with indistinct granules and setae comparatively stouter than on disc. Procoxae contiguous ; protibiae with 5 and mesotibiae with 5 teeth.

(ii) *Male* : Males are not distinguishable in the material studied.

(c) *Distribution* : ANDAMAN ISLANDS : Middle Andaman (Beeson, 1939). ELSEWHERE : India (West Bengal and Assam), Sri Lanka, Burma, Indonesia (Java, Sumatra, Borneo and Celebes) and New Guinea.

(d) *Remarks.*—This widely distributed species in north-east Asia is already recorded from Middle Andaman only on a single occasion. The material studied in the present account is certainly a typical *vulgaris* Eggers with variation of narrowly to boroadly rounded elytral apex. Originally, the species was described under the genus *Dendurgus* by Eggers (1923). Subsequently, Eggers (1925) transferred the species to the genus *Thamnurgides* Hopkins and Schedl (1942) to the genus *Poecilips* Schaufuss. Since these genera are now synonymised with *Coccotrypes* Eichhoff, we are transferring the said species to this genus.

Beeson (1941) reported the occurrence of the species in bark of a number of host plants from Bengal and New Guinea. In Andaman, it has been recorded only from an unknown creeper.

Genus : **Crytogenius** Strohmeyer, 1910

Kyrtogeneus Strohmerer, H. 1910. *Ent. Blatt.*, **6** : 127. *Type-species* : *Kyrtogeneus bicolor* Strohmeyer.

Cyrtogeneus Strohmeyer, H. 1911. *Ent. Blatt.*, **7** : 116 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 30-31 ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) 92.

Carposinus Hopkins, A.D., 1915. *U. S. Dept. Agric. Rep.*, **99** : 47, *Type-species* : *Carposinus pini* Hopkins=*Lepicerus nitidus* Hagedorn.

Orosiotes Niisima, Y. 1917. *Coll. of Essays Ysushi Nawa*, p.1, *Type-species* : *Orosiotes kumatoensis* Niisima: Schedl, K. E. 1951-52. *Ent. Blatt.*, **47-48** : 162 (Synonymised under *Carposinus* Hopkins).

Metahylastes Eggers, H. 1922. *Ent. Blatt.*, **18** : 165. *Type-species* : *Metahylastes africans* Eggers.

Pelicerus Eggers, H. 1923. *Zool. Meded.*, **7** : 216, *Type-species* : *Lepicerus nitidus* Hagedorn ; Schedl, K. E. 1957. *Ann. R. Mus. Belg. Congo, Sci. Zool.*, **56** (8) : 1-162 (Synonymised under *Carposinus* Hopkins).

Taphroborus Nunberg, 1961. *Ann. Mag. nat. Hist.*, **3** (13) : 617, *Type-species* :*Taphroborus vaticae* Nunberg.

The genus *Kyrtogeneus* was recognized by Strohmeyer (1910) and further established by him in 1911 with the type-species *Kyrtogeneus bicolor* Strohmeyer from Africa. Subsequently, a number of genera, namely, *Carposinus* Hopkins, *Orosiotes* Niisima, *Metahylastes* Eggers, *Pelicerus* Eggers and *Taphroborus* Nunberg were synonymised under it by different authors. However, the genus is now a valid one represented by a number of species in the Oriental, Palaearctic, Oceania and Australian Regions. In India, three species are so far known, of which two remain still undescribed after its designation by Beeson (1941). Only one species is known from the Nicobar.

12. **Cyrtogenius brevior** (Eggers)

Pelicerus brevior Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 86, *Type-locality* : Philippines ; Beeson, C.F.C. 1929. *Insects of Samoa*, **4** (4) : 231, *Male* and *Female*, Somoa (Upolu); Beeson, C.F.C. 1938. *J. fed. Malay St. Mus.*, **18** : 289.

Carposinus brevior (Eggers), Schedl, K. E. 1951. *B. P. Bishop Mus., Occ. Papers*, **20** (10) : 136, Samoa ; Schedl, K. E., 1952. *Philipp. J. Sci.*, **81** : 263 ; Wood, S. L. 1960. *B.P. Bishop Mus., Occ. Papers*, **18** (1) : **45**, Male and Female, Micronesia ; Browne, F. G. 1961. *Malay. Forest Rec.*, No. 22, p. 85 (biology).

Pelicerus philippinensis Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 87, *Type-locality* : Catanduanés, Philippines ; Schedl, K. E. 1966. *Entom. Abh.Mus Tierk. Dresden*, **35** : 31 (Synonymy).

Crytogenius brevior (Eggers), Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35**: 31, Ryukyu Isl., Fukien, Philippine Isl., Malaya, Java, Sumba, New Guinea and Samoa; Beaver, R. A. and Browne, F. G. 1975. *Oriental Isl.*, **9** (3) : 289, Nicobar Is. and Thailand.

Orosiotes mindorensis Eggers, H.,i.l.

Dryocoetes ryukyvensis Nobuchi, A.,i.l.

(a) *Material.*—Since no material is available for study, the present description is based on the Original description (Eggers, 1927) and that of Wood (1960).

(b) *Description.*—(i) *Female* : Body cylindrical and shiny, brown in colour. Body length 1.70-2.40 mm ; 2.70 times as long as broad.

Frons plano-convex, transversely impressed just above eipostoma ; surface closely granulate-punctate ; vestiture fairly abundant, becoming shorter towards centre. Eyes broadly emarginate. Antennal funicle with 4 segments.

Pronotum 1.20 times as long as wide ; sides straight and subparallel on basal half ; anterior margin broadly rounded ; apical half finely and closely asperate ; posterior half shiny with coarse, close and deep punctures ; summit indistinct ; hair-like setae mostly on asperate surface as well as postero-laterally ; lateral sides on basal two-thirds acutely margined.

Elytra shiny, 1.60 times as long as broad, 1.50 times as long as pronotum, sides straight and subparallel on basal three-fourths, gradually narrowing posteriorly and terminating into a rounded apex ; discal striae indistrinctly impressed ; striae 1 and 2 strongly impressed near declivity marked by large and deep punctures ; interstriae slightly wider than striae with close punctures of smaller size. Declivity very steep with convex face ; striae 1, 2 and 3 sinuate, apically curving towards elytral sutural line ; stria 1 more strongly impressed than on disc ; interstriae 1, 2 and 3 wider than on disc, each bearing a uniseriate row of widely spaced pointed granules ; interstria 1 moderarately elevated, 4 to 7 bearing granules, those on 7 rather large. Vestiture with fine hairs both on elytra and on declivity ; disc devoid of any hairs.

(ii) *Male* : Similar to female in all morphological characters, except in having frons with fine punctures on smooth surface and with inconspicuous hairs.

(c) *Distribution.*—NICOBAR ISLAND. ELSEWHERE : Burma, Thailand, Malaya, Indonesia (Java), Philippines, Micronesia, Bismark

Isl., Caroline Is., Gilbert Is., Mariana Is., Marshall Is., Samoa and New Guinea.

(d) *Remarks.*—The species is so far known from different parts of the Oriental, Papuan and Oceanian Regions. The credit for its biological information goes to Beeson (1941) and Browne (1961).

Genus : **Ozopemon** Hagedorn, 1910

Ozopemon Hagedorn, M. 1910. *Dt. ent. Z.*, p. 1, *Type-species* : *Ozopemon regious* Hagedorn ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 69 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 40.

Dryocoetiops Schedl. K. E. 1957. *Ann. Mus. Roy.Congo. Belge, Tervuren*, ser. 8, *Sci. Zool.*, **56** : 13. *Type-species* : *Ozopemon laevis* Strohmeyer ; Wood ; *S.L.* 1980. *Gt. Basin Nat.*, **40** (1) : 95 (Synonymy)

Hagedorn (1908) erected the monobasic genus *Ozopemon* to include his new species *Ozopemon regius* Hagedorn from Sumatra. On the basis of the unique characteristics of the pronotum in *Ozopemon laevis* Strohmeyer, Schedl (1959) created a genus *Dryocoetiops* to accommodate this species. In a recent scrutiny, Wood (1980) of the opinion that the species comes within the limit of variations of the genus *Ozopemon*. This genus is placed in the synonym of this genus. The members of the genus usually occur in the Oriental, Papuan and Oceania Regions. O. *obanus* is the only species found in India including in the islands of Nicobar.

13. **Ozopemon obanus** Hagedorn

Ozopemon obanus Hagedorn, M. 1910. *D. ent. Z.*, p. 3, *Type-locality* : Si Oben, Mentawei, Indonesia ; Eggers, H. 1923. *Zool. Meded.*, **7** : 153-154 (described fully).

Ozopemon cylindricus Eggers, H. 1923. *Zool. Meded,*, **7** : 156, *Type-locality* : Sumatra; Schedl, K. E. 1958. *Tijdschr. Ent.*, **101** (3-4) : 154 (Synonymy) ; Beesen, C. F. C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 290 p., Assam, India.

(a) *Material.*—8 exs. from Gt. Nicobar and Little Nicobar as follows :

(i) 2 exs. from Forest, 36 km S. E. of Campbell Bay, *B. N. Nandi and party coll.*, 10. xi. 1978, ex. "*Canarium euphyllum*" ; (ii) 1 ex. from Campbell Bay, *B. N. Nandi and party coll.*, 12. xii. 1978 ; (iii) 1 ex. R. R. Camp, Campbell Bay, *B.N. Nandi and party coll.*, 13. xii. 1978, ex. "decaying log"; (iv) 1 ex., Lakshman Beach, Campbell Bay, *B. N. Nandi and party coll.*, 5. xii. 1978, ex. "*Mangifera indica*" log ; (v) 2 exs., from Forest, 38 km. S. E. of Campbell Bay, *B. N. Nandi and party coll.*, 9. xii 1978., ex. "log of *Myristica* sp." (iv) 1 ex. from Little Nicobar, *Forest Entomologist coll.*, 1930, ex. "on wing"

(b) *Description.*—(i) *Female* (Fig. 11, a-e) : Body large and stout, head, pronotum and elytra reddish brown to blackish brown ; antennae and legs yellowish brown ; entire body densely hairy. Body length 4.70 — 5.60 mm and nearly 2.18 times as long as wide.

Head globose ; frons moderately convex ; surface, densely pilose and reticulate with large irregular close punctures ; median line prominent and terminating into a smooth weakly raised small area ; epistomal margin with distinct fringe of hairs. Eyes large, elongate and shallowly emarginate. Antennal scape slender ; funicle with 5 segments ; club somewhat flattened, both the faces with two procurved sutures including substraight apical margin of basal corneous portion.

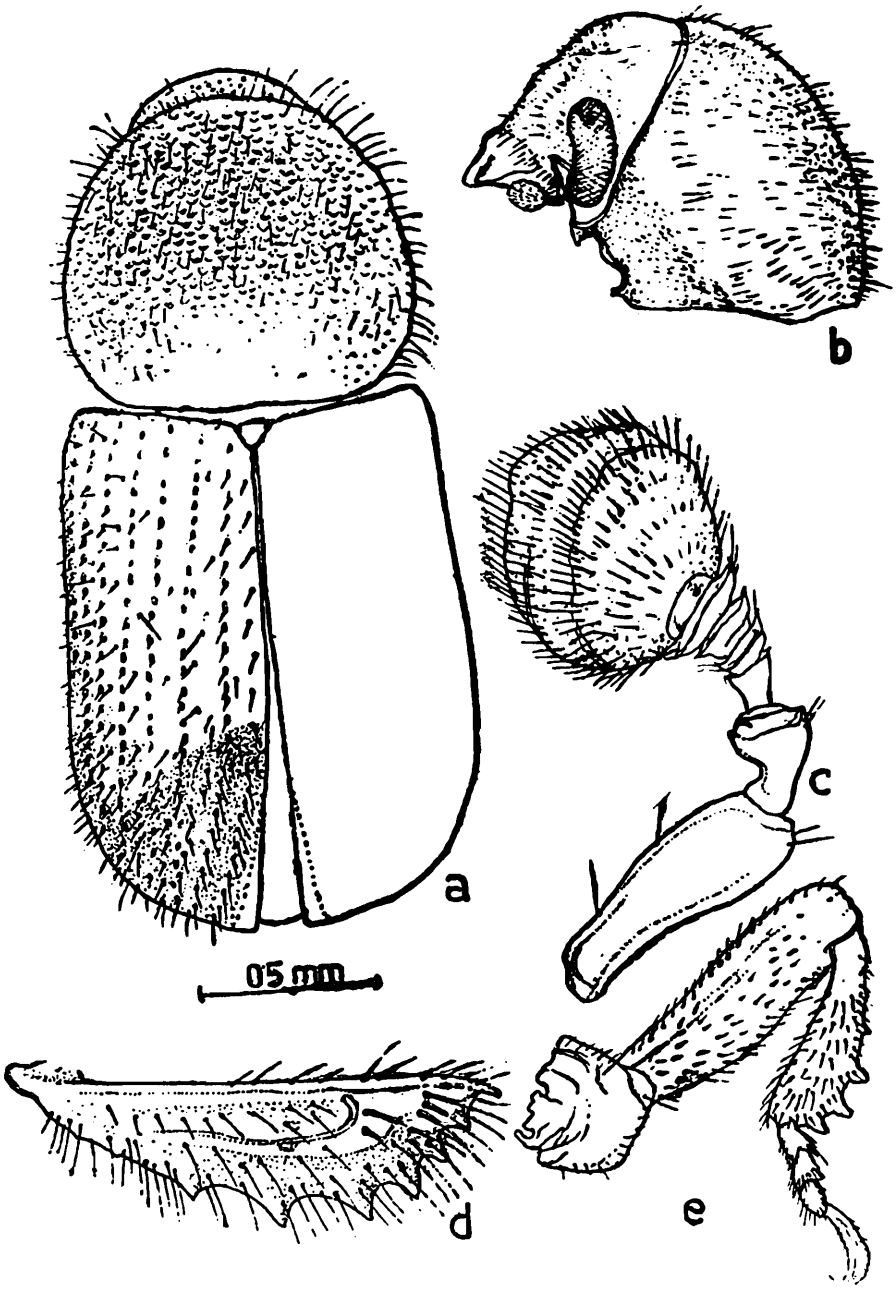

Fig. 11. a-e, *Ozopemon obanus* Hagedorn, a, Dorsal view ; b, Lateral view of head and pronotum ; c, Antenna ; d, Metatibia ; e, Foreleg.

Pronotum globose, nearly as wide as long or slightly wider ; basal margin weakly outcurved ; lateral sides bulging out ; anterior margin broadly rounded and unarmed ; in profile, dorsal margin weakly convex with indistinct summit on basal third ; entire surface with small asperities intermixed with small and long recumbent hairs.

Scutellum large shiny and tongue-shaped.

Elytra 1.51-1.55 times as long as and as wide as pronotum, 1.27 times as long as its own width ; basal margin substraight, lateral sides subparallel on basal third whence gradually broadly rounded posteriorly ; discal striae weakly impressed marked by large punctures with microhairs ; interstriae nearly 3 times wider than striae, with irregular punctures of variable size and provided with long hairs. Declivity commencing on apical third, face opaque, steep and somewhat flattened, but distinctly impressed at the level of interstria 2, sutural margin weakly elevated ; striae 1, 2 and 3 distinctly impressed and marked by large, deep and close punctures, each puncture with a microhair ; interstriae with minute punctures and erect hairs. Pro-coxae contiguous, pro-, meso-and meta-tibiae with 5, 6 and 7 spines respectively.

(ii) *Male* : Unknown.

(c) *Distribution.*—NICOBAR ISLANDS : Great Nicobar : Campbell bay and adjoining areas and Little Nicobar (present record). ELSEWHERE : India (Assam), Indonesia (Borneo, Java and Sumatra), Malaya, Philippines and New Guinea.

(d) *Remarks.*—The species *Ozopemon obanus* is a widely distributed species in the Oriental Region and is recorded for the first time from the Nicobars. The material studied from the Great Nicobar Island show some range of variations as regards their size, colour, median line, etc. The specimens vary from 4.70-5.60 mm in length. The larger specimens have more distinct frontal carinae and almost squarish pronotum. On the other hand, smaller specimens have indistinct carinae and wider pronotum. The colour varies from chestnut brown to blackish brown. These variations are, however, within the limit of specific variation of the species with wider range of geographical distribution.

However, the species is well represented in the Great Nicobar Island infesting the different logs of *Mangifera indica, Canarium euphyllum, Myristica* sp. etc. Beeson (1941) reported *Ozopemon cylindricus*, a synonym of *O. obanus*, to occur in Assam infesting *Artocarpus lakoocha.*

Tribe (ii) XYLEBORINI

Genus : **Ambrosiodmus** Hopkins, 1915

Ambrosiodmus Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 55, *Type-species* : *Xyleborus tachygraphus* Zimmermann ; Wood, S. L. 1961. *Coleopt. Bull.*, **15** : 46 ; Bright, D. 1968. *Canad. Ent.*, **100** (12) : 1296 (Synonymised under *Xyleborus*) ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

Browneia Nunberg, M. 1963. *Ann. Mus. R. Afrique Central Ser.* 8 *Sci. Zool.*, Nr. 115, 36-37 pp.; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

Phloeotrogus Motschulsky, V. 1863. *Bull. Soc. Nat. Moscou*, **1** : 512-513, *Type-species* : *Phloeotrogus obliquecauda* Motschulsky from Sri Lanka ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96 (Synonymy).

The genus *Ambrosiodmus*, erected by Hopkins (1915), with its type-species *Xyleborus tachygraphus* Zimmermann from Sri Lanka, was continued as a valid one (Swaine, 1918 ; Wood 1961 and others). In fact, the members of the genus are very similar to those of the genus *Xyleborus*, except the anterior margin of pronotum unarmed and its asperities extending upto the basal margin, the elytral declivity with granules or large teeth. Reasonably, some authors, including Browne (1961), considered it as *Ambrosiodmus*-group under the genus *Xyleborus*. Not only that, some authors like Bright (1968) and Wood (1978) have also synonymised it under the genus *Xyleborus*. Of course, Wood (1980), in his further critical study, has again revived its generic status and also synonymised the genera *Browneia* Nunberg and *Phloeotrogus* Motschulsky under it. Only a single species, A. *nepos* (Eggers) is known from the Islands of Andaman and Nicobar.

14. **Ambrosiodmus nepos** (Eggers)

Xyleborus nepos Eggers, H. 1923. *Zool. Meded.*, 7 : 198-199, Female and Male, *Type-locality* : Java, Indonesia ; Beeson, C. F. C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10): 74, Middle Andaman, Java, Celebes, Philippines and New Guinea ; Schedl, K. E. 1939. *Tijdschr. Ent.*, **84** : 45 (Synonymised under *Xyleborus funereus* Lea).

Xyleborus signatus Schedl, K. E. 1949. *Rev. Brasil Biol.*, **9** : 278, Female, *Type-locality* : Mexico ; Wood, S. L. 1975. *Gt. Basin Nat.*, **35** (1) : 23 (Synonymy).

(a) *Material.*—A. *Identified* : (i) 3 Females from Middle Andaman, *B. M. Bhatia coll.*, 9-27. i and 12. ii. 1929, ex. "*Sterculia alata*" ; B. *Unidentified* : (ii) 10 Females from Kamorta, near church, Nicobar Island, *B. N. Nandi coll.*, ex. 6 cm deep in soft wood of *Ficus infectoria*" ; (iii) 1 Female from Kumio, Rutland Island, South Andaman, *B. Mitra coll.*, 6. x. 1928, ex. "on wing"

(b) *Description.*—(i) *Female* (Fig. 12, a-b) : Body of medium size and somewhat cylindrical in shape ; head, pronotum and elytra light brown to dark brown ; antennae and legs pale brown, femur much lighter in colour. Body length 3.00-3.40 mm, 2.40 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons flatly convex, surface with large close punctures except on a smooth elevated median area and with scattered long hairs ; epistomal margin with fringe of erect hairs. Eyes elongately oval with weak emargination. Antennal scape elongate, funicle with 5 segments, club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reduced with substraight basal margin ; truncate face with segment 2 distinct, apical one indistinct ; posterior face with 2 distinct sutures.

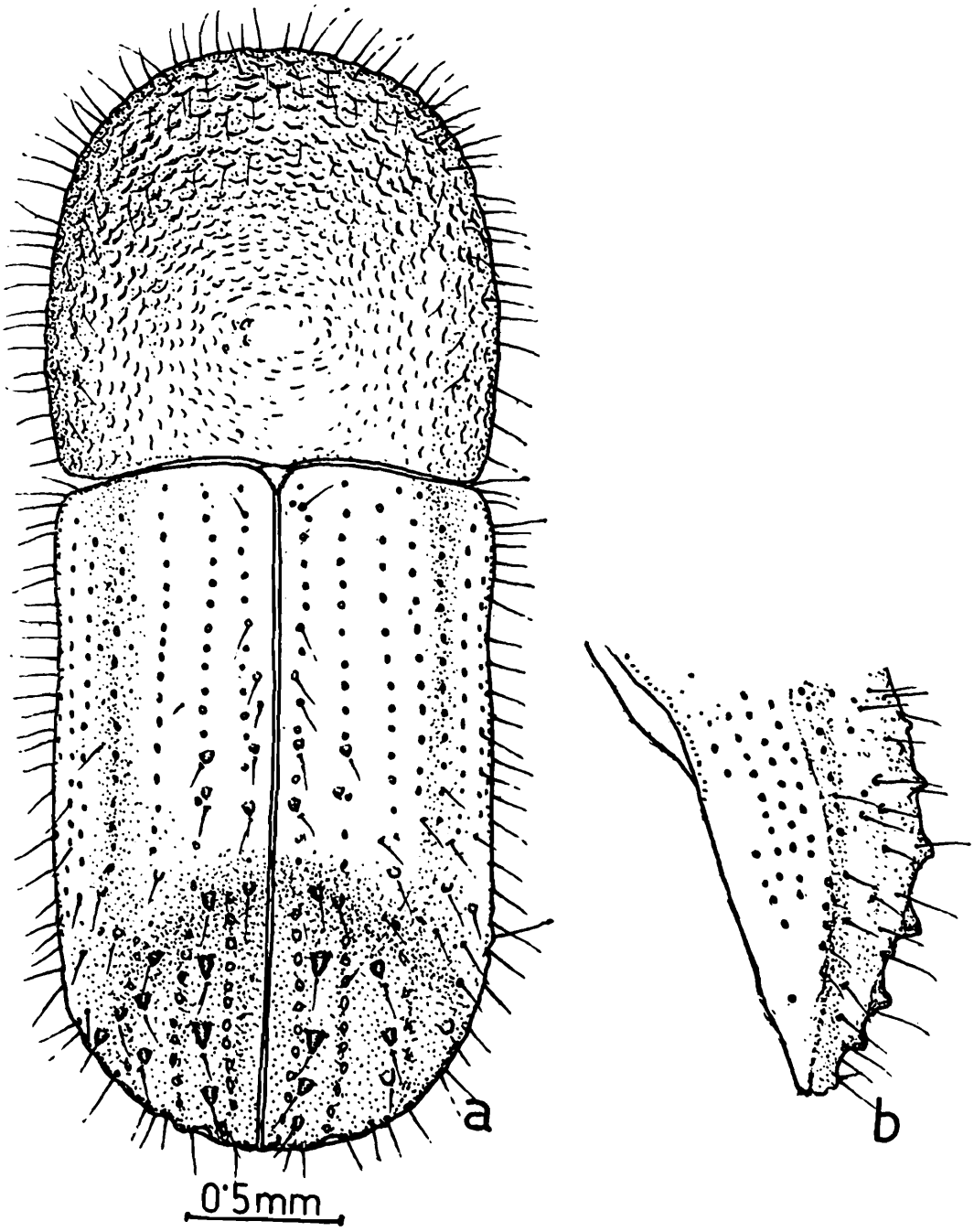

Fig. 12. a-b, *Ambrosiodmus nepos* (Eggers), Female : a, Dorsal view ; b, Lateral view of elytral apex.

Pronotum subquadrate, either nearly as long as wide or slightly wider, basal margin substraight ; both lateral and anterior margins weakly outcurved ; summit somewhat distinct nearly at the middle ; asperities on anterior half transverse and distinct, weak asperities around the summit and extending nearly up to base in the form of weak granules ; long erect hairs at anterior half and laterally.

Scutellum triangular, small and shiny.

Elytra 1.45-1.52 times as long as pronotum and 1.56-1.66 times as long as its width ; basal margin substraight, lateral sides subparallel up to basal two-thirds ; apical margin broadly rounded ; postero-lateral margins acute marked with granules ; elytral disc weakly convex, striae feebly impressed with uniseriate distinct shallow punctures, the punctures on striae 1 and 2, somewhat irregular towards base ; interstriae plano-convex nearly twice as wide as striae, with sparse shalllow punctures and scattered hairs. Declivital slope gradual, commencing slightly behind middle ; strial punctures as on disc, devoid of microhair ; interstia 1 having a few sparse granules at the base of declivity, all the other declivital interstriae up to 6 with sparse small and large setiferous granules in rows, those on interstiae 2 and 3 rather large and tuberculate. Procoxae contiguous, protibiae with 8 teeth.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Islands* : Middle Andaman (Beeson, 1930) ; South Andaman : Rutland Island and Kumio (present record) ; *Nicobar Islands* : Kamorta (present record). ELSEWHERE : Indonesia (Java and Celebes), Philippines, New Guinea and Mexico.

(d) *Remarks.*—The specimens examined from Middle Andaman under the species *Xyleborus nepos*, show some variations as regards its size and shape of declivital tubercles and strial punctures. In some specimens, declivital interstia 2 with 2 or 3 tubercles on each side. Some of these tubercles are either blunt or pointed. Equally, the declivital strial punctures vary in their shape, size and depth. Body colour also varies in some specimens. On the basis of antennal club with two sutures on posterior face and pronotal asperities extending below the summit, the species *X. nepos* Eggers has been transferred to the genus *Ambrosiodmus* in the present study. However, the species was earlier synonymised under *Xyleborus funereus* Lea by Schedl (1939) But Wood (1975) retained it as a valid species.

The species was so far known from the Middle Andaman from *Sterculia alata* in addition to its earlier record from different insular areas of the Orient. It is recorded for the first time from Kamorta, Nicobar infesting

Ficus infectoria at the depth of 6 cm inside the tunnel as well as from Rutland Island, South Andaman-"on wing" In the Orient the species, is insular in habit and not reported from mainland. It is a deep sapwood borer as evidence of a collection at a depth of 6 cm along with immature stages. In the month of October, it has been collected on wing at Rutland.

Genus : **Anaxyleborus** Wood, 1980

Anaxyleborus Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 90, *Type-species* : *Xyleborus truncatus* Erichson.

The genus *Anaxyleborus* Wood has recently been erected by Wood (1980) to accommodate a group of *Xyleborus* species having truncate elytral declivity with circumdeclivital costa from base to apex. *Xyleborus truncatus* Erichson has been assigned as the type-species of the genus. The species previously assigned to the *truncatus*-group belonging to the genus *Xyleborus* are now considered under this genus. The species *Anaxyleborus resecans* (Eggers) is the only species recognised in the islands of Andaman.

15. **Anaxyleborus resecans** (Eggers)

Xyleborus resecans Eggers, H. 1930. *Indian Forest Rec.* (*Ent.*), **14** (9) : 8, Female, *Type-locality* : Sibsagar, Assam, India ; Beeson, C. F. C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 77, Assam ; Beeson, C. F. C. 1941. *Ecology and Control of Forest Insects of Indian and Neighbouring Countries*, 308 p.

(a) *Material.—Identified* : 2 Females from Andaman Isl., *C. F. C. Beeson coll.*, 10. iv. 1930, ex. "*Dipterocarpus turbinatus*", *det.* as *Xyleborus resecans* Eggers.

(b) *Description.*—(i) *Female* (Fig. 13, a-c) : Body short and cylindrical ; head deep black, pronotum and elytra comparatively less black; legs brownish black. Body length 2.53 mm, 2.3 times as long as wide.

Head globose ; frons weakly convex, surface rugose and finely reticulate with scattered punctures, granulate anteriorly ; median line indistinct ; epistomal margin with fringe of hairs. Eyes oblong, more than half of its width divided by emargination. Antennal funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with weakly procurved apical margin ; truncate face with one procurved distinct suture ; posterior face devoid of any suture.

Pronotum subcylindrical, 1.17 times as long as wide ; basal margin bisinuata ; lateral sides weakly outcurved ; anterior margin broadly rounded with a weak median projection supporting a few distinct asperities of alomst

equal size ; in profile, dorsal summit indistinct and anterior one-third declivous supporting small erect hairs and fine asperities gradually slightly increasing in size anteriorly mostly medially ; posterior two-thirds finely reticulate with scattered fine punctures.

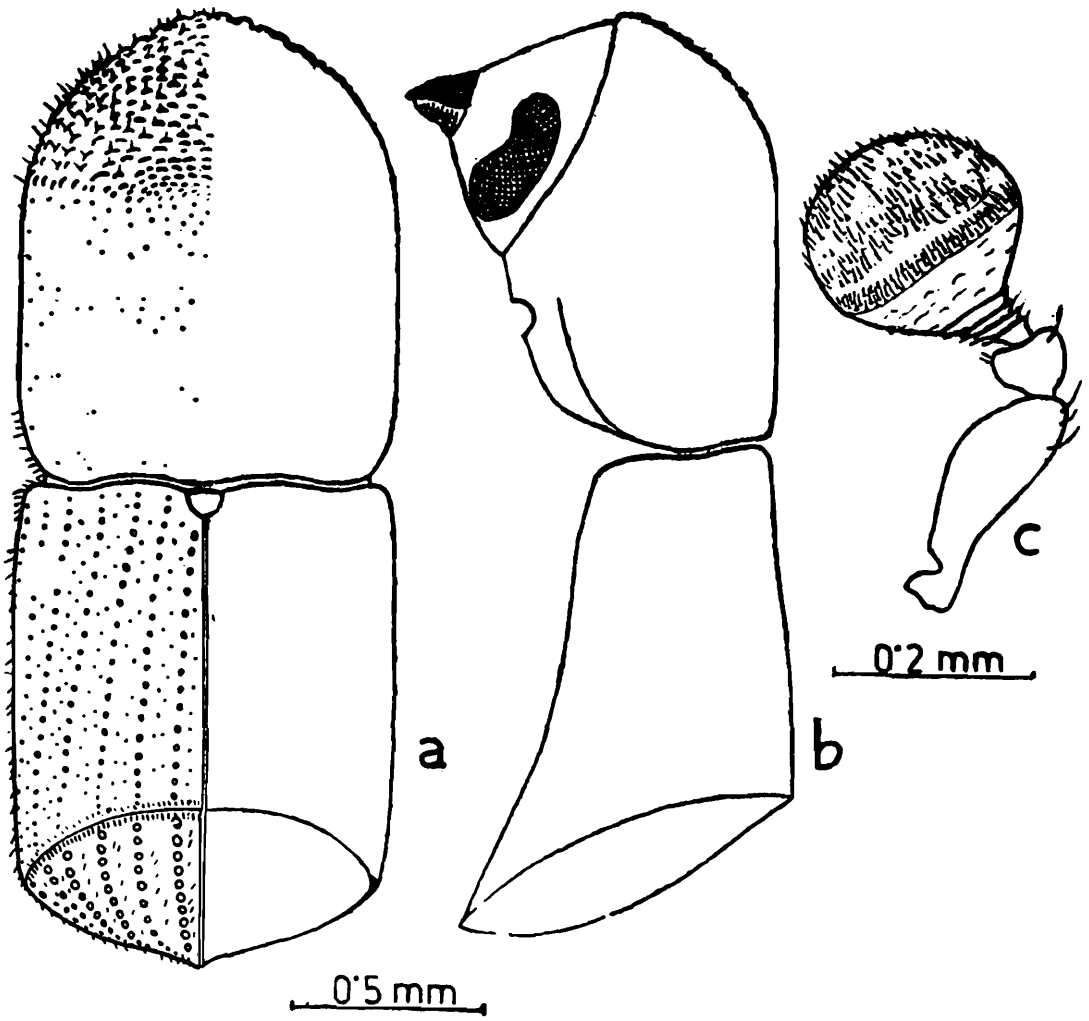

Fig. 13. a-c, *Anaxylebours resecans* (Eggers), Female : a, Dorsal view ; b, Lateral view ; c, Antenna.

Scutellum smooth and shiny, as long as broad, broadly tongue-shaped, weakly depressed medially.

Elytra slightly longer than broad and as long as pronotum ; basal margin outcurved up to the level of interstria 5; lateral sides subparallel; but weakly diverging posteriorly ; elytral apex distinctly truncate; discal, striae weakly marked with very fine punctures ; interstriae smooth and shiny with minute punctures, but devoid of any hairs ; surface with a few transverse weak scar marks. Declivital face distinctly outbulged specially toward elytral apex, either side of which rather depressed ; declivity encircled by a complete round costal margin ; declivital striae very distinct, marked by large, moderately deep punctures, striae 3, 4 and 5 confluent and almost meeting below the middle of declivity ; interstriae smooth and shiny,

wider than striae, sutural one slightly raised toward apex ; interstriae with a few fine hairs. Procoxae contiguous, protibiae with 5 small teeth.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLANDS : Andaman Islands (present record). ELSEWHERE : India (Assam).

(d) *Remarks.*—So far, this species goes by the name of *Xyleborus resecans* Eggers occurring only in Assam, India. The species contains all the essential characters of the genus *Anaxyleborus* Wood, except any visible suture on posterior face of antennal club. This antennal character is no doubt one of the most important characters in determining the generic status of the species. But due to lack of sufficient material available for the present study, nothing else can be thought, except putting it under the genus *Anaxyleborus*. However, this is the first report of the species from the Andamans, infesting the felled log of *Dipterocarpus turbinatus*. The Andamanese specimens as compared with the 'Type-specimens' present in *.FR.I.*, Dehra Dun, have comparatively more convex elytral declivity. *Dipterocarpus pilosus* is the first host from which it was originally collected from Assam. Nothing else is known about its biological features.

Genus : **Arixyleborus** Hopkins, 1915

Arixyleborus Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 10 and 59. *Type-species* : *Arixyleborus rugosipes* Hopkins from Philippines ; Browne, F. G. 1955. *Sarawak Mus. J.*, **6** : 350 ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 491 ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22 p. 178 ; Nobuchi, A. 1978. *Bull. For. and For. Prod. Res. Inst.*, no. 301, pp. 2 and 7 ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

Xyleboricus Eggers, H. 1923. *Zool. Meded.*, **23**: 212-213, *Type-species* : *Xyleboricus canaliculatus* Eggers from New Guinea ; Browne, F. G. 1963. *Ent. Ber.*, **23** : 55 (Synonymy)

The genus *Arixyleborus* was first erected by Hopkins (1915) with its type-species *A. rugosipes* Hopkins from the Philippines. The genus is predominated in the Indo-Malayan Region, only a few species extending from Japan to New Guinea. The members of the genus usually infest mostly the logs of *Dipterocarpus* plants (Browne, 1961). In the present study two species, namely *A. mediosectus* (Eggers) and *A. rugosipes* Hopkins, have been recorded for the first time from the islands of Andaman.

16. **Arixyleborus mediosectus** (Eggers)

Xyleboricus mediosectus Eggers, H. 1923. *Zool. Meded.*, 7 : 215, Female, *Type-locality* : Sinaband, Simalur Island (South Sumatra) ; Schedl, K. E. 1936. *Philipp. J. Sci.*, **60** :

65 ; Beeson, C. F. C. 1941. *Ecology and Control of the Forest Insects of India and Neighbouring Countries,* 301 p.

Arixyleborus mediosectus (Eggers), Schedl, K. E. 1968. *Tijdschr. Ent.*, **101** : 145 ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 492, Sri Lanka ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22 , p. 182, Malaya ; Schedl, K. E. 1969. *Kontyu,* **37**(2) : 206 ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12**(4) : 282, Oriental and Australian Regions.

(a) *Material.—Identified* : A. 29 exs., from North Andaman, *C.F.C. Beeson coll.*—(i) 1 Female, 2. iii. 1930, ex. "*Artocarpus chaplasha*" ; (ii) 15 Females, Stewart sound, iii. 1930 ; (iii) Female, 9. iii. 1930, ex. "unknown wood"; (iv) 12 Females, 8. iii. 1930, ex. "*Dipterocarpus turbinatus*"; (v) 1 Female, 9. iii. 1930, "*Dendrocalamus strictus*" B. 63 exs., North Andaman, *B. M. Bhatia Coll.*-(vi) 1 Female, 16. xii. 1929, ex. "*Terminalia bialata*" ;(vii) 19 Females, 15-16 xii. 1928, ex. "*Dipterocarpus turbinatus*" ; (viii) 42 Females from Middle Andaman, *B. M. Bhatia coll.*, 8. xii. 1928, ex. "*Canarium euphyllum*"

(b) *Description.*—(i) *Female* (Fig. 14, a-c) : Body long and cylindrical ; pronotum blackish brown and elytra, legs and antennae light brown in colour. Body length 2 mm, 2.8 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons moderately convex, s urface reticulate with sparse punctures and fine hairs ; median line absent ; fringe of long hairs along epistomal margin distinct and irregular indistinct granules below it. Eyes elongate, deeply emarginate. Antennal scape short and funicle with 5 segments ; club obliquely truncated ; segment 1 corneous ; on anterior face with recurved apical margin forming a complete ring ; truncated face with one recurved suture ; posterior face unmarked by suture.

Pronotum elongate, 1.3 times as long as wide ; basal margin substraight lateral sides subparallel up to posterior two-thirds ; antero-lateral margins weakly converging and broadly rounded anteriorly ; anterior one-third with fine asperities and with sparse erect long setae ; posterior portion finely reticulate with sparse and minute punctures.

Scutellum subround and small.

Elytra 1.1 times as long as and as broad as pronotum ; basal margin substraight ; lateral margins straight and subparallel up to basal three-fourths, then narrowing posteriorly and terminating into an angular apex ; nearly half of elytra smooth and flat ; striae not at all impressed, but marked by moderately large and very shallow punctures ; interstriae almost flat,

with sparse hair-like setae in row, becoming weakly ridged slightly before the commencement of declivity. Declivity abrupt, commencing from posterior one-fourth of elytra ; declivital face plano-convex ; postero-lateral margins of declivity distinctly carinate ; declivital striae marked by large and shallow punctures, punctures weakly reticulate, sculptured inside and with a single minute hair in each ; interstriae weakly but sharply ridged slightly before the commencement of declivity up to centre of declivital face ; interstriae with prominent tubercles and recumbent hairs in row, particularly at the commencement of declivity ; tubercles gradually decreasing in size posteriorly ; both striae and interstriae distinctly marked towards lateral margins of declivital face than at the middle.

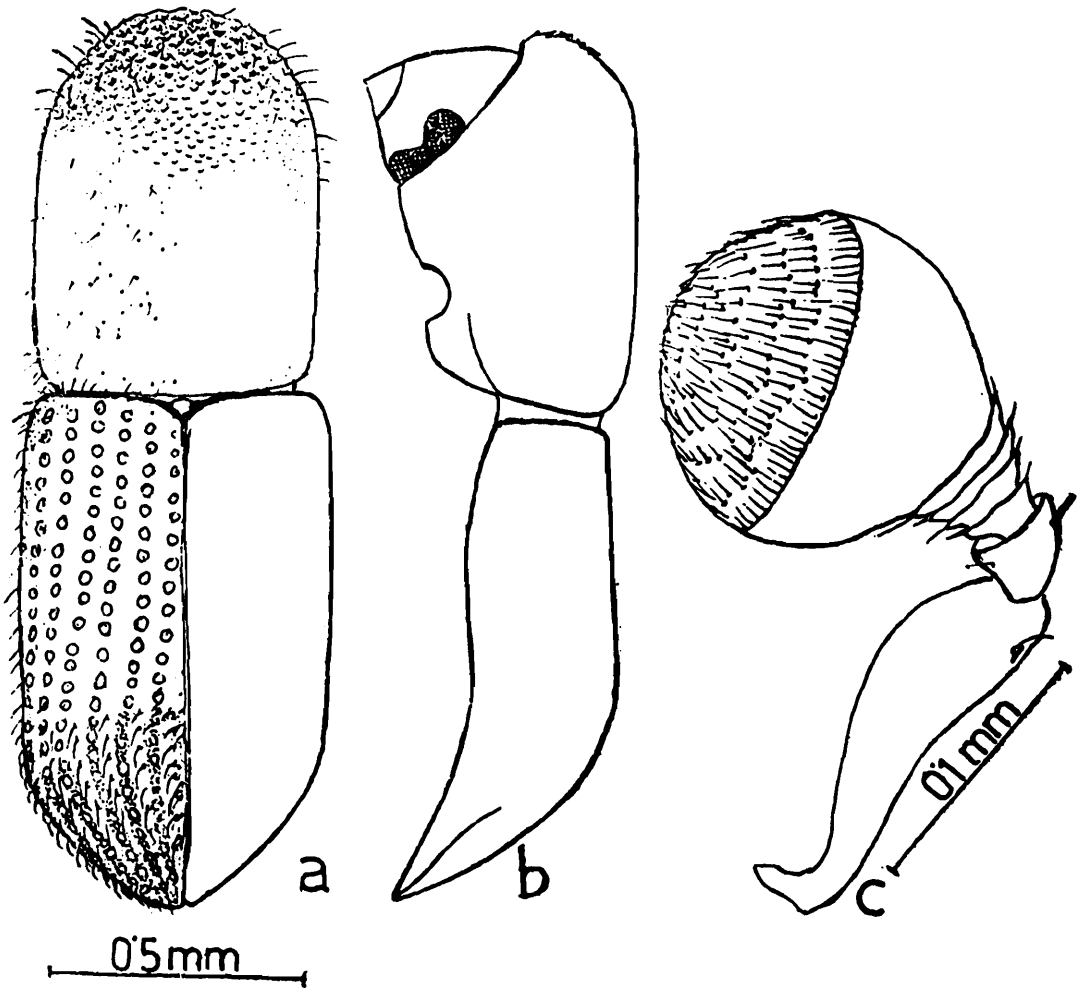

Fig. 14, a-c, *Arixyleborus mediosectus* (Eggers), Female : a, Dorsal view ; b, Lateral view ; c, Antenna.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLANDS : Middle and North Andamans (present record). ELSEWHERE : Khmer Republic (Cambodia), Sri Lanka, Malaysia, Indonesia (Sumatra) and Vietnam.

(d) *Remarks.—Arixyleborus mediosectus* Eggers can easily be distinguished from its closest ally, *A. rugosipes* Hopkins in having elytral basal two-thirds smooth with very weakly impressed striae and flat interstriae up to commencement of declivity. It is a well represented species in the Orient and is recorded for the first time in a number of occasions in the Middle and North Andamans. A number of host records constitutes the sole biological information of the species from India (Beeson, 1941) and from Malaya (Browne, 1961). In Andamans, it has been collected from some new host-logs of *Artocarpus chaplasha*, *Dendrocalamus strictus* and *Terminalia bialata*, in addition to the known hosts of *Dipterocarpus turbinatus* and *Canarium euphyllum* from the Indian mainland.

17. **Arixyleborus rugosipes** Hopkins

Arixyleborus rugosipes Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 59, Female, *Type-locality* : Pagbilao, Philippines ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 492, Sri Lanka ; Browne, F. G. 1960, *Phillpp. J. Sci.*, **89** : 207 ; Male ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 181, Sri Lanka, Indonesia (Sumatra, Java, Borneo) and Philippine ; Schedl, K. E. 1965. *Ark. Zool.*, **18** (3) : 22, Sumatra ; Schedl, K. E., 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 44.

Webbia medius Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 104-105, Female, *Type-locality* : Mindanao and Mindoro, Philippine Islands.

Xyleboricus medius (Eggers), Schedl, K.E. 1936. *Philipp. J. Sci.*, **60**:64 ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, p. 307 ; Schedl, K. E. 1951-52. *Ent. Blatt.*, **47-48** : 161-162.

Webbia camphorae Eggers, H. 1938. *Ann. Mag. nat. Hist.*, **17** (10) : 634, *Female, Type-locality* : Johore, Khrang, Malaya Archipelago ; Browne, F. G. 1955. *Sarawak Mus. J.*, **6** : 351 (Synonymy).

Xyleboricus camphorae (Eggers), Beeson, C. F. C. 1941. *Ecology and control of Forest Insects of India and Neighbouring Countries*, 301 p., Malaya ; Schedl. K. E. 1958. *Tijdschr. Ent.*, **101** : 145.

(a) *Material.*—A. 4 exs., from North Andaman, *C.F.C. Beeson coll.*—(i) 1 Female, 8. iii. 1930, ex. "*Dipterocarpus turbinatus*", (ii) 1 Female, Stewart Sound, iii. 1930, (iii) 2 Females, 9. iii. 1930, ex. "unknown wood" 29 exs. from North Andaman, *B. M. Bhatia coll.*- (iv) 11 Females, 15. xii. 1928, ex. "*Sterculia villosa*" (v) 1 Female, 16. xii. 1928. ex. "*Terminalia bialata*", (vi) 6 Females, 16. xii. 1928, ex. "*Dipterocarpus turbinatus*", (vii) 1 Female, 8. xii. 1928, ex. "*Terminalia Manii*", (viii) 10 Females, 16. xii. 1928, ex. "*Diospyros oocarpa*" B. 32 exs. from Middle Andaman, *B. M. Bhatia coll.*- (ix) 31 Females, 8-29. xii. 1928, ex. "*Canarium euphyllum*"; (x) 1 Female, 15. i. 1929, ex, "*Artocarpus chaplasha*"

(b) *Descriptton.*—(i) *Female* (Fig. 15, a-d) : Body long and cylindrical ; head, pronotum and elytral deep reddish brown ; legs and antennae yellowish brown in colour ; Body length 1.70 mm.

Head globose, weakly narrowing anteriorly ; frons moderately convex, surface finely reticulate, with a few scattered punctures and fine hairs ; median line indistinct ; fringe of hairs below epistomal margin distinct and with irregular indistinct granules below it. Eyes elongate and deeply emarginate. Antennal scape short ; funicle with 5 segments ; club obliquely

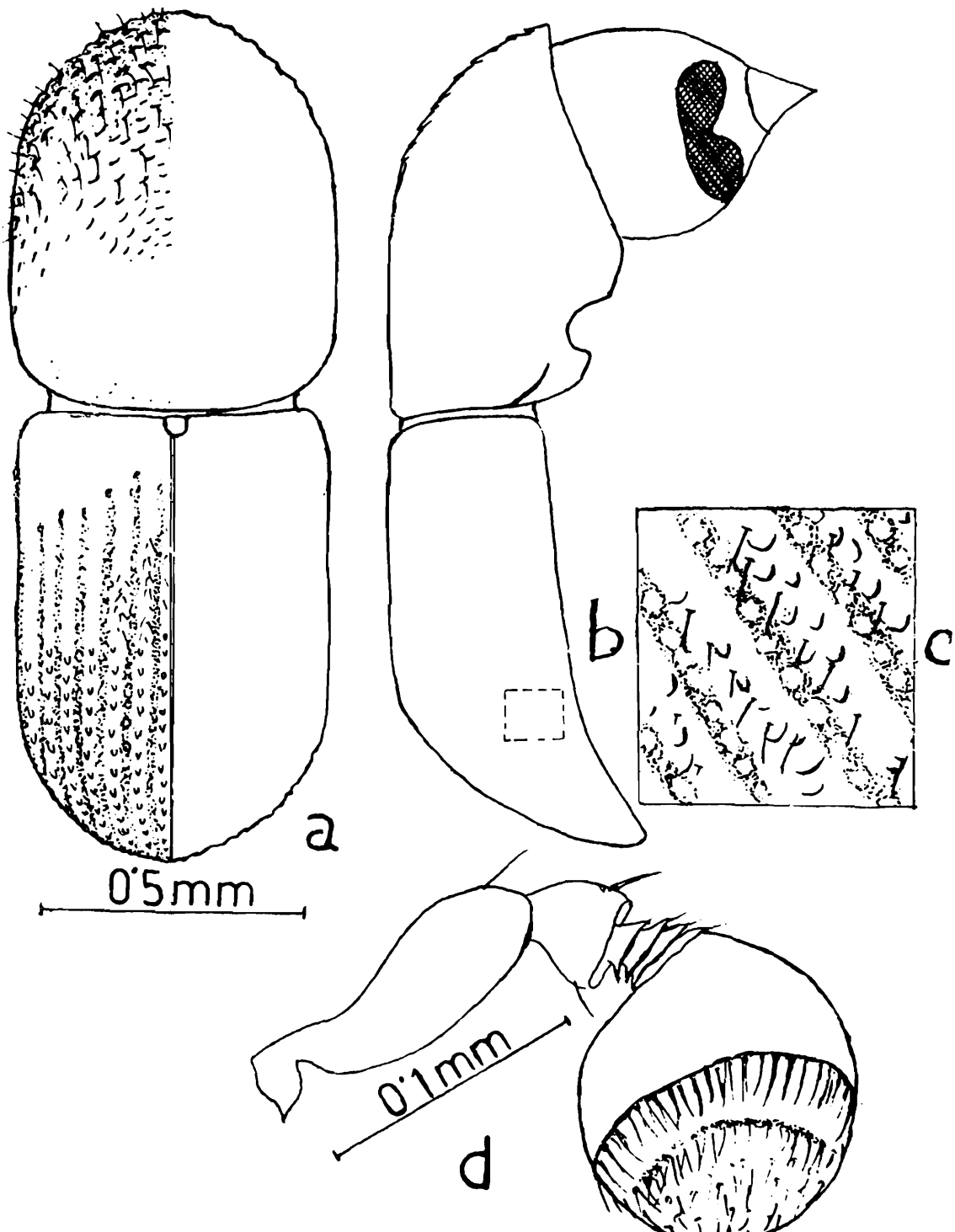

Fig. 15. a-d, *Arixyleborus rugosipes* Hopkins, Female : a, Dorsal view ; b, Lateral view ; c, Enlarged portion of elytra declivity ; d, Antenna.

truncate ; on anterior face with segment 1 corneous with costate margin forming a complete ring, truncated face with one recurved suture posterior face unmarked by any suture.

Pronotum elongate, 1.3 times as long as wide ; basal margin substraight ; sides subparallel up to anterior one-third ; antero-lateral margins weakly narrowing and broadly rounded anteriorly ; anterior half with fine asperities, gradually increasing in size anteriorly intermingled with scattered fine and short hairs ; posterior half finely reticulate with sparse, minute and shallow punctures.

Elytra slightly longer and as wide as pronotum and 1.4 times as long as wide ; basal margin substraight ; lateral margins subparallel up to basal two-thirds ; broadly rounded postero-laterally and terminating into a somewhat angular apex ; postero-lateral margins not carinate, rather marked by a row of distinct granules ; elytral base somewhat smooth and shiny, rest of elytra opaque ; all striae posteriorly beyond the basal strip deeply impressed, reticulately sculptured, hardly marked by any distinct punctures ; interstriae ridged attaining their maximum height at commencement of declivity with minute and blunt tubercles, and short hairs almost in single row. Declivity commencing on posterior third of elytra and gradually sloping posteriorly, declivital face moderately convex, declivital striae and interstriae distinctly marked as on the disc ; striae 1, 2, 3, 6 and 7 running almost to the posterior margin, striae 4 and 5 forming loop almost at the middle of declivity , all interstriae running into posterior margin except 5 ; recumbent setae at the base of tubercles on declivity.

(ii) *Male* : Material not available for study.

(c) *Distribution.*—ANDAMAN ISLAND : North and Middle Andaman (present record). ELSEWHERE : India, Philippines, Malaysia, Vietnam, Indonesia (Borneo), Sri Lanka and Australia (imported).

(d) *Remarks.*—The species *Arixyleborus rugosipes* Hopkins is rather easily distinguished from all other species under this genus by somewhat flat, shiny interstriae on narrow transverse strip on elytral base only.

This is a little pinhole borer found widely distributed in the Orient infesting numerous host plants with strong affinity to the *Dipterocarpus* plants. It usually infests dead, dying and felled trees including unseasoned sawn timber provided with some sapwood. In spite of its wide distribution,

it was unknown from the islands of Andaman. In the present account, the species has been recorded from the logs of *Dipterocarpus turbinatus*, *Sterculia villosa*, *Terminalia bialata*, *T Manii*, *Diospyros oocarpa*, *Canarium euphyllum* and *Artocarpus chaplasha*. Browne (1961) studied the detailed biology of the species in Malaya.

Genus : **Cnestus** Sampson, 1911

Cnestus Sampson, W. 1911. *Ann. Mag. nat. Hist.*, 7 (8) : 383, *Type-species* : *Cnestus magnus* Sampson ; Hopkins, A.D. 1914. *Proc. U.S. Nat. Mus.*, **48** : 118 ; Browne, F.G. 1955, *Sarawak Mus J.*, **6** : 357 ; Browne, F.G. 1961. *Malay. Forest Rec.*, no. 22, p. 173 ; Schedl, K.E. 1966. *Entom. Abh. Mus. Tierk*, **35** : 78 ; Wood, S. L. 1978. *Annls. Soc. Ent. Fr.* (*N.S.*), **14** (1) : 114.

Tosoxyleborus Murayama, J. 1950. *Trans. Shikoku. ent. Soc.*, **1** : 49, *Type-species* : *Tosoxyleborus pallidipennis* Murayama from Japan ; Browne, F. G. 1963. *Ent. Ber.*, **23** : 54 (Synonymy).

This monobasic genus *Cnestus* described by Sampson (1911) based on the species *C. magnus* Sampson from Sri Lanka, remained practically unknown until 1955, when Browne described two more species from Malaya under the genus. Later on, Murayama (1950) erected a monobasic genus *Tosoxyleborus* which according to Browne (1963) had got no characters of generic value to distinguish it from *Cnestus*. Hence, he regarded it as a synonym of *Cnestus*. It is a well accepted genus now represented by about a dozen of species from India, Sri Lanka, Indo-China, Malaya, Indonesia, Philippines, New Guinea and Japan. *C. bicornioides* (Schedl) and *C. suturalis* (Eggers) are the two species reported for the first time from the Andamans.

18. **Cnestus bicornioides** (Schedl)

Xyleborus bicornioides Schedl, K. E. 1951. *Philipp. J. Sci.*, **80** : 368, Female, *Type-locality* : Mindanao, Philippines.

Cnestus bicornioides (Schedl), Browne, F. G. 1955. *Sarawak Mus. J.*, **6** : 358 ; Schedl, K. E. 1958. *Tijdschr. Ent.*, **101**; 145 ; Browne, F. G. 1961 *Malay. Forest Rec.*, no. 22, p. 174, Philippines and Malaya ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 78, Philippines.

(a) *Material.—Identified* : 2 Females and 1 Male from Andaman Isl., *C. F. C. Beeson coll.*, 7-17 iv. 1930, ex. "unknown wood" (*det.* C.F.C. Beeson as *Xyleborus cruralis*).

(b) *Description.*—(i) *Female* (Fig. 16, a.-c) : Body short and cylindrical ; head, pronotum and elytra blackish brown ; antennae and legs slightly paler ; femur yellowish white. Body length 2.50-2.70 mm ; 2.24-2.40 times as long as wide.

Head globose, slightly narrowing anteriorly ; frons plano-convex with a smooth median longitudinal line broadening towards vertex ; either side of median line reticulate with scattered shallow punctures and distinct hairs. Eyes medium sized, elongately oval with weak emargination. Antennal scape thin and long ; funicle with 4 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with recurved apical margin almost forming a complete ring ; truncate face marked by one distinct recurved suture ; posterior face with one distinct suture apically.

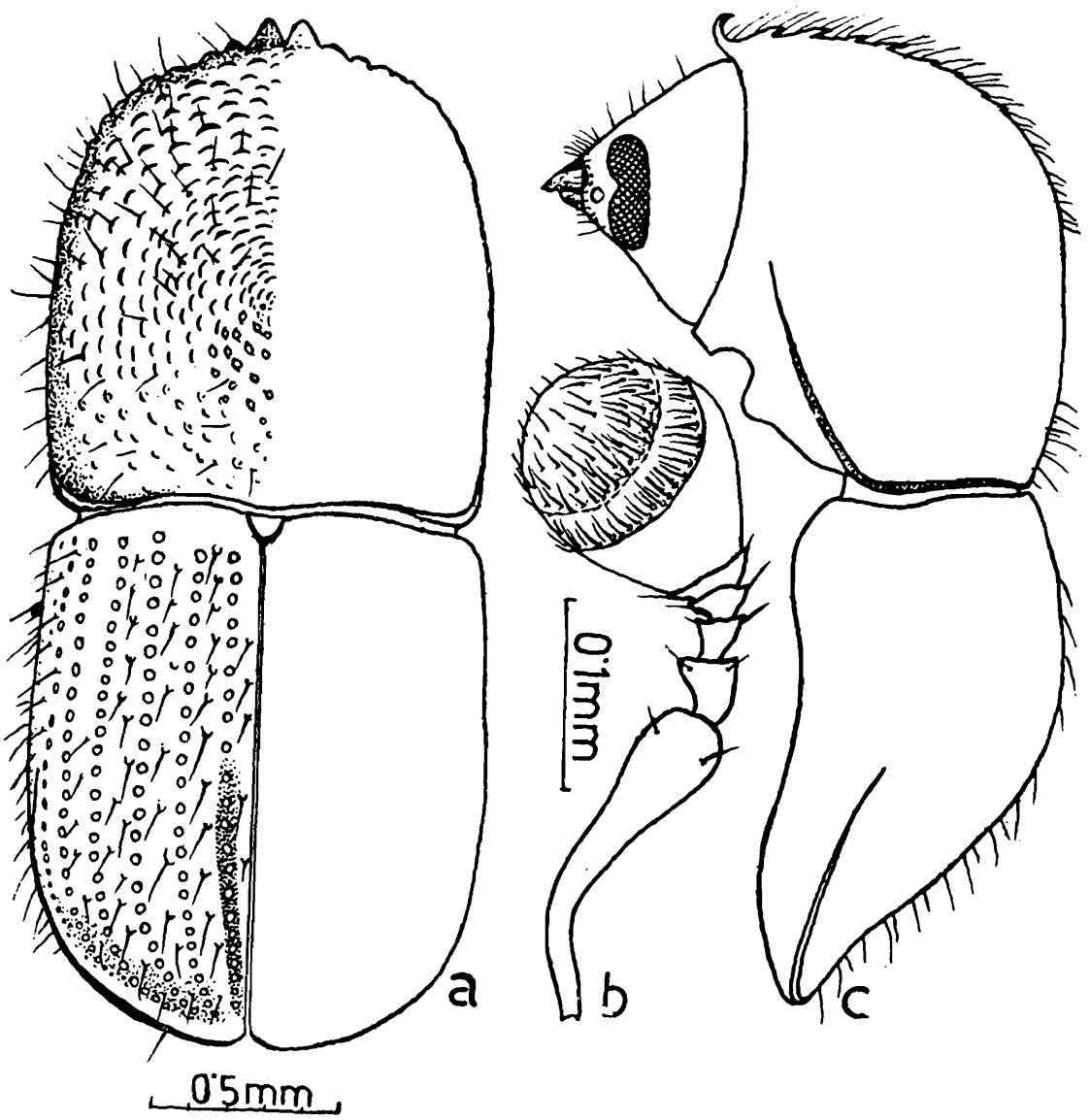

Fig. 16. a-c, *Cnestus bicornioides* (Schedl), Female : a, Dorsal view ; b, Antenna ; c, Lateral view.

Pronotum subquadrate, only slightly longer (1.06 times) than broad ; basal margin sinuate on either side of middle; postero-lateral corners flattened to an acute margin forming carina extending up to the middle of

pronotum ; anterior margin with acute projection bearing four asperities, the median two being much longer; summit distinct and almost at the middle; anterior declivous area with dense and fine asperities, concentically arranged around summit ; posterior portion shiny with fairly fine but deep punctures ; vestiture of long erect sparse hairs.

Elytra 1.12-1.28 times as long as and as wide as pronotum, 1.20 times as long as its width ; basal margin of each elytron feebly outcurved ; sides feebly outcurved rather subparallel on basal third, thence very gradually incurved posteriorly ; each elytron somewhat separately rounded at apex near sutural angle ; discal striae hardly impressed with moderately large, deep punctures ; interstriae uniseriately punctate, punctures almost of equal size to those of striae and somewhat confused behind ; entire surface roughly sculptured. Delclivity commencing shortly before middle, broadly impressed, apical margin acutely elevated and carinate up to interstria 7 ; sutural interstriae elevated and impunctate; stria 1 impressed, strial punc-

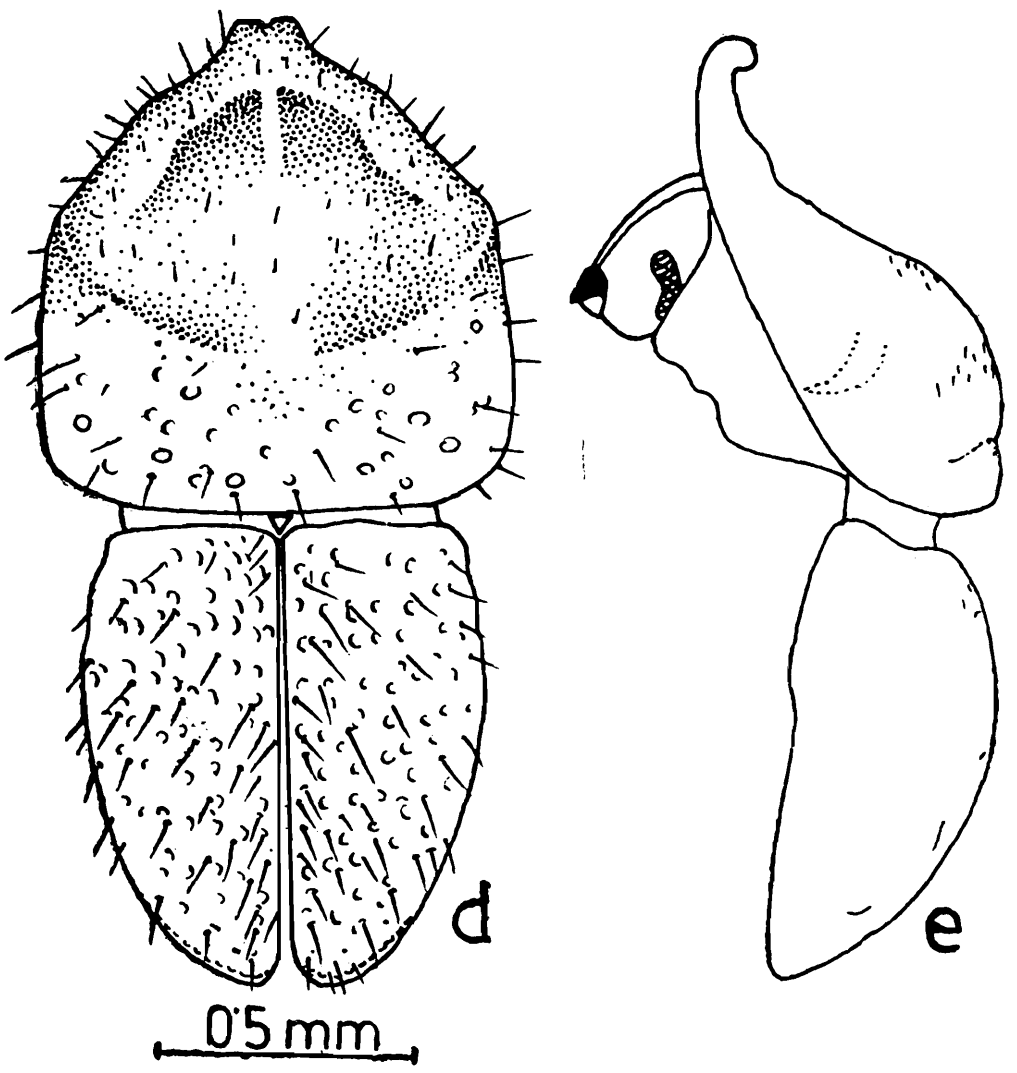

Fig. 16. d-e, *Cnestus bicornioides* (Schdl), Male : d, Dorsal view ; e, Lateral view.

tures rather obscure posteriorly ; interstria 2 depressed, more so in median third of declivital face with setose granules, interstriae 3 and 4 forming low convexity and each with setose granules. Procoxae contiguous ; pro-and meso-tibiae with 5 and 7 teeth respectively.

(ii) *Male* (Fig. 16, d-e) : Body deformed and reduced ; head and pronotum blackish brown, elytra comparatively lighter ; antennae and legs light brown ; femur yellowish white. Body length 1.80 mm ; 2 times as long as wide.

Head subsquarish ; frons smooth and weakly depressed in longitudinal groove becoming prominent towards vertex ; vestiture inconspicuous, except fringe of hairs on epistomal margin.

Pronotum highly modified, 1.17 times as long as broad ; almost as long as elytra ; basal margin weakly outcurved; postero-lateral corners broadly rounded ; lateral sides on basal half subparallel, thence strongly converging anteriorly terminating into a bidentate blunt point, weakly directed upwards ; in profile, anterior half strongly sloping with depressed face and with granules and microhairs ; median line inconspicuous ; posterior half with irregular shallow punctures and with indistinct microhairs.

Elytra short and with very much convex surface and slightly narrower than pronotum ; basal margin not distinctly demarcated, but very much depressed ; basal one-fourth of lateral sides subparallel, thence strongly converging posteriorly ; apex of each elytron individually narrowly rounded ; elytral disc roughened and with distinct convexity at the middle ; striae and interstriae obsolete, but entire surface with large granules and indistinct hairs. Declivity commencing on posterior third, surface uneven with granules and hairs ; striae and interstriae obsolete.

(c) *Distribution.*—ANDAMAN ISLANDS : Andaman Isl. (present record). ELSEWHERE : Philippines and Malaya.

(d) *Remarks.*—Two females and a male specimen from the Andaman, bearing determination label of *Xyleborus cruralis* Eggers in the collection of F.R.I., Dehra Dun, were examined and redetermined as *Cnestus bicornioides* Schedl, a species already known from the Philippines and Malaya

As such, *C. bicornioides* is recorced for the first time from Andaman from an unknown wood. The species infests *Shorea sumatranus, Swietenia macrophylla* (Browne, 1961).

19. **Cnestus suturalis** (Eggers)

Xyleborus suturalis Eggers, H. 1930. *Indian Forest Rec. (Ent.)*, **14** (9) : 24, Female, *Type-locality* : Meghalaya : India ; Schedl, K. E. 1950. *Tijdschr. Ent.*, **93** : 87, Male, Java ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 309 p. Assam to Tonkin ; Schedl, K. E. 1962. *Verhandl. Naturf. Ges. Basel*, **73** (1) : 187, Tonkin.

(a) *Material.*—1 Female from South Andaman, *C.F.C. Beeson coll.*, 7. ii. 1930, ex. "unknown wood"

(b) *Description.*—(i) Female (Fig. 17, a-b) : Body short and stout, broader anteriorly ; head and pronotum pitchy black ; elytra pale yellowish except a blackish strip along the interstriae 1 and 2, as well as on declivital face ; antennae and legs light brown. Body length 2.35 mm (2.30 mm), 2 times as long as wide.

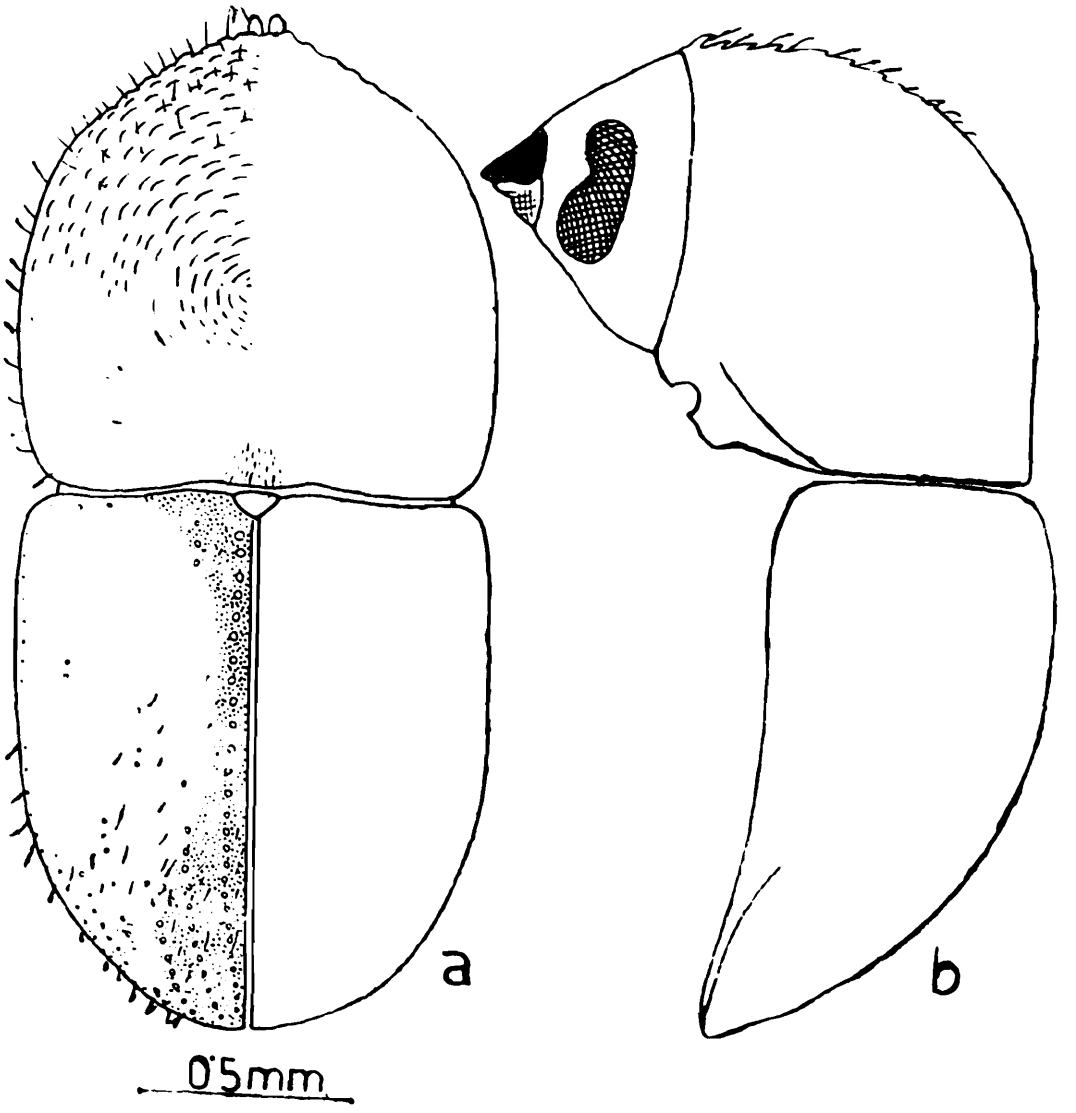

Fig. 17. a-b, *Cnestus suturalis* (Eggers), Female : a, Dorsal view ; b, Lateral view.

Head broadly globose, slightly narrowing anteriorly ; frons flatly convex with a distinct median line ; surface sparsely hairy, roughened and reticulate with scattered granules anteriorly and punctures posteriorly ; epistomal margin with fringe of hairs. Eyes elongately oval and of moderate size with a weak emargination. Antennal scape long, almost half of the antennal length ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous , on anterior face, basal corneous portion with recurved apical margin forming a complete ring ; truncate face marked by two distinct recurved sutures ; posterior face with one suture apically.

Pronotum subquadrate ; alomst as long as broad ; basal margin substraight with weak emarginations on either side of the middle ; postero-lateral angles with weak carina ; sides subparallel ; broadly rounded anterior margin with a median weak projection accommodating four distinct elongate asperities of which median two longer and pointed; in profile, dorsal margin almost straight on basal half and declivous anterior half ; summit at middle prominent with concentric rows of asperities around it ; declivous portion with concentric rows of small asperities gradually increasing in size towards apex and with distinct hairs ; posterior half reticulate and shiny with scattered small punctures ; basal median portion with a tuft of hairs.

Scutellum smooth and shiny, slightly broader than long and triangular in shape.

Elytra 1.2 times as long as and as wide as pronotum, 1.1 times as long as its width ; basal margin substraight ; lateral sides gradually narrowing posteriorly and strongly coverging posteriorly from the commencement of declivity terminating into a rounded apex; postero-lateral angles with weak carina ; elytral disc convex, smooth and shiny, devoid of any conspicuous hair except laterally ; striae feebly marked with shallow fine punctures except stria 1 distinctly impressed ; interstriae very wide with single row of indistinct sparse punctures. Declivity not pronounced, somewhat gradually sloping almost from the middle at the level of interstriae 1, 2 and distinctly declivous on posterior one-sixth ; declivital striae 1 and 2 very much impressed and 3 and 4 moderately so ; interstriae somewhat weakly convex with weak granules and small hairs. Procoxae slightly separated. Protibiae with 5 teeth.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLANDS : South Andaman (present record). ELSEWHERE : India (Meghalaya), Indonesia (Java) and Tonkin.

(d) *Remarks.*—The species is recorded for the first time from the Andamans from an unknown wood, through it is already known from Meghalaya in India, Indonesia and Tonkin. *Terminalia myriocarpa* is the only host from which the species is reported from Meghalaya in India (Beeson, 1941).

Genus : **Coptoborus** Hopkins, 1915

Coptoborus Hopkins, A.D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 53, *Type-species* : *Xyleborus emarginatus* Eichhoff ; Schedl, K. E. 1962. *Rev. Ent. Moc.*, **5** (1) : (Synonymised under *Xyleborus*) ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

Streptocranus Schedl, K. E. 1939. *Tijdschr. Ent.*, **82** : 52, *Type-locality* : *Streptocranus mirabilis* Schedl ; Schedl, K. E. 1962. *Rev. Ent. Moc.*, **5** (1) : 102, (Synonymised under *Xyleborus*); Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 171 ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96 (Synonymised under *Coptoborus*).

Hopkins (1915) established genus *Coptoborus* to accommodate *Xyleborus emarginatus* Eichhoff from Burma. Some authors like Browne (1961) considered the members of the genus as *Coptoborus*-group under the genus *Xyleborus*. However, most recently Wood (1980) revived its generic status and also synonymised *Streptocranus* Schedl under it, though the genus *Streptocranus* Schedl was earlier synonymised under the genus *Xyleborus* by Schedl (1962).

In the present study, two species, namely, *X. emarginatus* Eichhoff and *X. pumilus* Eggers transferred to genus *Coptoborus* on the basis of having elytral declivity with shallow excavation margined by teeth in addition to the combination of other characters.

20 **Coptoborus emarginatus** (Eichhoff)

Xyleborus emarginatus Eichhoff, W. 1978. *Stettin. ent. Ztg.*, **39** : 392, Female, *Type-locality* : Burma ; Eggers, H. 1927. *Treubia*, **9** : 402, Male, Indonesia (Mentawei) and Philippines.

Tomicus cinchonae Veen, H. 1897. *Notes Leyden Mus.*, **19** : 135 ; Male and Female, *Type-locality* : Java, Indonesia ; Kalshoven, L.G.E. 1959. *Ent. Ber.*, **19** : 96 (Synonymy).

Xyleborus cordatus Hagedorn, M. 1910. *Dt. ent. Z.*, **12** : 1, Male, *Type-locality* : Mentawei, Indonesia ; Eggers, H. 1927. *Treubia*, **9** : 402, Male, Indonesia (Mentawei) and Philippines.

Coptoborus emarginatus (Eichhoff), Hopinks, A.D. 1915. *U. S. Dep. Agric. Rep.*, **99** : 53.

(a) *Material.*—(i) 1 Female, Forest, 3 km. away from Campbell Bay, Gt. Nicobar, *T N. Khan coll.*, 10.xii.1978, ex. "soft wood of *Myristica* sp." (ii) 4 Females, R. R. Camp, Campbell. Bay, Gt. Nicobar, *B. N. Nandi coll.*, 13.xii.1978, ex. "decaying log"

(b) *Description.*—(i) *Female* (Fig. 18, a-c) : Body long and cylindrical ; head blackish brown, pronotum and elytra completely black ; antennae and legs light brown. Body length 3.55-3.65 mm ; 2.9 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons plano-convex, surface with deep punctures and hairs except on median raised line; a transverse depressed area in between vertex and frons ; epistomal margin with fringe of erect hairs. Eyes elongately oval with an angular emargination up to less than half its width. Antennal scape nearly as long as club, funicle with 5 segments; club obliquely truncate ; on anterior face, basal corneous portion with substraight distinct margin running almost to the middle ; truncate face with 2 sutures ; posterior face with one distinct suture apically.

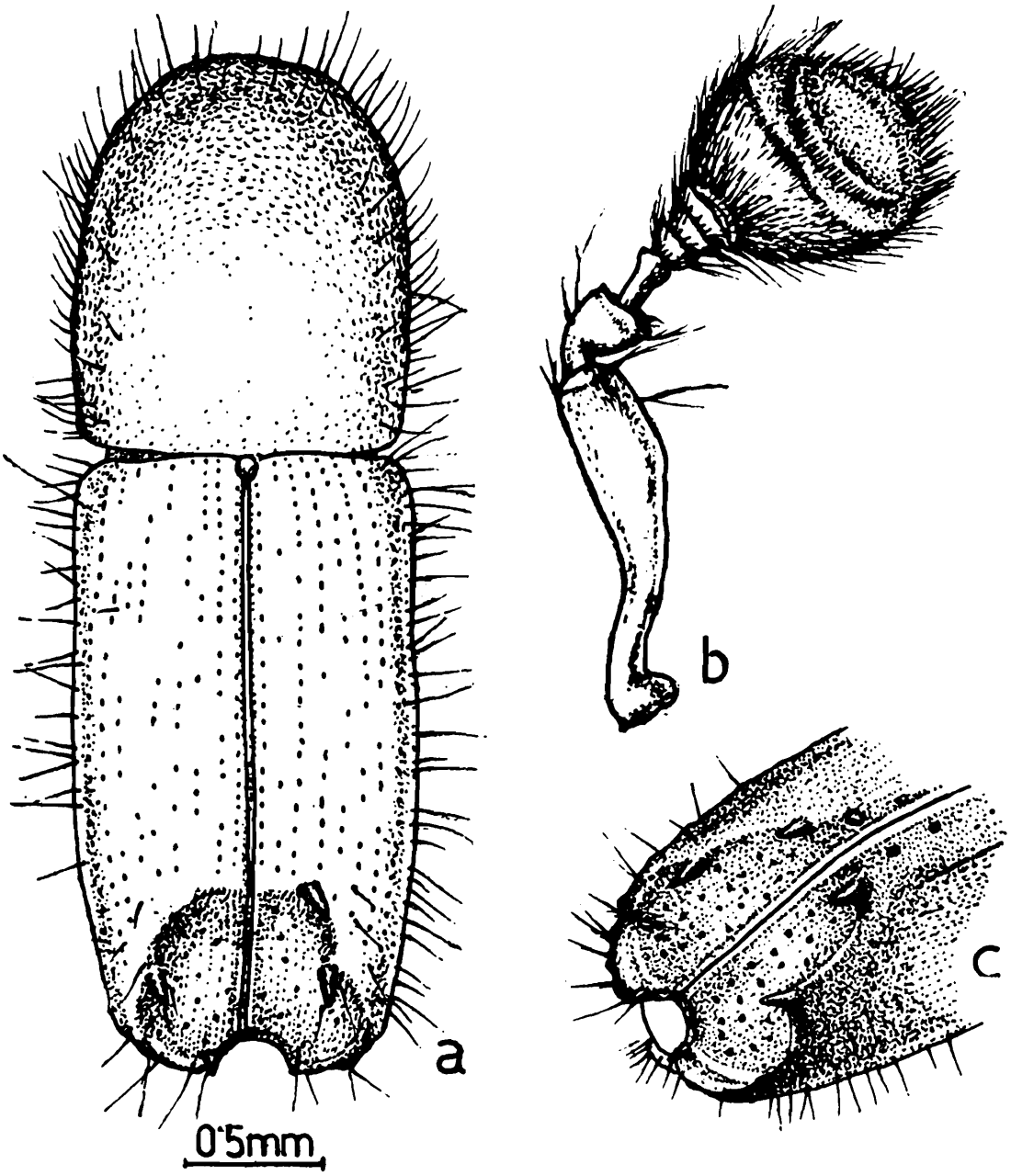

Fig. 18. a-c, *Coptoborus emerginatus* (Eichhoff), Female : a, Dorsal view ; b, Antenna ; c, Enlarged view of declivital face.

Pronotum nearly 1.2 times as long as broad ; basal margin substraight ; lateral sides subparallel up to basal two-thirds, anterior margin rounded and unarmed ; in profile, dorsal margin substraight up to indistinct summit at the middle, whence declivous anteriorly ; declivous portion with weak asperities and long hairs, also extending a little below the summit posterolaterally ; posterior half smooth and shiny with distinct close punctures.

Scutellum smooth, shiny and rounded at apex.

Elytra 1.5 times as long as and as wide as pronotum, 1 7'times as long as its own width ; basal margin substraight ; lateral margins subparallel up to basal three-fourths, whence weakly convergent posteriorly, with strong emargination at apex ; discal striae feebly impressed, marked by large punctures, without any microhair ; interstriae smooth, shiny and flat, nearly 3 times as wide as straie with uniseriate small sparse punctures and long erect hairs. Declivity commencing on posterior third, face shallowly excavate, suture weakly elevated, excavital margin elevated and with distinct spine; declivital striae indefinite ; punctures at excavated surface irregularly placed and devoid of hair ; interstria 1 with two small granules just before the commencement of declivity ; interstira 2 with one large tubercle, largest one placed on interstria 4 ; excavital margin with granules from 2nd tubercle up to apex terminated by a tubercle. Procoxae contiguous, protibiae with 5 teeth and mid- and hind-tibiae with 7 teeth.

(ii) *Male* : Not available in the collection under sutdy.

(c) *Distribution.*—NICOBAR ISLANDS : Great Nicobar : Campbell Bay (present record) ELSEWHERE : Laos ; Sri Lanka ; Philippines ; Fukien ; Malaya ; Burma ; Indonesia (Borneo, Java, Sumatra and Mentawei Island) and New Guinea.

(d) *Remarks.—Coptoborus emarginatus* (Eichhoff) is readily distinguished from the Andamanese sole representative, *C. pumilus* (Eggers) by its larger body size and deep emargination on elytral apex. It is rather a variable species of shothole borers, found widely distributed in south-east Asia. It is recorded for the first time from the insular area of Great Nicobar only on two occasions and is unknown in the mainland of India. In the first collection, a lone female has been taken from the tunnel in the soft wood of a felled *Myristica* log and in the second, a few females from a felled decaying log. The species is very common in Malaya infesting numerous

host-plants including the debarked logs and sawn timbers (Browne, 1961). It shows least preference for selection of particular host.

21. **Coptoborus pumilus** (Eggers)

Xyleborus pumilus Eggers, H. 1923. *Zool. Meded.*, **7** : 209, Female, *Type-locality* : Sumatra and Java, Indonesia ; Eggers, H. 1927. *Treubia*, **9** : 407, Philippine ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 76 India (North and Middle Andamans and Assam), Burma, Indonesia (Sumatra, Java) and Philippine ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 308 p ; Browne, F.G. 1961. *Malay. Forest Rec.*, no. 22, p. 147, Oriental Region ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 67 ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 612, Oriental and Papuan Regions and Solomon Island.

(a) *Material.*—A. *Identified* : (i) 5 exs., North Andaman, *B. M Bhatia coll.*, as follows : 3 Females, 18.xii.1928, ex., "*Artocarpus chaplasha*" and 2 Females, 15.xii.1925, "*Sterculia villosa*" (ii) 15 exs., Middle Andaman, *B, M. Bhatia coll.*, as follows : 11 Females, 9-10.xii. 1928, ex. "*Sterculia villosa*" and 4 Females, 8.xii.1928, ex. "*Sterculia campanulata*" B. *Unidentified* : (iii) 1 Female, Quarry Forest, Little Andaman, *B. Mitra coll.*, 27.vii.1982, ex. "under bark of fallen branch of *Dipterocarpus* sp"

(b) *Description.*—(i) *Female* (fig. 19, a-d) : Body fairly long and cylindrical ; head pale yellow to brown, pronotum comparatively darker, elytra yellowish brown to completely black. Body length 1.90-2.00 mm ; 3 times as long as wide.

Head globose, considerably narrowing anteriorly; frons plano-convex, feebly elevated medially but without any distinct median line ; surface finely reticulate with a few deep and shallow punctures, and long erect hairs; fringe of hairs at epistomal margin rather sparse. Eyes elongate, one-third of its width divided by emargination. Antennal scape short and slender ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face marked by two sutures, basal one more distinct ; posterior face with one distinct suture.

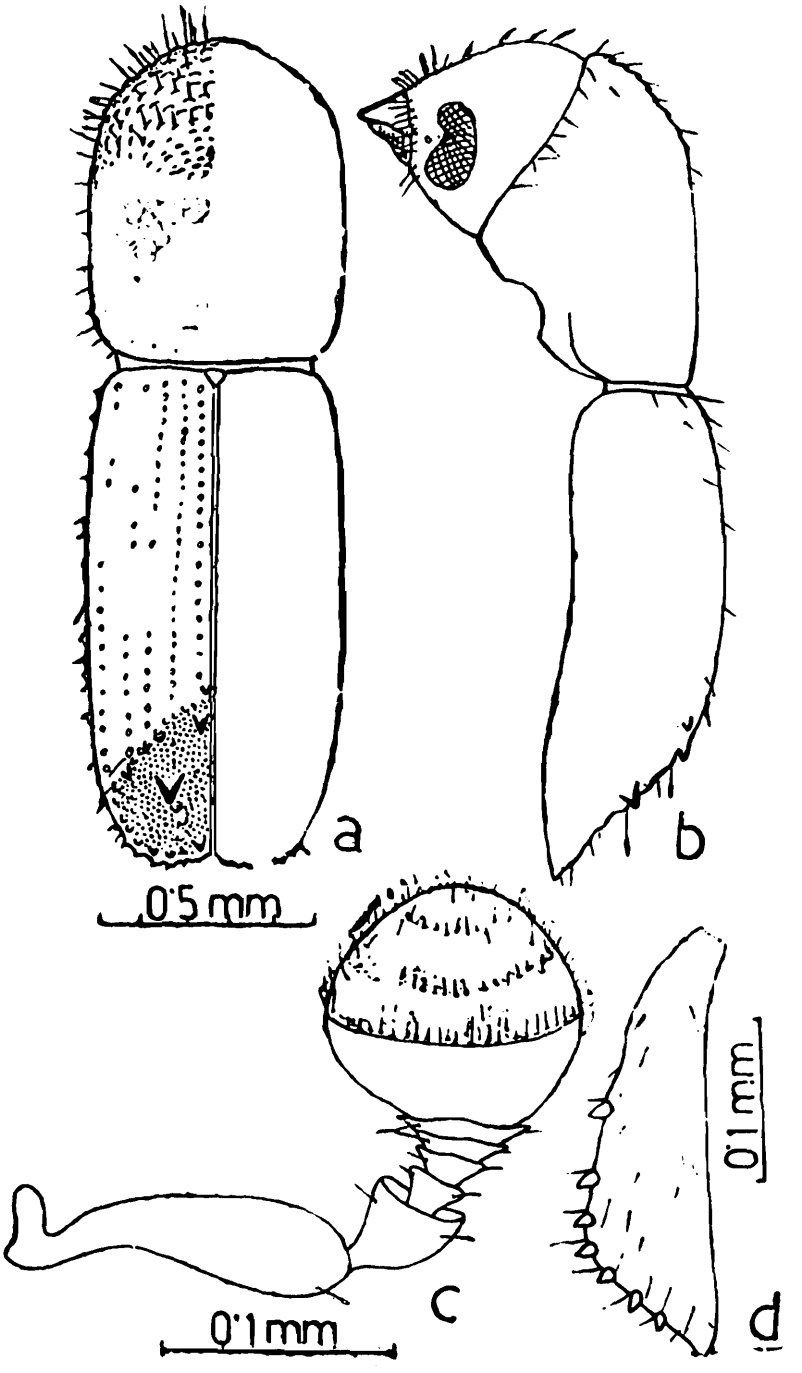

Fig. 19. a-d, *Coptoborus pumilus* (Eggers), Female : a, Dorsal view ; b, Lateral view ; c, Antenna ; d, Protibia.

Pronotum subrectangular, 1.20 times as long as wide ; basal margin substraight ; lateral sides subparallel up to more than basal two-thirds ; anterior margin broadly rounded and unarmed ; weak summit just above the middle ; anterior one-third with weak asperities and long erect hairs, a few minute hairs extending postero-laterally below the summit ; nearly posterior two-thirds smooth and shiny with sparse fine punctures and inconspicuous hairs.

Scutellum small, shiny and rounded apically.

Elytra 1.50 times as long as and as wide as pronotum, 1.80 times as long as its own width ; basal margin substraight ; lateral sides almost straight and subparallel up to slightly more than basal two-thirds, whence weakly narrowing posteriorly and terminating into an individually rounded elytral apex ; elytral disc flat, striae feebly impressed with shallow distinct small punctures ; interstriae slightly wider than striae, punctures hardly visible and devoid of any prominent hair. Declivity commencing at almost posterior third, face weakly excavate and entire declivital margin lined with distinct sparse tubercles of variable size ; declivital face smooth shiny without any distinct striae or interstraie, but with one large tubercle slightly above the middle of declivity on stria 2 in each elytron ; a few punctures visible below the tubercles indicating stria 2 ; a few erect long scattered hairs on sides of apical third of elytra. Procoxae contiguous.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLAND : North and Middle Andamans (Beeson, 1930) ; Little Andaman : Quarry (present record). ELSEWHERE : India (Assam), Burma, Sri Lanka, Philippines, Indonesia (Sumatra and Java) and Loas.

(d) *Remarks.*—This species is so far known from eastern India (Assam) to Philippines, including North and Middle Andamans. It is recorded for the first time from Little Andaman infesting a felled log of *Dipterocarpus* sp. Interestingly enough, it has been collected from the same log inhabited by a number of other scolytid-beetles in close association in their respective niches. The species are *Diamerus curvifer* Walker, *Hylesinus despectus* Walker, *Xyleborus perforans* (Wollaston) and *Cryphalus* sp. However, the species has been collected earlier from host-plants of *Artocarpus chaplasha*, *Sterculia villosa*, and *S. campanulata.* Further biological information of the species is limited to the extent of only host-records in Assam, India (Beeson, 1941) and in Malaya (Browne, 1961).

Genus : **Eccoptopterus** Motschulsky, 1863

Eccotopterus Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** : 515, *Type-species* : *Eccoptopterus sexspinosus* Motschulsky=*E. spinosus* Olivier ; Hopkins, A.D. 1914. *Proc. U. S. Nat. Mus.*, **5** : 121 ; Browne, F. G. 1955. *Sarawak Mus. J.*, **6** : 351 ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 512 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 79.

Platydactylus Eichhoff, W. 1896. *Not. Leyden Mus.*, **8** : 25.

Eurydactylus (nom. nov.) Hagedorn, M. 1909. *Dt. ent. Z.*, p. 733.

Eccoptopterus, described by Motschulsky (1863), is a well established Old World genus. The genus *Platydactylus* Eichhoff and *Eurydactylus* Hagedorn were placed under the synonymy of the genus by Schedl (1959). Though some authors (Beeson, 1941 and others) considered it as a subgenus of *Xyleborus*, but it stands as a good genus due to its distinctive characteristics of enlarged metatibiae devoid of any marginal socketed teeth and compressed metatarsi. Only a single species is found in the Andamans including in the Indian mainland.

22. **Eccoptopterus spinosus** (Olivier)

Scolytus spinosus Olivier, 1794. *Entomologie*, **3** : 9, Female, *Type-locality* : Java, Indonesia.

Eccoptopterus sexspinosus Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** : 515-516, Female, *Type-locality* : Sri Lanka ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 110, Indonesia : Java ; Philippines : Manila ; Burma, Sri Lanka ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 81, North and Middle Andamans, Tamil Nadu, Bombay, West Bengal, Assam ; Burma, Tonkin, Indonesia ; Sumatra, Java, Borneo and Celelmbes ; Philippines, Seychelles and East Africa ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 309 p., India to Celebes ; Browne, F. G. 1961. *Malay. Forest. Rec.*, no. 22, pp. 175-176, Oriental, Papuan and from tropical Africa to Australia.

Xyleborus sexspinosus (Motschulsky), Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 102, Male, India : Dehra Dun ; Philippines : Luzon.

Xyleborus abnormis Eichhoff, W. 1868. *Berl. Ent. Z.*, **12** : 282, *Type-locality* : Sri Lanka.

Platydactylus sexspinosus Motsch. var. *multispinosus* Hagedorn, M. 1908. *Dt. ent. Z.*, P. 377, *Type-locality* : Sumatra (Kamerun), Indonesia.

Eccoptopterus sexspinosus Motsch var. *pleuridentatus* Schedl, K. E. 1942. *Tijdschr. Ent.*, **85** : 49, *Type-locality* : Sumatra, Indonesia ; Kalshoven, L.G.E. 1959. *Ent. Ber.*, **19** : 69 (Synonymy).

Eccoptopterus spinosus (Olivier), Schedl, K. E. 1962. *Ent. Blatt.*, **58** : 201.

(a) *Material.—Identified* : (i) 16 Exs. from North Andaman, *C.F.C. Beeson coll.*, as follows. 5 Females. 2.iii. 1930, ex. "*Calophyllum spectabile*", 1 Female, 11.iii.1930, ex. "*Dipterocarpus turbinatus*", 1 Female, 11.iii.1930, ex. "*Salmalia insignis*" and 9 Females, 11.iii.1930, ex. "*Calophyllum spectabile*" ; (ii) 3 Females, North Andaman, *B. M. Bhatia coll.*, 11. iii.1930, ex. "*Dipterocarpus turbinatus*" ; (iii) 3 Females, Middle Andaman, *B. M. Bhatia coll.*, 9.xii.1928, ex. "*Albizzia lebbek*" ; (iv) 1 Female and 1 Male, Andaman Islands, *C.F.C. Beeson coll.*, 3.iv.1930, ex. "unknown wood". *Unidentified :* 2 Females from Laskshmipur, Diglipur, North Andaman, *B N. Nandi coll.*, 23.xii.1979, ex. "*Parishia insignis*"

(b) *Description.*—(i) *Female* (Fig. 20, a-d) : Body short and stout ; head pronotum and elytra chestnut brown to completely black, head with blackish tinse ; antennae and legs brown, femur yellowish brown. Head sparsely, pronotum moderately and elytra densely pilose. Body length 2.60-2.70 mm ; 2.2 times as long as wide.

Head globose ; frons flat with a weakly depressed area above epistoma marked laterally by weak short longitudinal ridges ; surface finely rugosely reticulate, with sparse shallow punctures and scattered hairs ; vertex smooth and shiny without any hairs ; epistomal margin with fringe of hairs. Eyes small, elongate and less than half of its width broadly emarginate. Antennal scape long and slender ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reduced with recurved apical margin forming a complete ring , truncate face with two sutures, posterior face without any suture.

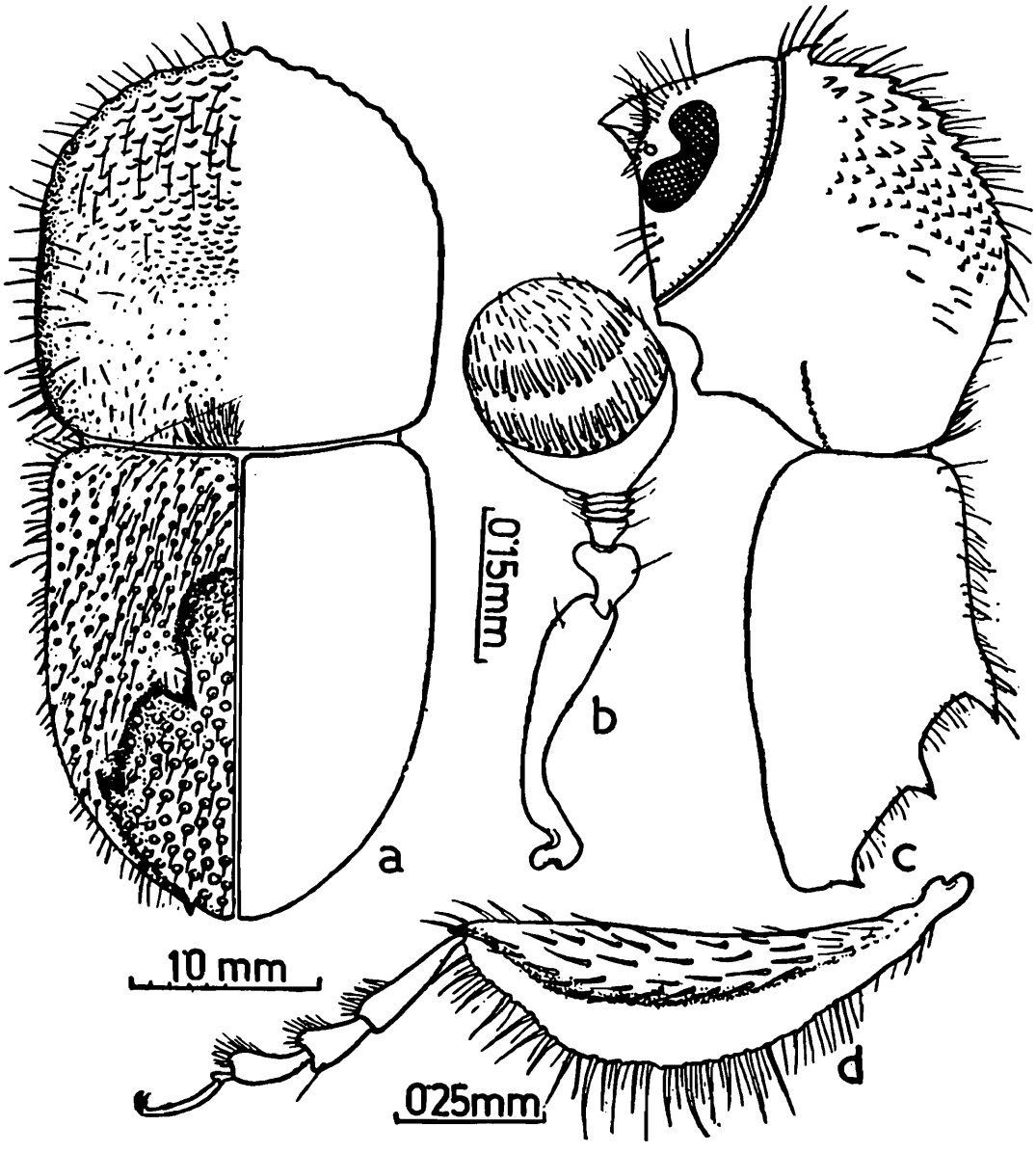

Fig. 20. a-d, *Eccoptopterus spinosus* (Olivier), Female : a, Dorsal view ; b, Antenna ; c, Lateral view ; d, Metatibia and Metatarsi

Pronotum almost as long as wide ; basal margin weakly outcurved ; lateral margins subparallel at basal two-thirds, thence converging anteriorly ; anterior margin broadly rounded with a weak projection accommodating asperities, asperities increasing in size towards the middle ; in profile, dorsal margin strongly convex, summit prominent and placed just above basal one-third ; anterior declivous two-thirds with distinct and somewhat triangular asperities ; posterior third with fine punctures and inconspicuous hairs.

Scutellum very small, submargined below the upper level of elytra, smooth and shiny, slightly broader than long and triangular in shape.

Elytra 1.1 times as long as and nearly as wide as pronotum, 1.1 times as long as its width ; basal margin substraight ; lateral sides weakly outcurved up to almost middle, thence fairly strongly converging posteriorly and with a narrowly rounded individual elytral apex ; elytral disc convex with roughened surface provided with irregular punctures and fine hairs ; striae and interstriae obsolete. Declivital face excvated and occupying more than posterior two-thirds ; excavated margins with three large pointed tubercles on each elytron, gradually decreasing in length posteriorly ; striae and interstriae not demarked on the declivity face, but with large irregular punctures, each puncture with a microhair ; entire elytral margin with long erect stout hairs. Pro-and meso-tibiae with 5 teeth in each.

(ii) *Male* : Body much reduced and deformed, entirely different in shape from that of females ; head dark brown, pronotum somewhat same colour as that of head, but much paler posteriorly ; elytra pale borwn ; antennae and legs pale brown. Body length 2.85 mm ; 2.54 times as long as broad.

Head completely concealed under the anterior projection of pronotum, somewhat margined laterally ; frons flat, but with prominent longitudinal depression extending almost to the vertex ; surface only with a few hairs, but almost devoid of any punctures ; epistomal margin with a fringe of sparse erect hairs. Eyes small and feebly emarginate. Antennae as in females.

Pronotum greatly developed, 1.21 times as long as elytra and 1.23 times as long as wide ; basal margin substraight, rather weakly outcurved ; lateral sides unevenly subparallel on more than basal half, whence strongly converging anteriorly and terminating into a broad, blunt and flattened median projection slightly projected upward ; lateral margins on anterior fourth with one distinct blunt tubercle on either side ; in dorsal view, anterior three-

fourths strongly excavated with suboval flat depressed area with setose punctures ; a weak depressed longitudinal line extending from basal fourth up to the base of anterior projection ; either side of excavated margins with a blunt projection almost at the middle ; non-excavated surface somewhat smooth and shiny, but with minute punctures and hairs, hairs on margins comparatively long.

Scutellum submarged below the level of elytral disc ; small and triangular as visible from above.

Elytra very much reduced, strongly convex and smaller than pronotum ; 1.17 times as long as wide ; basal margin not so defined, but weakly incurved ; lateral sides coverging posteriorly with weakly outcurved margins ; elytral apex with narrowly rounded margin ; discal striae and interstriae obsolete, discal surface with irregular distinct punctures and dense hairs ; declivity commencing from slightly above the middle, running posteriorly like narrow depressed area along the sutural line and extending laterally and then coverging posteriorly ; declivital face concave with scattered punctures bearing microhairs ; declivity devoid of any tubercle ; declivital striae and interstriae obsolete as on disc.

(c) *Distribution*—ANDAMAN ISLANDS : North and Middle Andamans (Beeson 1930) ; North Andaman : Lashmipur (present record). ELSEWHERE : India (Assam, West Bengal, Tamil Nadu and Maharashtra),Malaysia, Indonesia (Sumatra, Java, Borneo and Celebes) Taiwan, Seychelles, Australia and East Africa.

(d) *Remarks.*—This species is distinct from all other representatives of scolytid-beetles in the islands of Andaman in having three declivital tubercles on each elytron in females which are absent in males. The species is well known to infest the branches and stems of small, cut or unhealthy trees in different parts of the Orient. It has been found also in soil litter in Africa. The biological information and host-plant records are available in the publications of Beeson (1941), Kalshoven (1959), Browne (1961) and Schedl (1963, 65). However, the species is collected from Andamans from different hosts as follows : *Calophyllum spectabile, Dipterocarpus turbinatus, Salmalia insignis, Albizzia lebbek* and *Perishia insignic.* The species is known to be associated with the plants of agricultural crops, namely, Cocoa, Coffee, Quinine, Rubber and even Rice in Africa ; but it is never recorded as a primary pest.

Genus : **Euwallacea** Hopkins, 1915

Euwallacea Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 54, *Type-species* : *Xyleborus wallacei* Blandford ; Schedl, K. E. 1951/52. *Ent. Blatt.*, **17/18** ; 162

(Synonymised under *Xyleborus*) ; Browne, F.G. 1961. *Malay. Forest Rec.*, no. 22, p. 124 ; Wood, S. L. 1978. *Annls. Soc. ent. Fr. (N.S.)*, **14** (1) : 114 ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

The genus *Euwallacea* was established by Hopkins (1915) with the type-species *Xyleborus wallacei* Blandford from New Guinea. However, the validity of the genus was doubted for a long time and ultimately synonymised under the genus *Xyleborus* by Schedl (1951/52). Browne (1961) kept it as *Euwallacea*-group under the genus *Xyleborus* and was in favour of raising to the level of the genus. Wood (1980) continued to maintain its generic status in his recent papers. From Andamans, only three species have been recognised under the genus.

23. **Euwallacea andamanensis** (Blandford)

Xyleborus andamanensis Blandford, W.F.H. 1896. *Trans. ent. Soc. Lond.*, p. 222, Female, *Type-locality* : Andaman ; Schedl, K. E. 1954. *Philipp. J. Sci.*, **83** : 153, Male, Java ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 49, North and Middle Andamans ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighoubring Countries*, 302 p. ; Schedl, K. E. 1975. *Revue suisse Zool.*, **82** (3) : 450, Tamil Nadu, India.

Xyleborus siobanus Eggers, H. 1923. *Zool. Meded.*, **7** : 186, Female, *Type-locality* : Mentawei Islands ; Schedl, K. E. 1958. *Tijdschr. Ent.*, **101** (3-4) : 150 (Synonymy).

Xyleborus burmanicus Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 34, Female, *Type-locality* : Burma ; Schedl, K. E. 1970. *Ann. Naturhistor. Mus. Wien*, **74** : 224 (Synonymy).

Xyleborus senchalensis Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 36, Female, *Type-species* : West Bengal ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 309 p. ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 58-59.

(a) *Material.*—(i) 1 Female, Wimco Match Factory, Port Blair, South Andaman, *P. K. Maiti coll.*, 21.iii.1979, ex. "Sapwood of *Tetrameles nudiflora*", (ii) 1 Female, 6 km. N. W. of PWD Rest House, Diglipur, North Andaman, *B. N. Nandi coll.*, 23.xii.1979, ex. "*Terminalia procera* Rox" ; (iii) 4 Females, Andamans, *Atkinson coll.* ; (iv) 1 Female, Middle Andaman, *B. M. Bhatia coll.*, 8.xii.1928, ex. "*Artocarpus chaplasha*"

(b) *Description.*—(i) *Female* (Fig. 21, a-b) : Body oblong and farily large ; head pale brown, pronotum and elytra yellowish brown to blackish brown ; sparsely hairy throughout. Body length 3.10-3.20 mm and 2.5 times as long as wide.

Head globose, very weakly narrowing anteriorly ; frons flatly convex, weakly impressed above the epistomal margin and separated by a median

raised line ; surface finely reticulate with scattered deep punctures and a few long scattered hairs ; epistomal margin with distinct fringe of hairs. Eyes oblong and emarginate less than half of its width. Antennal scape long and slender, funicle with 5 segments; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with weakly recurved apical margin ; on truncated face segment 2 chitinized, above which slightly concave ; posterior face with two distinct sutures.

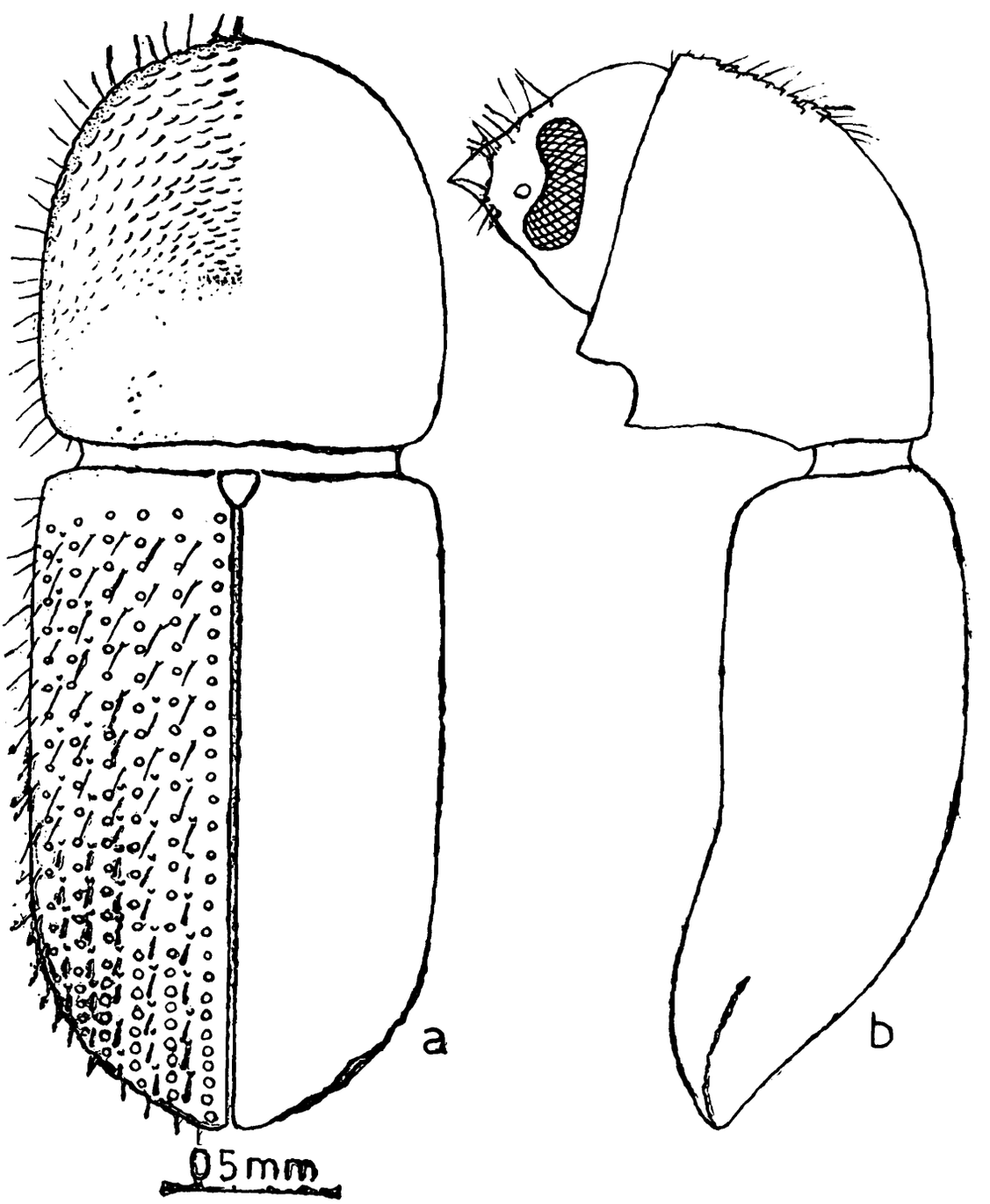

Fig. 21. a-b, *Euwallacea andamanensis* (Blandford), Female : a, Dorsal view ; b, Lateral view.

Pronotum subquadrate, as long as wide ; basal margin substriaght ; lateral sides weakly outcurved ; anterior margin broadly rounded, unarmed

rather with a few small transverse asperities ; in profile, moderately convex with a distinct summit at middle ; anterior declivous portion with a few scattered hairs and asperities in concentric rows, gradually increasing in size anteriorly and a few granulately extending postero-laterally below the summit ; basal one-third smooth and shiny, devoid of any hair.

Scutellum triangular, shiny with posterior margin narrowly rounded.

Elytra 1.6 times as long as and nearly as wide as pronotum, 1.5 times as long as its width ; elytral base somewhat truncated, lateral sides subparallel up to three-fourths, then broadly rounded apex ; elytral disc weakly convex, distinct striae marked by large close punctures, without any microhair ; interstriae rather smooth and shiny with uniseriate setose granules, increasing in size towards apex except a few shallow punctures towards basal narrow strip. Declivital slope continuous, face convex, rather flat towards apex, postero-lateral margins acute, but not carinate, lined by a few granules; striae lines weakly impressed and punctures more distinct and closer, interstriae weakly convex, with large granules, obsolete towards apex and hairs much shorter and stouter. Procoxae contiguous, protibiae with 4-6 teeth and meso-and meta- tibiae with 6-8 teeth.

(ii) *Male* : Not available in the present material under study.

(c) *Distribution.*—ANDAMAN ISLANDS : North and Middle Andaman (Beeson, 1930) ; South Andaman : Port Blair (present record). ELSEWHERE : India (West Bengal, Tamil Nadu), Burma, Indonesia (Sumatra, Borneo, Java and Mentawei Island), Malaya, Micronesia and New Guinea.

(d) *Remarks.—Euwallacea andamanensis* (Blandford) is one of the oldest species described from Andaman as *Xyleborus andamanensis* Blandford. Later on, a number of species described from different territories of the Orient have been synonymised under it. In the present study, it has been considered under the genus *Euwallacea*. However, the species has been collected from the felled logs of *Tetrameles nudiflora* and *Terminalia procera* in the Andamans as new host records. The other hosts, namely, *Artocarpus chaplasha, Salmalia insigne* and *Pterocarpus dalbergioides* are already on record by Beeson (1930) from the area.

24. **Euwallacea interjectus** (Blandford)

Xyleborus interjectus Blandford, W.F.H. 1894. *Trans. ent. Soc. Lond.*, pp. 576-577, Female, *Type-locality* : Japan ; Eggers, H. 1923. *Zool. Meded.*, 7 : 198, Male, locality not mentioned ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14 (10) : 63**, North and Middle Andamans, Indian main land and Burma, Sri Lanka, Indonesia,

China and Japan ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring countries*, 306 p., Schedl, K. E. 1975. *Oriental Ins.*, **9** (4) : 451 Anamalai hills ; Schedl, K. E. 1975. *Revue suisse Zool.*, **82** (3) : 451, India.

Xyleborus pseudovalidus Eggers, H. 1925. *Sbornic Ent. Nar. Mus. Prag.*, p. 159, *Type-locality :* Burma. ; Schedl, K. E. 1958. *Tijdschr. Ent.*, **101** (3-4) : 155 (Synonymy).

Xyleborus lopchuensis Beeson in literature, Schedl, K. E. 1975. *Revue suisse Zool.*, **83** (3) : 451, Tamil Nadu.

(a) *Material.—Identified* : A. 6 exs. from Middle Andaman, *B. M. Bhatia coll.*, as follows : (i) 6 Females, different dates between 10.i.1929 and 19.iii.1929, ex. "*Sterculia alata*" ; (ii) 1 Female, 8.xii.1928, ex. "*Sterculia campanulata*" and (iii) 2 Females, 4.xii.1928, ex. "*Sterculia villosa*" ; B. 16 exs. from North Andaman, *B. M. Bhatia coll.*, as follows : (iv) 2 Females, 18.xii.1928, ex. "*Sterculia campanulata*", (v) 4 Females, 18.xii.1928, ex. "*Sterculia alata*" and (vi) 10 Females, 3-4.ii.1929, ex. "*Lekok*" *Unidentified* : A. (i) 5 Females, from North Andaman, *C.F.C Beeson coll.*, 11.ii.1930, ex. "*Calophyllum spectabile*" B. 15 exs. from Wimco Match Factory, Port Blair, South Andaman, *P. K. Maiti coll.*, 1979, as follows : (ii) 1 Female, 12.viii.1979, ex. "*Pterocymbium tinctorium*", (iii) 3 Females, 12.viii.1979, ex. "Sapwood of Bakorta log, (iv) 1 Female, 26.viii.1979, ex. "soft wood of Bakota log and (v) 1 Female, Jaroa Creak, South Andaman, *B. N. Nandi coll.*, 3.i.1980 ex. "*Canarium euphyllum*"

(b) *Description.*—(i) *Female* (Fig. 22, a-d) : Body short and cylindrical ; head pronotum and elytra yellowish brown to completely black ; antennae and legs paler. Body length 3.65-4.00 mm, 2.20 times as long as wide.

Head elongately oval, weakly narrowing anteriorly ; frons flatly convex, with distinct or indistinct median line ; surface finely reticulate except on median portion, on its either side with close punctures and long erect hairs ; epistomal margin with distinct fringe of hairs. Eyes elongately oval, broadly emarginate, emargination reaching less than half of its width. Antennal scape long ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; segment 2 on truncate face chitinized, above which slightly concave ; posterior face marked with two distinct sutures.

Pronotum subquadrate, almost as long as broad or slightly broader ; basal margin substraight, lateral sides weakly outcurved and anterior margin broadly rounded armed with weak transverse asperities ; in profile, summit very distinct and placed almost at the middle ; anterior two-thirds with fine asperities becoming smaller posteriorly ; posteriorly more than one-third shiny, punctate and without any hairs except anteriorly and laterally.

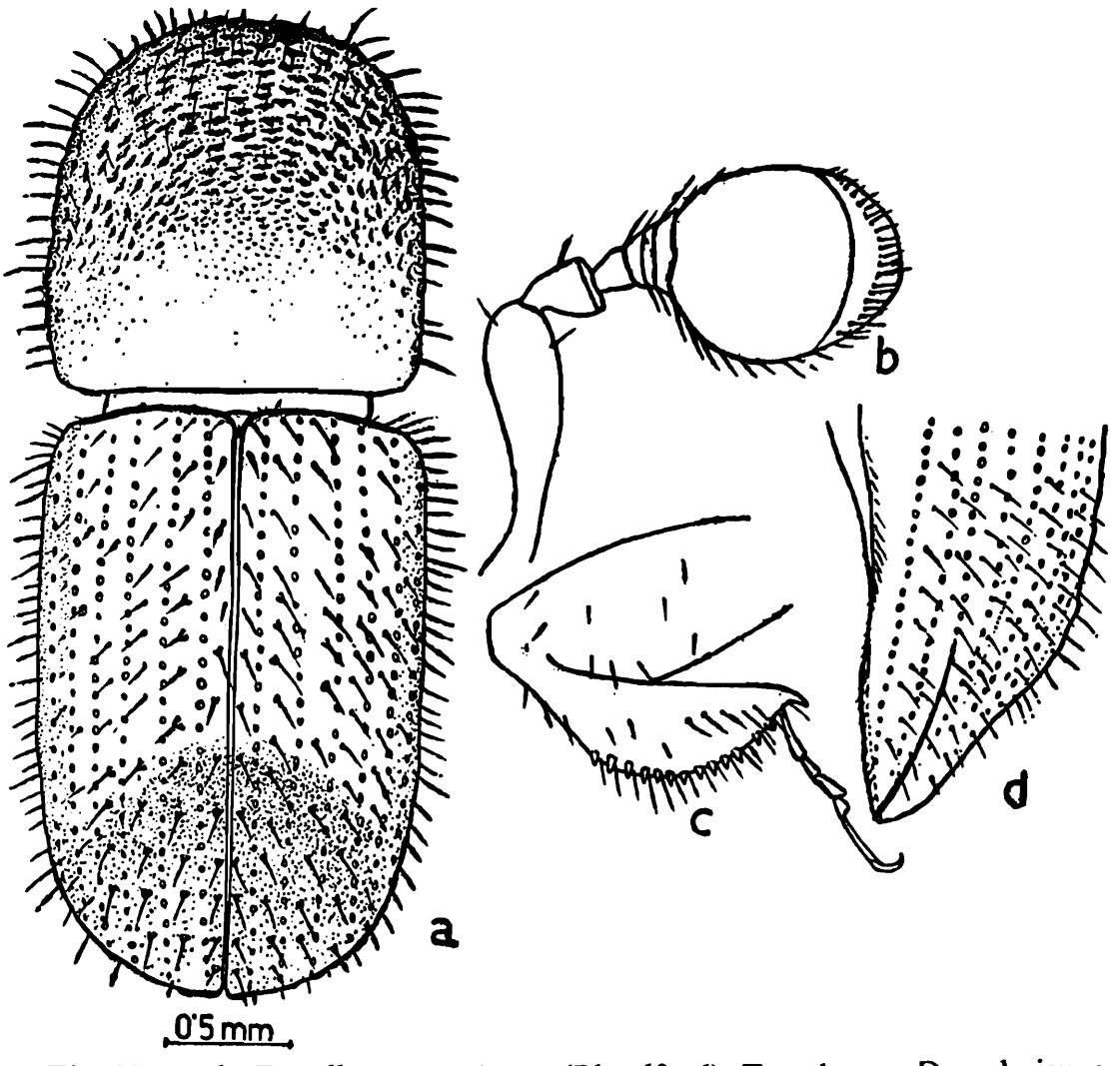

Fig. 22. a-d, *Euwallacea interjectus* (Blandford), Female : a, Dorsal view ; b, Antenna ; c, Midleg ; d, Lateral view of elytral apex.

Scutellum smooth and triangular, distinctly wider than long.

Elytra 1.60 times as long as pronotum and 1.40 times as long as its width; basal margin feebly outcurved ; lateral sides subparallel up to basal two-thrids, then coverging posteriorly with broadly rounded apex; disc weakly convex, striae marked by large distinct punctures, devoid of microhair ; interstriae flat, shiny, more than twice as wide as striae, with uniseriate granules increasing in size posteriorly and with erect hairs ; indistinct punctures near base and towards humeral angles. Declivital slope continuous and commencing almost at the middle, face flatly convex ; postero-lateral margins distinctly carinate up to interstia 7, without any granules ; striae somewhat impressed, punctures more distinct than on disc; interstriae feebly elevated with uniseriate sparse granules and long erect hairs. Procoxae contiguous, pro and meso-tibiae with 9 and 11 teeth respectively.

(ii) *Male* : Not available in the materal at hand.

(c) *Distribution.*—ANDAMAN ISLANDS : North and Middle Andaman (Beeson, 1930) South Andaman : Port Blair and Jaroa Creak

(present record). ELSEWHERE : India : (Tamil Nadu, Kerala, Maharashtra, Madhya Pradesh, Uttar Pradesh, West Bengal and Assam) ; Nepal, Sri Lanka, Malaya, Indonesia (Sumatra, Java, Borneo and Mentawei Isl.), Burma, Philippines, Taiwan, China, Tonkin, Vietnam and Japan.

(d) *Remarks.*—This farily large shot-hole borer is widely distirbuted in the tropics of the Old World. According to Beeson (1930), this is a very common species in the wetter parts of tropical India including Andaman, infesting numerous host-plants. The hosts of *Calophyllum spectabile*, *Pterocymbium tinctorium* and *Canarium euphyllum*, constitute the new host records for the species in Andamans. The species usually infests injured trees and recently cut logs in the area. However, the biology of the species, with special reference to host-plants, tunnel system, nesting habits etc., has been studied by Beeson (1930 and 1941) in India, Browne (1961) in Malaya. Specific biological observations are lacking for the Andamanese population.

25. **Euwallacea velatus** (Sampson)

Xyleborus velatus Sampson, W. 1913. *Ann. Mag. nat. Hist.*, **12** (8) : 443, Female, *Type-locality* : Tharrawaddy, Lower Burma ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 310 p., Burma ; Schedl, K. E. 1970. *Kontyu*, **38** (4) : 355, Burma and imported from Rangoon to Tokyo.

(a) *Material.—Identified* (as X. *provelatus* Sampson, nom. nud.) 8 exs. from North Andaman as follows : (i) 7 Females, *C.F.C. Beeson coll.*, 7-11.iii.1930, ex. "*Pterocarpus dalbergioides*" and (ii) 1 Female, *B. M. Bhatia coll.*, 18.xii.1928, ex. "*Canarium euphyllum*" B. 2 exs. from Andaman Island as follows : (iii) 1 Female, *C. F. C. Beeson coll.*, 11.iv.1930, ex. "unknown wood" and (iv) 1 Female, *B. M. Bhatia coll.*, 6.vii.1929, ex. "*Canarium euphyllum*"

(b) *Description.*—(i) *Female* (Fig. 23, a-b) : Body short and cylindrical ; colour reddish brown to blackish brown, elytra sometimes darker ; antennae and legs yellowish. Body length 2.4-2.5 mm, 2.10 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons flatly convex, without any median line ; surface smooth and shiny, finely reticulate towards vertex and with a few indefinite punctures at the level of eyes ; lateral sides with hairs ; epistomal margin with fringe of hairs. Eyes oblong, broadly emarginate, emargination reaching less than half of its width. Antennal scape slender ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reduced with substraight apical margin ; truncate face with segment 2 distinctly chitinized, apical portion beyond segment 2 flat to concave ; posterior face with two distinct sutures.

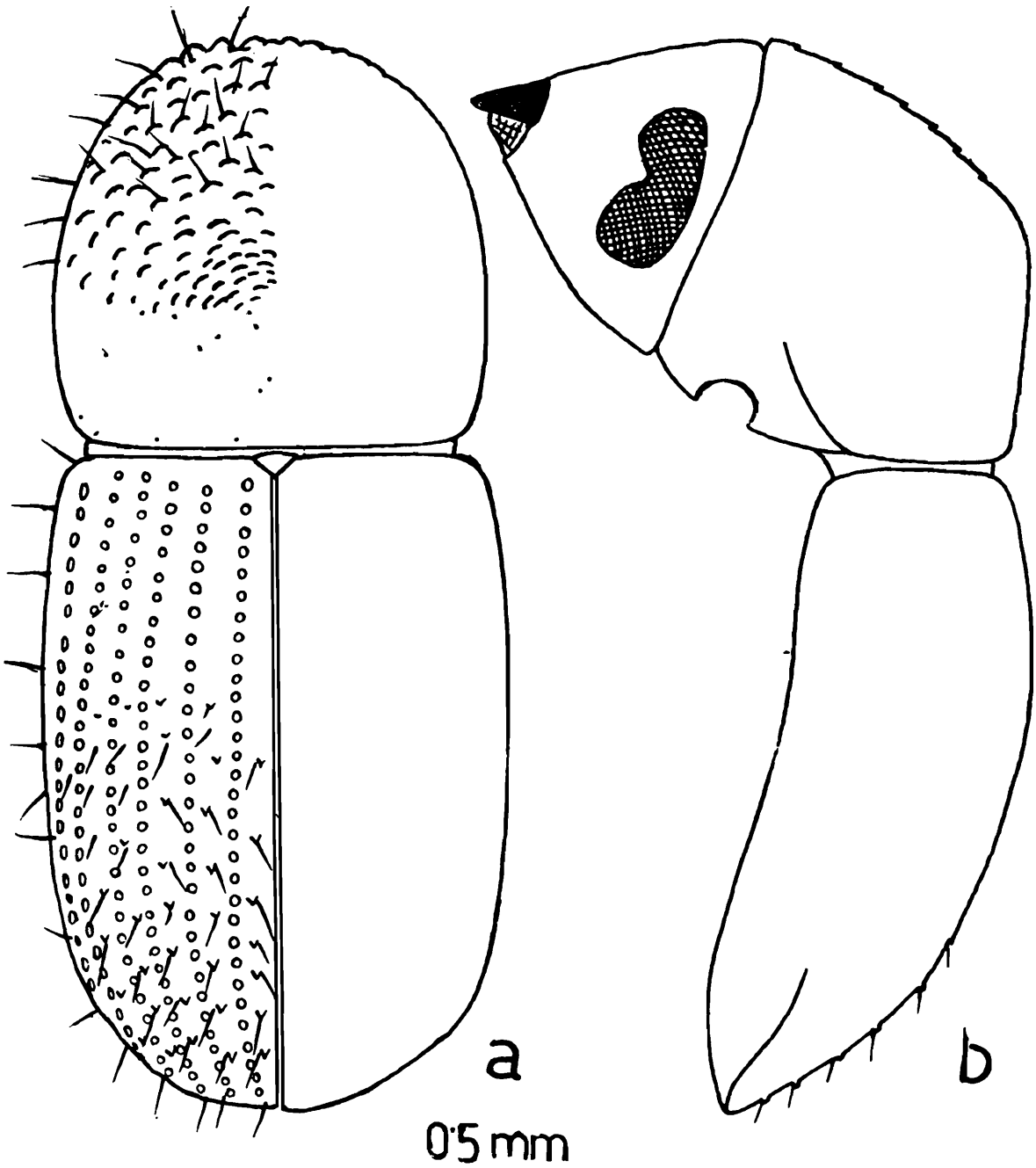

Fig. 23. a-b, *Euwallacea velatus* (Sampson), Female : a, Dorsal view ; b, Lateral view.

Pronotum subquadrate, slightly wider than long ; basal margin substraight ; lateral sides weakly outcurved, with anterior margin broadly rounded ; in profile, summit very distinct and placed almost at the middle ; anterior margin with a few weak transverse asperities ; more than anterior half with fine asperities and long erect hairs ; rest finely reticulate with sparse indistinct punctures along with a few hairs laterally.

Scutellum smooth and shiny ; triangular and distinctly wider than long.

Elytra 1.60-1.65 times as long as and nearly as wide as pronotum, 1.40-1.46 times as long as its width ; basal margin of each elytron feebly outcurved ; lateral margin subparallel, but feebly outcurved at middle with broadly rounded posterior margin ; disc weakly convex ; discal striae not impressed, marked by shallow close punctures, without any microhair ; intersrtiae flat, shiny with uniseriate setiferous granules and with a few punctures towards basal narrow strip. Declivital slope gradual, commencing nearly from the middle, face flatly convex ; postero-lateral margins acute, but not carinate, only lined by minute granules ; strial punctures more distinct ; interstriae weakly convex with sparse setiferous granules up to apex. Procoxae contiguous, protibiae with 7 and meso- and meta-tibiae with 9-10 teeth.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLANDS : North Andaman (present record). ELSEWHERE : Burma and also imported to Tokyo from Burma.

(d) *Remakrs.*—After the description of the species, *Xyleborus velatus* Sampson (1923) from Burma, the same author also designated some material from Andaman as *X. provelatus* which was not described until now. The same material present in F. R. I. Collection, has been compared with the types of *X. velatus* Sampson. It appears that *X. provelatus* does not stand as a separate species. It has got more flattened declivital interstriae with smaller tubercles unlike that of *X. valatus.* With these variations, it is essentially having all characters of *Euwallacea velatus* (Sampson).

Genus : **Leptoxyleborus** Wood, 1980

Leptoxyleborus Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 94, *Type-species* : *Phloeotrogus sordicauda* Mostchulsky.

Wood (1980) created the genus *Leptoxyleborus* to accommodate the species, *Phloeotrogus sordicauda* Motsch. from Burma. The species has got the overall characteristics of the genus *Xyleborus*, for which it was transferred to *Xyleborus* by Hagedorn (1910). The genus is closely related to the genera *Theoborus* Hopkins and *Coptoborus* Hopkins. But it differs from them by the declivity commencing anterior to the middle of elytra, lower half of which either flat or shallowly concave, declivital surface is densely covered by small, confused scales. It is represented by a single species from Andaman Islands.

26. **Leptoxyleborus concisus** Blandford

Xyleborus concisus Blandford, W.F.H., 1894. *Trans. ent. Soc. Lond.*, pp. 107-108, Female, *Type-locality* : Japan ; Schedl, K. E. 1961. *Philipp. J. Sci.*, **90** : 93-94, Male, Java, Indonesia.

Xyleborus sordicaudulus Eggers, H. 1927. *Phillipp. J. Sci.*, **33** : 91, Female, *Type-locality* : Palawan, Philippines.

Xyleborus marginatus Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 91-92, Female, *Type-locality* : Mindanao, Philippines ; Browne, F. G. 1955. *Sarawak Mus. J.*, **6** : 354 (Synonymy).

Xyleborus sordicaudulus var. peguensis Eggers, H. 1930. *Indian Forest Rec. (Ent.)*, **14** (9) : 22, Female, *Type-locality* : Burma ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 84, Burma (Biology).

Xyleborus incurvus Eggers, H. 1930, *Indian Forest Rec. (Ent.)*, **14** (9) : 21-22, Female, *Type-locality* : Mungpoo, West Bengal, India ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 62-63, India : West Bengal, North and Middle Andamans ; Beeson, C.F.C. 1941. *Ecology and Controls of Forest Insects of India and Neighbouring Countries*, 305 p.

(a) *Material.—Identified* : (i) 7 exs. from Middle Andaman, *B. M. Bhatia coll.*—1 Female 13.i.1929, ex. "*Mimusops litoralis*" and 6 Females, 13.i. and 7.iv.1929, "*Albizzia lebbek*" *Unidentified :* (ii) 3 Females, from Forests 11 and 16 km. from Hutbay, Little Andaman, *T N. Khan and B. Mitra coll.*, 4.x.1981, ex. "Sapwood of unknown log" ; (iii) 10 exs. from South Andaman.—6 Females from Haddo, *B. N. Nandi coll.*, 28.x.1981, ex. "*Planchonia andamanica*" ; 3 Females, Pungibalu, *B. N. Nandi coll.*, 19.x.1981, ex. "Sapwood of an unknown log", (v) 1 Female, Rutland Island , *B. N. Nandi coll.*, 19.x.1982.

(b) *Description.*—(i) *Female* (Fig. 24, a-g) : Body stout and cylindrical ; head and pronotum yellowish brown ; elytra blackish brown ; antennae and legs much paler. Body length 2.50-2.75 mm ; 2.4 times as long as wide.

Head globose ; frons flatly convex, a transverse depression above the epistoma on either side of smooth and elvated median line ; surface reticulate, with large close punctures of irregular size and sparse long hiars ; Eyes elongately oval and half of its width divided by emargination. Antennal scape short and stout ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with segment 2 somewhat distinct ; posterior face with two distinct sutures.

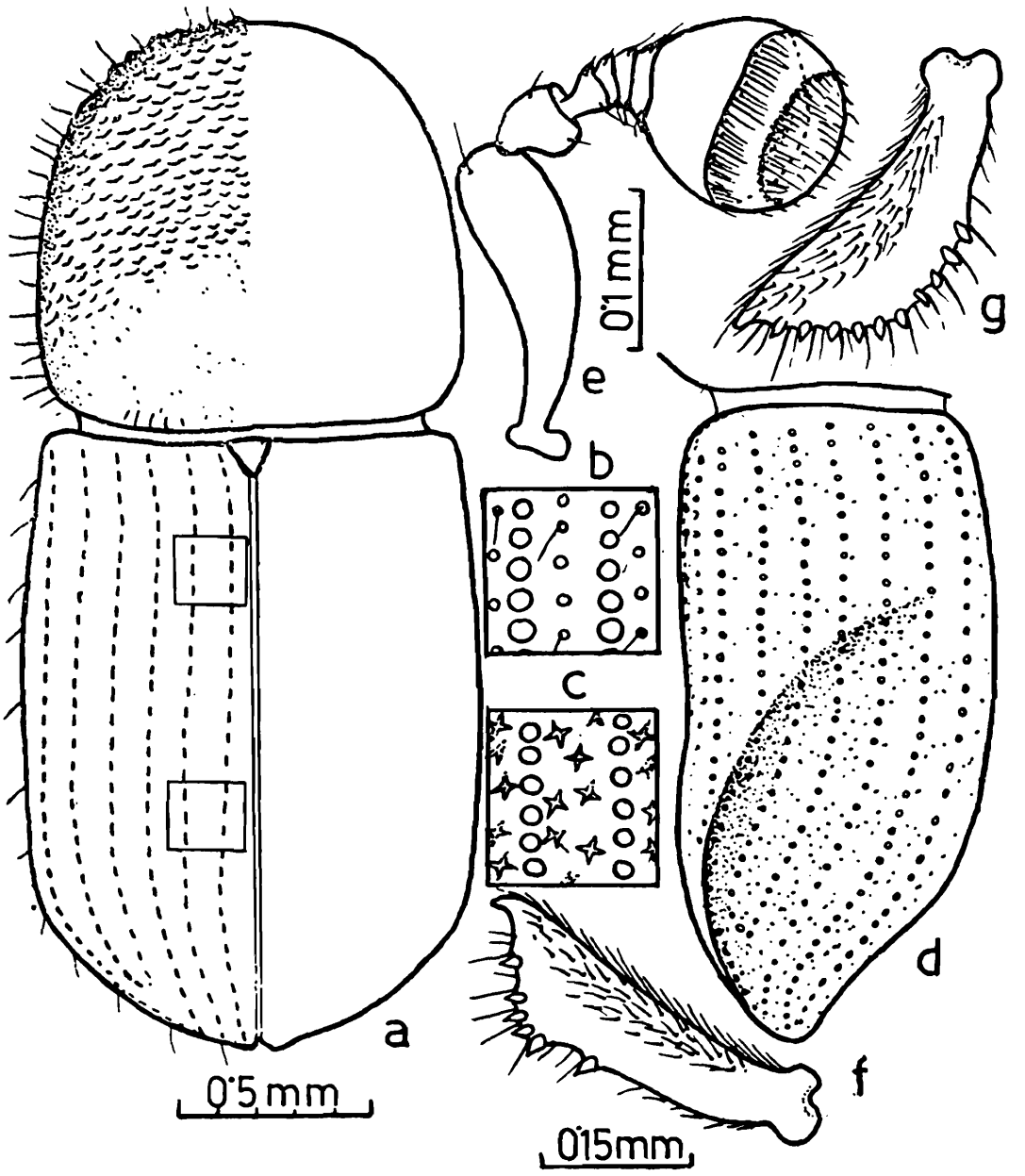

Fig. 24. a-g, *Leptoxyleborus concisus* Blandford, Female : a, Dorsal view ; b, Enlarged portion of elytral disc ; c, Enlarged portion of elytral declivity ; d, Elytra in Lateral view ; e, Antenna ; f, Protibia ; g, Mesotibia.

Pronotum subquadrate, slightly wider than long ; basal margin substraight ; lateral sides feebly outcurved ; anterior margin broadly rounded, with a few transverse very small asperities ; in profile, distinct summit at middle ; anterior declivous portion with sparse hairs and transverse rows of small asperities, slightly becoming larger anteriorly and also extending postero-laterally in smaller size ; disc of posterior half smooth and shiny with small punctures ; both on lateral and posterior margins with inconspicuous hairs.

Scutellum smooth, shiny and elongately tongue-shaped.

Elytra 1.50 times as long as and as wide as pronotum ; 1.4 times as long as its width ; basal margin substraight ; lateral sides straight and subparallel on basal half, thence gradually converging posteriorly with roun-

ded apex ; postero-lateral margins carinate, carina entering interstria 7 ; elytral disc distinctly covex ; striae feebly impressed with small punctures bearing microhairs ; interstriae very weakly convex with irregular punctures and small hairs. Declivity commencing on basal fifth ; more than half of declivity convex and apical half weakly concave ; declivital striae distinctly marked by comparatively large shallow punctures bearing microhairs ; interstriae flat, irregularly punctate with squameous setae and a few erect hairs laterally. Procoxae contiguous ; pro- and meso-tibiae with 7 and 10 teeth respectively.

(i) *Male* : Male not available in the present collection.

(c) *Distribution.*—ANDAMAN ISLANDS : North and Middle Andamans (Beeson, 1930) ; South Andaman : Haddo, Pungibalu and Rutland Isl. (present record). ELSEWHERE : India (West Bengal,), Burma, Indonesia (Borneo and Java), Malaya, Philippine and Japan.

(d) *Remakrs.*—In typical *Leptoxyleborus* Wood, the posterior face of antennal club is marked by two distinct sutures. In *L. concisus*, the posterior face of antennal club is marked by one distinct suture and the other is obscure as have been examined in the material in hand. Same feature has also been observed by Wood in the material in his collection (pers. com.). Apart from this, the specimens examined have ten socketed teeth in metatibiae which is an irregular feature in contrast to 6-7 teeth usually found in the genus. This appears to be a mere variation. However, the species has been transferred to the genus *Leptoxyleborus* in the present account.

Originally the species, *concisus* was described from Japan by Blandford (1894) under the genus X*yleborus*. Subsequently, three more species of X*yleborus* from different areas of the Oriental Region were synonymised under it from time to time, thus extending its distribution limit. As such, the species X. *concisus* was unknown to the Andamans. But, X. *incurvus*, a closely allied species to X. *concisus*, was known from the Andamans since 1930 including its occurrence in the eastern India (West Bengal). In the present study, a detailed examination of the types as well as some authentically identified material of these species, has proved that X. *incurvus* is a synonym of X. *concisus*.

However, it is a well established species in the islands of Andaman. The species has been collected on many occasions from different host-plants in the area, namely, *Mimusops litoralis*, *Albizzia lebbek* and *Planchonia andamanica*. Beeson (1941) and Browne (1961) listed many host-plants for the species from the places of its occurrence.

Genus : **Microperus** Wood

Microperus Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 94-95, *Type-species* : *Xyleborus theae* Eggers.

The genus *Microperus* was established by Wood (1980) based on *theae*-group of species belonging to the genus *Xyleborus*, which was originally named by Browne in his unpublished manuscript a decade ago. The genus can easily be distinguished from all other genera under the tribe Xyleborini in having scutellum submarged and non-visible, posterior face of antennal club with one suture, lack of circumdeclivital costa and each elytral basal margin feebly outcurved. In the present study, two species, namely, *Xyleborus perparvus* and *Xyleborus recidens* have been transferred to the genus *Microperus*, in possessing the characters specified above.

27. **Microperus perparvus** (Sampson)

Xyleborus perparvus Sampson, W. 1922. *Ann. Mag. nat. Hist.*, **9** (9) : 151, Female, *Type-locality* : Kurseong Division, West Bengal, India ; Beeson, C.F.C. 1930, *Indian Forest Rec.* (*Ent.*), **14** (10) : 76, India (North Andaman, Wst Bengal, Assam) ; Bangladesh and Burma ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 308 p., Bengal to Malaya ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, pp. 118-119 ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 610-611, Indomalayan Region.

(a) *Material.*—Since no material is available from Andaman Islands, the cotype material from West Bengal has been studied to include the present description.

(b) *Description.*—(i) *Female* : Small but stout and cylindrical species ; head and pronotum deep brown ; elytra blackish brown ; antennae and legs light brown. Body length 1.70-1.78 mm ; 2.70 times as long as broad.

Head globose ; frons rugosely reticulate with scattered punctures ; median line indistinctly marked ; epistomal margin with fringe of sparse erect hairs. Eyes elongately oval with weak emargination. Antennal club somewhat transversely globose and obliquely truncate ; segment 1 corneous ; on anterior face. basal corneous portion reduced with recurved apical margin ; truncate face with two distinct sutures ; posterior face marked by one suture almost at tip.

Pronotum 1.20 times as long as wide ; basal margin substraight ; postero-lateral angles broadly rounded ; lateral sides feebly outcurved ; anterior margin broadly rounded and unarmed ; in profile, dorsal margin substraight up to almost middle whence declivous anteriorly, summit indis-

tinct ; anterior half with distinct transverse apserities and with a few scattered erect hairs ; posterior half smooth and shiny with sparse minute punctures and devoid of hairs.

Scutellum submerged and not visible.

Elytra 1.66 times as long as its wide, 1.46 times as long and as wide as pronotum ; basal margin feebly outcurved at the level of interstriae 3 and 4 ; lateral sides straight and subparallel up to elytral basal third ; postero-lateral margins not carinate, but with rows of distinct tubercles and small hairs ; elytral disc coarse and convex ; discal striae not at all impressed only marked by small and shallow punctures with some indistinct microhairs ; interstriae flat, much wider than striae with very indistinct granules. Declivity abrupt and steep, commencing almost on apical fourth ; face opaque and plano-concave medially ; striae 1, 2 and 3 somewhat distinct, marked by comparatively large punctures without any distinct margins but granulately sculptured within and with microhairs ; stria 1 fairly depressed ; interstriae with rows of very distinct granules and densely hairy. Procoxae contiguous, protibiae with 5, and meso- and meta-tibiae with 8 teeth.

(ii) *Male* : Unknown

(c) *Distribution.*—ANDAMAN ISLANDS : North Andaman, (Beeson, 1930). ELSEWHERE : India (West Bengal and Assam), Bangladesh, Indonesia (Borneo), Burma and Malaya.

(d) *Remakrs.*—The species X*yleborus perparvus* with all its essential morphological characters comes under the genus *Microperus* except having declivital face flatly concave which can be considered as an individual species characteristic. Though this species was recorded from North Andaman by Beeson (1930), no further collection has yet been made from this insular area. The species has been recorded from many host-plants from Bengal to Malaya in small poles and branches of felled trees (Beeson, 1930, 1941 and Browne, 1961).

28. **Microperus recidens** (Sampson)

Xyleborus recidens Sampson, W. 1923. *Ann. Mag. nat. Hist.*, **11** (9) : 287, Female, *Type-locality* : Khariabandar, Lower Tondu, Jalpaiguri Dist., West Bengal, India ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 76, India : West Bengal and Andaman Isl., Burma, Indonesia, and New Guinea ; Schedl, K. E. 1975. *Z. Arbeitsgem osterr. Ent.*, **27** : 34, Port Blair, Andaman ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 308 p., Bengal to New Guinea ; Browne, F. G. 1981. *Malay. Forest Rec.*, no. 22, p. 150, Southeast Asia.

Xyleborus minusculus Eggers, H. 1923. *Zool. Meded.*, 7 : 212, Female, *Type-locality* : Engano, Philippines.

Xyleborus crassitarsus Schedl, K. E. 1936. *J. fed. Malay St. Mus.*, **18** : 28-29, Female, *Type-locality* : South-East and North Borneo.

(a) *Material.*—Since no material from the islands of Andaman and Nicobar was available for study, cotypes deposited in F. R. I., Dehra Dun, have been studied to include the present description.

(b) *Description.*—(i) *Female* : Body short, stout and somewhat cylindrical ; head, pronotum and elytra reddish brown ; antennae and legs paler. Body length 1.80 mm.

Head globose , frons weakly rugose and convex, but transversely depressed above the epistoma on either side of a narrow median portion ; epistomal margin only with a few indistinct hairs. Eyes suboval, with distinct emargination. Antennal scape short and stout ; funicle with 5 segments ; club globose and obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reduced with recurved apical margin ; truncate face with two distinct sutures , posterior face marked by one distinct suture.

Pronotum subquadrate, 1.11 times as long as wide ; basal margin weakly bisinuate ; lateral margins subparallel up to basal two-thirds, thence rather gradually narrowing anteriorly ; anterior margin broadly rounded and unarmed ; summit somewhat distinct and placed almostat the middle ; anterior one-third with weak asperities, a few extending postero-laterally and intermixed with long and short hairs ; basal two-thirds smooth with fine scattered punctures, but without any distinct hairs.

Scutellum submerged and not visible.

Elytra 1.35 times as long as and as wide as pronotum, 1.5 times as long as its width ; basal margin very weakly outcurved at the level of interstriae 3-4 and the rest of it substraight ; lateral sides straight and subparallel up to apical fifth, whence converging posteriorly with a round apex ; disc smooth and shiny , striae weakly impressed with shallow small punctures , interstriae wider than striae with very minute punctures. Declivity commencing from apical fifth, rather steep with plano-convex and shining face ; striae and interstriae somewhat obsolete ; interstriae with row of long erect hairs and minute granules becoming distinct near commencement of declivity ; posteror-lateral margins with distinct carina. Procoxae contiguous.

(c) *Distribution.*—ANDAMAN ISLANDS : North and Middle Andaman (Beeson, 1930). ELSEWHERE : India (West Bengal), Burma, Malaya, Indonesia (Java and Borneo), Engano, Philippines (Luzon) and New Guinea.

(d) *Remakrs.*—This is a fairly widely distributed species from India to New Guinea, whose biology is very poorly known and limited to the extent of brief records of host-plants reported by Schedl (1938), Beeson (1941) and Browne (1961).

Genus : **Notoxyleborus** Schedl, 1934

Notoxyleborus Schedl, K. E. 1934. *Ent. Ber.*, **9** : 84, *Type-species* : *Notoxyleborus kalshoveni* Schedl ; Wood, S. L. 1978. *Annls. Soc. ent. Fr., (N.S.)*, **14** (1) : 114 (Synonymy of *Xyleborus*) ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

The genus was erected by Schedl (1934) based on the species, *Notoxyleborus kalshoveni* Schedl from Java. It continued to exist as a valid one up to 1978, when Wood synonymised it under the genus X*yleborus*. However, the same author in 1980 revived its generic status, The characteristic pattern of antennal club with no distinct oblique truncation, but the basal corneous portion with angular apical margin in addition to the combination of some other characters, keeps the genus quite distinct. However, only one species, *Notoxyleborus major* is recognised from the islands of Andaman, which also occurs in Assam and West Bengal in the mainland of India.

29. **Notoxyleborus major** (Stebbing)

Phloeosinus major Stebbing, E. P. 1909. *Indian Forest Mem. Zool. Ser.*, **1** (2) : 19, Female, *Type-locality* : Goalpara, Assam, India.

Xyleborus major (Stebbing), Stebbing, E. P. 1914. *Indian Forest Insects (Coleoptera)*, 590-591 pp., India ; Sampson, W. 1922. *Ann. Mag. nat. Hist.*, **10** (9) : 152, Male, Kharianbadar, Lower Tondu, West Bengal ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 69, Middle Andaman, Assam and West Bengal ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 307 p., Bengal to Andaman ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22 p., 105, Andaman, Burma and Malaya.

(a) *Material.—Identified* : 1 Female from North Andaman, *C. F. C. Beeson coll.*, 8.iii.1930, ex. "*Dipterocarpus turbinatus*"

(b) *Description.*—(i) *Female* (Fig. 25, a-b) : Body large and cylindrical ; head, pronotum and elytra blackish brown ; lateral sides and posterior half of pronotum, antennae and legs comparatively paler. Body length 5.00-5.20 mm and 2.5 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons smooth and shiny with smaller scattered punctures, punctures towards vertex larger and becoming at places confluent ; median line very short just above epistomal margin running posteriorly to a median smoooth depressed area devoid of any punctures ; vestiture indistinct except on epistomal margin. Eyes large, broadly emarginate one third or less of its width. Antennal scape elongate ; funicle with 5 segments , club not exactly obliquely truncate ; on anterior face, basal corneous portion forming angularly procurved margin and posterior face with indistinct procurved suture towards apex.

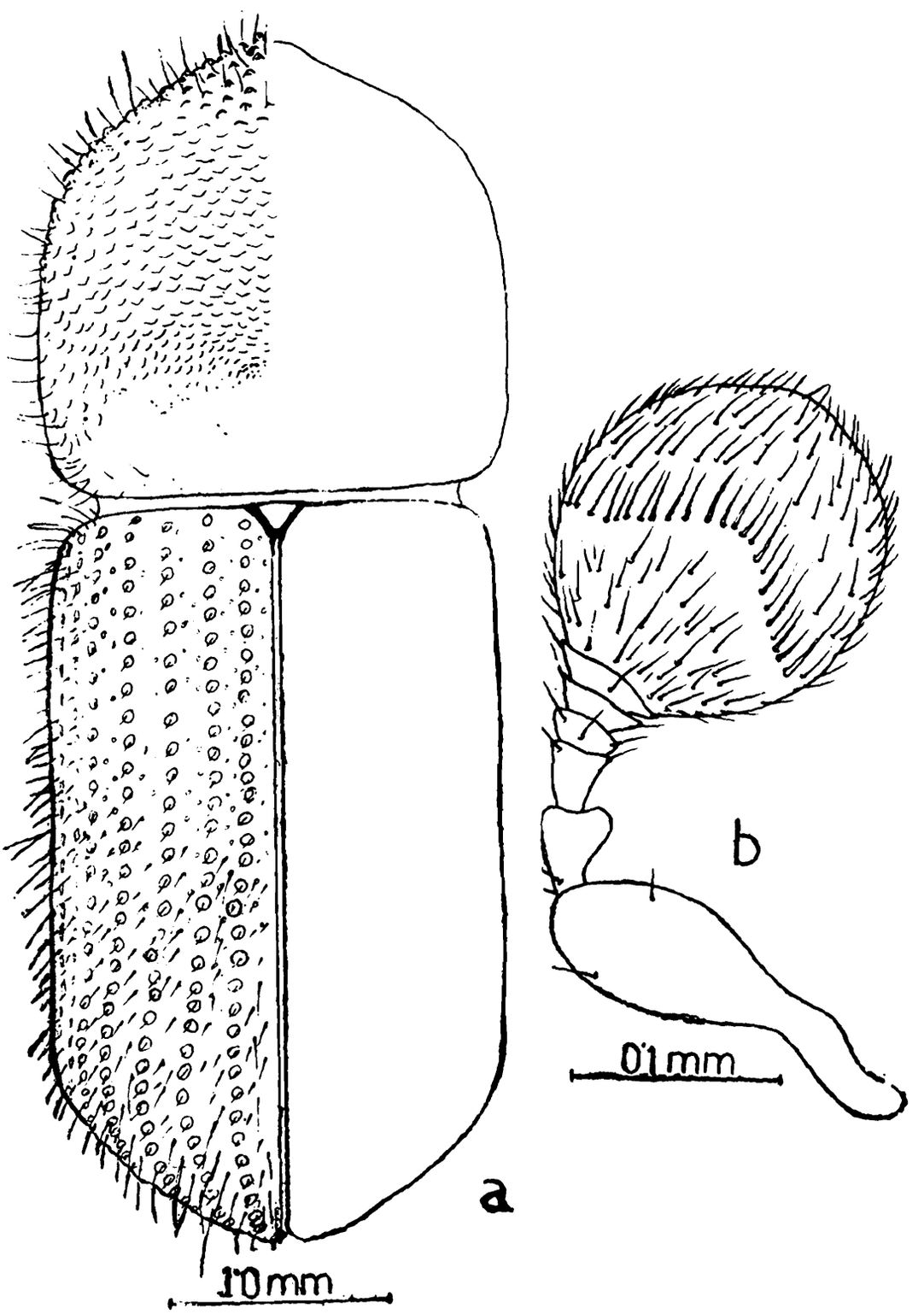

Fig. 25. a-b, *Notoxyleborus major* (Stebbing), Female : a, Dorsal view ; b, Antenna.

Pronotum subquadrate, as long as or slightly wider than long ; posterior margin substraight with a weak median emargination ; lateral sides subparallel up to basal two-thirds ; antero-lateral corners broadly rounded, anterior margin with a weak median projection accommodating 7-8 distinct asperities ; in profile, dorsal summit very prominent slightly below the middle and declivous both anteriorly and posteriorly ; anterior declivous portion with long hairs and small asperities gradually increasing in size anteriorly and also weakly extending postero-laterally below the summit ; area below the summit smooth and shiny with scattered fine punctures.

Scutellum smooth and shiny, comparatively small and somewhat tongue-shaped.

Elytra as wide as pronotum at base, 1.8 times as long as broad and 1.6 times as long as pronotum ; basal margin substraight ; lateral sides subparallel up to more than basal three-fourths, thence strongly converging to a narrowly rounded apex ; postero-lateral margin with an acute margin set with granules ; discal striae weakly impressed with large shallow punctures, sutural striae at basal region obsolete ; interstriae wide, shiny and feebly convex with small punctures and with inconspicuous hairs. Declivity commencing slightly below the middle with regularly convex face, somewhat depressed toward postero-lateral margins ; declivital striae much impressed and marked by comparatively large puncutres ; sutural striae at middle marked by double rows of punctures ; striae 2 and 3 outcurved ; interstriae weakly convex with irregular granules and erect hairs. Procoxae contiguous ; protibiae with 8 teeth and meso- and meta-tibiae with 9-10 teeth.

(ii) *Male* : Not available in the collection under study.

(c) *Distribution.*—ANDAMAN ISLANDS : Middle Andaman (Beeson, 1930). ELSEWHERE : India (West Bengal and Assam), Burma and Malaya.

(d) *Remarks.*—This is one of the largest Andamanese scolytids, sparsely occurring in the northern Andamans and is unknown in the Nicobars. The species was originally assigned to the genus *Phloeosinus* Chapius and subsequently transferred to the genus *Xyleborus* Eichhoff. The detailed study of the specific characters, in the present study, has proved its inclusion under the genus *Notoxyleborus*. The species is mainly restricted to central part of the Orient and is well represented in the eastern India including Andamans being mostly associated with *Dipterocarpus* plants.

Genus : **Webbia** Hopkins, 1915

Webbia Hopkins, A.D. 1915. *U.S.D.A. Bur. Ent. Tech. Ser.*, **17** (11) : 222-223, *Type-species* : *Webbia dipterocarpi* Hopkins from Philippines ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p., 185 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 79 ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

Xelyborus Schedl, K. E. 1939. *J. fed. Malay. St. Mus.*, 18 : 349, *Type-species* : *Xyleborus bicornis* Schedl ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 189 ; Browne, F. G. 1961. *Ent. Ber.*, **23** : 57 (Synonymy).

Prowebbia Browne, F. G. 1960. *Philipp. J. Sci.*, **89** : 208 ; Schedl, K. E. 1964. *Reichenbachia*, **2** : 214 (Synonymy).

The genus *Webbia* was erected by Hopkins (1915) based on the species *Webbia dipterocarpi* Hopkins from Philippines. Since its description it is a well established genus in having characteristics truncated elytral apex and pronotal asperities more distinct on antero-lateral areas. As early as in 1939. Schedl designated a genus X*elyborus*, based only on the type-species, *Xelyborus bicornis* from Malaya. But, Browne (1963) synonymised it under the genus *Webbia* with the plea of haivng antennal funicle with 3 segments. Subsequently, Browne (1960) described one genus *Prowebbia* allied to *Webbia* on the basis of variations in pronotal shape, granulate pronotal asperities and antennal funicle with 5 segments in some species. Later on, Schedl (1964) put this genus under *Webbia* which was also supported by Wood (1980).

The genus is fairly common in the Oriental Region occurring in India (Andaman Isl.), Borneo, Philippines, Sri Lanka, Burma and is mostly associated with *Dipterocarpus* plants (Borwne, 1961). In Andaman only two species have been recognised so far.

30. **Webbia trigintispinatus** Sampson

Webbia 30-*spinatus* Sampson, W. 1922. *Ann. Mag. nat. Hist.*, **10** (9) : 149, *Type-locality* : Kaing Range, Pyimana, Burma ; Beeson, C.F.C. 1922. *Indian Forester*, p. 500, Lakhimpur, Assam ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 301 p., Andamans.

Webbia 26-*spinatus* Sampson, W. 1922. *Ann. Mag. nat. Hist.*, **10** (9) : 149, *Type-locality* : Burma ; Browne, F. G. 1963. *Ent. Ber.*, **23** : 57 (Synonymy).

Webbia trigintispinatus Sampson, Beaver, R. A. and Browne, F. G. 1975. *Oriental Ins.*, **9** (3) : 297, India, Burma, Combodia, Malaya, South Vietnam and Thailand.

(a) *Material.*—Since no material is available from the islands of Andaman and Nicobar for study, the present description is based on the original description of the species.

(b) *Description.*—Head black, pronotum dark brown, legs and elytra (except apical portion, which is darker) pale yellow. Body length 3.00 mm.

Frons convex, coarsely and sparsely punctate on a shagreened surface with a narrow longitudinal carina from the epistoma to the middle of vertex and slightly raised centrally ; epistomal margin with fringe of hairs.

Pronotum subquadrate, slightly broader anteriorly ; granulate anteriorly with short erect hairs ; minutely and regularly punctured posteriorly on a shagreened surface ; the anterior surface indented centrally with coarse rugosities laterally ; the actual anterior edge being bent under and not visible from above.

Elytra hardly one-sixth longer than and equal in width to the pronotum, faintly striate-punctate, interstriae flat and irregularly punctured ; declivity commencing at apical third, abruptly truncate, fundus flat and margined by 15 spines on each elytron decreasing in size towards the centre and increasing again to the apex ; the fundus with four rows of raised and roughened circular piliferous bosses with a granular surface ; the sutural row being much raised and broadened centrally, the remainder of the surface being flat and very finely granulate.

(c) *Distribution.*—ANDAMAN ISLANDS : Andaman Isl. (Beeson 1941). ELSEWHERE : India (Assam) ; Burma, Cambodia, Malaya, South Vietnam, Thailand and Cochin-china.

32. **Webbia turbinatus** sp. nov.*

(a) *Material.*—(i) 16 Females and 13 males from North Andaman, *C. F. C. Beeson coll.*, 8-11.iii.1930, ex. "*Dipterocarpus turbinatus*", (ii) 1 Female from North Andaman, *B. M. Bhatia coll.*, 18.xii. 1928, ex, "*Dipterocarpus turbinatus*" ; (iii) 10 Females and 2 males from Stewert Sound, North Andaman, *C. F. C. Beeson coll.*, ex. "*Sapium eugeniafolium*" ; (iv) 1 Female from Middle Andaman, *B. M. Bhatia coll.*, 10.xii.1928, ex. "*Dipterocarpus turbinatus*" and (v) 3 Females and 1 male from Chidyatapu, *ca.*, 25 km N. of P.W.D. Guest House, South Andaman, *B. N. Nandi and party coll.*, ex. "*Dipterocarpus* sp."

(b) *Description.*—(i) *Female* (Fig. 26, a-e) : Body fairly long and cylindrical ; head chestnut brown, pronotum light brown, elytra yellowish white with brownish tinge on declivital margin ; antennae and legs yellowish brown. Body length 2.30-3.40 mm and nearly 3.2 times as long as wide.

* The species was originally designated by C.F.C. Beeson and remained undescribed until now.

Head somewhat globose, strongly converging anteriorly with outcurved lateral margins ; frons planoconvex with weak median line, surface rugosely reticulate, with a few scattered punctures and fine small hairs; epistomal margin with dense row of small but thick hairs. Eyes fairly large, suboval in shape, with broadly rounded emargination running almost up to half of its width. Antennal scape long, bulging out anteriorly ; funicle with 3 segments ; club obliquely truncate ; basal corneous portion running up to basal one-third with weakly recurved apical margin ; truncate face with two sutural lines marked by hairs ; posterior face devoid of any suture

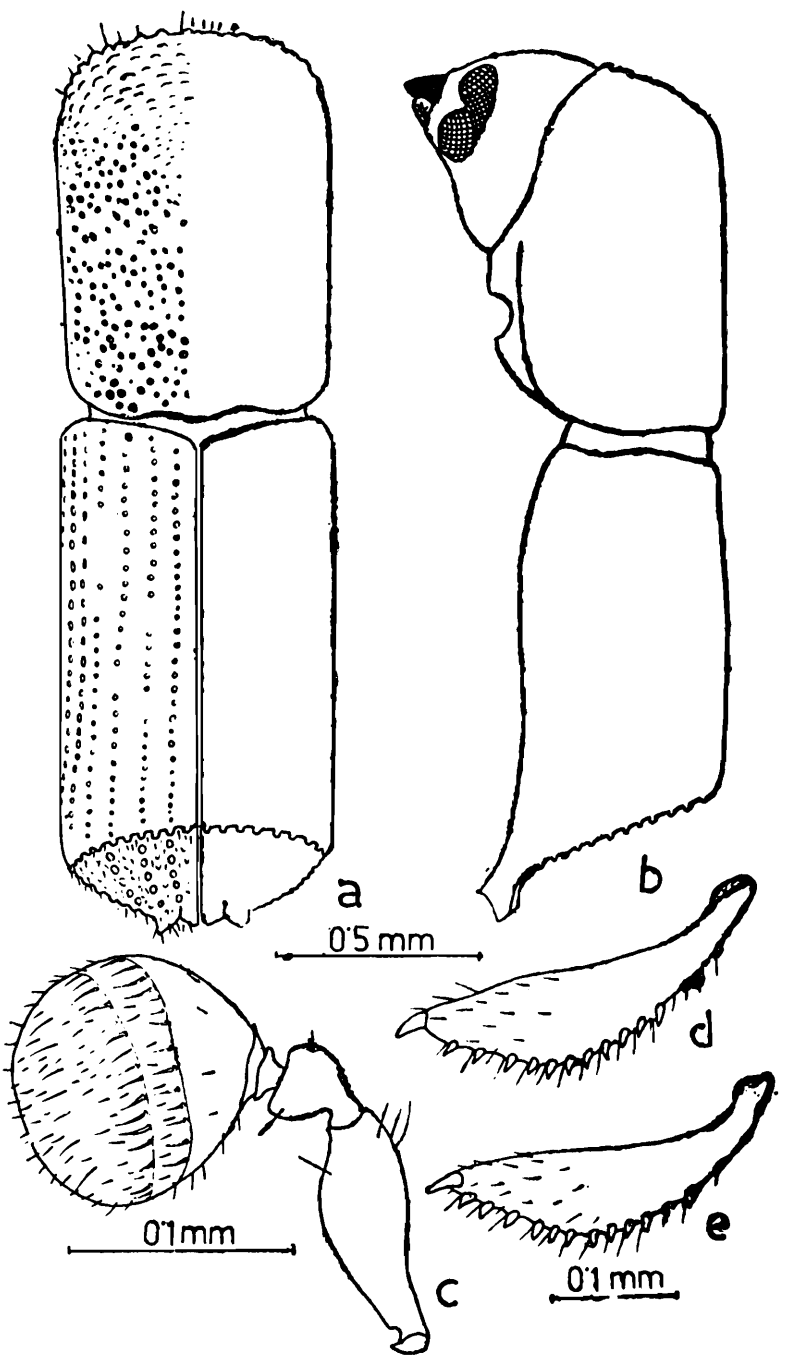

Fig. 26. a-e, *Webbia turbinatus* sp. nov.,
Female : a, Dorsal view ;
b, Lateral view ; c, Antenna ;
d, Protibia ; e, Metatibia.

Pronotum subrectangular, 1.4 times as long as wide, basal margin somewhat bisinuate ; postero-lateral margins broadly rounded, anterior margin with weak median emargination ; in profile, dorsal margin plano-convex without any distinct summit but weakly declivous anteriorly ; anterior one-third with distinct but small asperities and erect hairs ; asperities comparatively large antero-laterally ; posterior two-thirds densely and finely reticulate with very minute indistinct punctures, but without any hairs.

Scutellum not visible.

Elytra cylindrical, 1.25 times as long as pronotum and 1.7 times as long as its width ; each elytral basal margin weakly outcurved, lateral sides straight and subparallel up to truncate margin ; discal striae not at all impressed but marked by minute shallow sparse punctures ; stria 3 onwards weakly curved outwardly beyond the apical third ; interstriae flat, much wider than striae, surface smooth with a few scattered indistinct punctures, devoid of any hair. Elytral apex truncate, declivital margin round, acute, fringed with tubercles and hairs ; declivital face weakly depressed, striae impressed marked by indistinct punctures ; striae 1, 2, 3 distinct up to slightly below the middle ; interstriae weakly convex with rows of granules and hairs, a few granules along the striae ; declivity on either side of elytral suture with a big tubercle, much below the middle occupying interstriae 2, 3 and 4. Procoxae contiguous ; protibiae with 11 and meso- and metatibiae with 12 teeth.

(ii) *Male* : Similar to the female except the characters as follows :— Asperities on the antero-lateral sides smaller ; elytral declivity somewhat obliquely truncate with marginal tubercles reduced into granules ; tubercles on the posterior half of declivital face comparatively smaller.

(c) *Type-locality* : North Andaman.

(d) *Type-specimens* : *Holotype* Female, from North Andaman, *C. F. C. Beeson coll.*, 11.iii.1930, ex. "*Dipterocarpus turbinatus*", deposited in F. R. I., Dehra Dun. 10 *Paratypes* Females from same lot as above deposited as follows : (i) 5 Paratypes Females in F. R. I., Dehra Dun ; and (ii) 5 Paratypes Females in Z. S. I., Calcutta. Other material from 'Holotype-lot' are deposited in F. R. I., Dehra Dun.

(d) *Comparison.*—The new species, *Webbia turbinatus* is very close to other two Indian species, namely, *Webbia trigentispinatus* Sampson

and *Webbia pabo* Sampson, but it differs from them as follows : It differs from *W pabo* in having comparatively short non-bifurcated tubercles, one each on the posterior third of declivital face which are very large and bifurcated in *W pabo*.

It also differs from *W. trigentispinatus* Sampson in having very weak spines absent in male around declivital margin which are comparatively pointed and slightly larger in *W. trigentispinatus*.

Genus : **Xyleborinus** Reitter, 1913

Xyleborinus Reitter, E. 1913. *Wiener Ent. Ziet.*, **32** (2) : 83 ; Schedl, K. E. 1957. *Ann. Mus. Roy. Congo. Belge, Tervuren*, ser, 8, *Sci. Zool.*, **56** : (Synonymised under *Xyleborus*) ; Wood, S. L. 1961. *Coleopt. Bull.*, **15** : 47 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 4 (Synonymised under *Xyleborus*) ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

The genus X*yleborinus* was first described by Reitter in 1913, to include two species, namely, X*yleborus saxeseni* Ratzeb. and X. *angustatus* Eichhoff, without designating any one of them as type. It remained as a distinct genus, until Schedl (1957) synonymised it under the genus X*yleborus*. Recently, Wood (1980) revived its generic status.

However, only two species belonging to the genus *Xyleborus* have been recognised from the Andamans which are included earlier under the genus *Xyleborus* Eichhoff.

33. **Xyleborinus andrewesi** (Blandford)

X*yleborus andrewesi* Blandford, W.F.H. 1896. *Trans. ent. Soc. Lond.*, p. 227, Female, *Type-locality* : Belgaum, Karnataka, India ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 50, North and Middle Andamans ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 302 p., India to Malaya ; Beaver, R. A. and Browne, F. G. 1975. *Oriental Ins.*, **9** (3) : 297 ; Schedl, K. E. 1975. *Revue suisse Zool.*, **82** (3) : 450, India ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 603, Oriental Region, Seychelles and East Africa.

Xyleborus persphenos Schedl, K. E. 1970. *Proc. Linn. Soc. N.S.W.*, **94** : 219, Female, *Type-locality* : Simbai, Madang District, New Guinea.

(a) *Material.—Identified* : (i) 17 exs. from North Andaman, *B. M. Bhatia coll.* as follows.—(i) 1 Female, 16.xii.1928, "*Terminalia bialata*" ; (ii) 4 Females, 2.v.1929, ex. "*Canarium euphyllum*" ; (iii) 10 Females, 15.xii. 1928. ex. "*Canarium euphyllum*" ; (iv) 2 Females, 18.xii.1928, ex. "*Dipterocarpus turbinatus*" ; (v) 4 Females, Middle Andaman, *B. M. Bhatia coll.*,

8.xii.1928, ex. "*Canarium euphyllum*" ; (vi) 1 Female, South Andaman, *C. F. C. Beeson coll.*, 7.iii.1930, ex. "unknown wood"

(b) *Description.*—(i) *Female* (Fig. 27, a-b) : Body short and elongate with tapering elytral apex ; head, pronotum and elytra blackish brown, antennae and legs rather paler. Body length 1.80-1.85 mm, nearly 3 times as long as wide.

Head globose ; frons plano-convex, surface reticulate with large scattered punctures and long hairs ; median line inconspicuous ; epistomal, margin with fringe of hairs. Eyes elongately oval and angularly emarginate almost up to half of its width. Antennal scape short ; funicle with 5 segments ; club oval and obliquely truncate ; segment 1 much enlarged and corneous ; on anterior face, basal corneous area reaching up to apical third with costate margin forming a complete ring ; truncate face with one more suture ; posterior face unmarked by any suture.

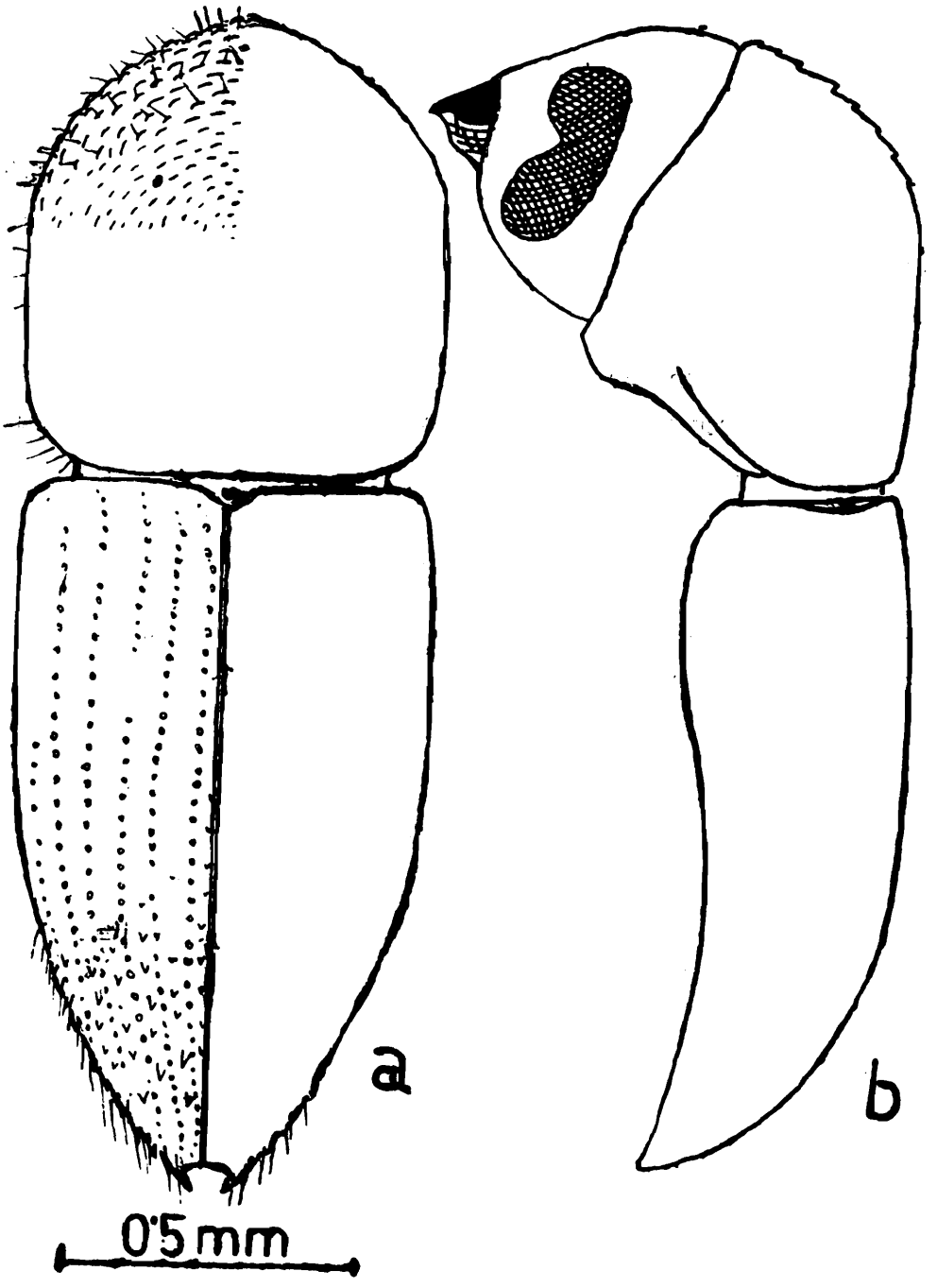

Fig. 27. a-b, *Xyleborinus andrewesi* (Blandford), Female : a, Dorsal view ; b, Lateral view.

Pronotum 1.20 times as long as wide ; basal margin substraight ; lateral sides weakly outcurved and anterior margin broadly rounded and unarmed ; dorsal summit distinct, slightly above the middle ; declivous portion with weak but distinct asperities and erect hairs ; posterior half comparatively smooth with scattered fine punctures and small hairs.

Scutellum reduced and conical, not filling the entire scutellar space, mostly occupied by tuft and hairs.

Elytra 1.40 times as long as pronotum and 1.65 times as long as its width ; basal margin substraight , lateral sides subparallel up to basal half, thence strongly converging posteriorly terminating into blunt apex ; discal striae with uniseriate rows of shallow and large punctures, each with a microhair ; interstriae weakly convex with weak granules and long hairs. Declivity gradual and commencing slightly below the middle ; face convex, opaque and with hairs ; punctures indistinct at declivital face, with microhairs ; interstriae 1 weakly convex with 5-6 pointed tubercles ; 2 flat and with a few small granules ; 3 and 4 weakly convex and with unseriate distinct pointed tubercles becoming more prominent towards apex ; 5,6 and 7 with a few granules ; striae 1, 2 and 3 complete, and 4 and 5 forming a loop. Procoxae contiguous.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLANDS : North and Middle Andamans (Beeson, 1930), South Andaman (present record). ELSEWHERE : India (Kerala, Tamil Nadu and Orissa), Nepal, Malaya, Indonesia (Java, Borneo and Timor), Thailand, Bangladesh, Sri Lanka, Seychelles and East Africa.

(d) *Remarks.*—The strongly acuminate elytral apex of the species serves as a distinctive character to isolate it from its other Andamanese representatives. The species is a common pin hole borer infesting a number of host-plants in the Old World tropics. It is a very common beetle in India and is also known from the north Andamans. It has been collected only on a few occasions in the Andamans from different felled logs of *Terminalia bialata*, *Canarium euphyllum* and *Dipterocarpus turbinatus*. Biology of the species is fairly well studied in India (Beeson, 1930) in Malaya (Borwne, 1961) and in Java (Kalshoven, 1959). The species is known to attack agricultural plants like cocoa, quinine, tea, etc., but it is never recognised as a primary pest. Biologically, the species is quite unknown in the Andamans.

34. **Xyleborinus exiguus** (Walker)

Bostrichus exiguus Walker, F. 1859. *Ann. Mag. nat. Hist.*, 3 (3) : 260, *Type-locality* : Sri Lanka.

Xyleborus muriceus Eichhoff, W. 1878. *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 506, Female, *Type-locality :* India ; Blandford, W.F.H. 1896. *Trans. ent. Soc. Lond.*, p. 228 (Synonymy).

Xyleborus perexiguus Eggers, H. (in literature), Schedl, K. E. 1958. *Tijdschr. Ent.*, **101** (3-4) : 155 (Synonymy).

Xyleborus exiguus (Walker), Blandford, W.F.H. 1896. *Trans. ent. Soc. Lond.*, p. 228, Andaman ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 104, Andaman, Sri Lanka and Burma ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*) **14** (10) : 57, North, Middle and South Andamans ; Beeson, C.F.C. 1935. *Pacific Ent. Sur. Pub.*, **8** (7) : 118 ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 304 p., ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 60, Micronesia ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 53 ; Schedl, K. E. 1971. *Steenstrupia*, **1** : 148, Nicobar Islands ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 608, Oriental Region.

(a) *Material.*—A. *Identified* : (i) 5 Females, North Andaman, *B. M. Bhatia coll.*, 15.xii.1928, ex. "*Canarium euphyllum*" ; (ii) 1 Female, North Andaman, *B. M. Bhatia coll.*, 18.xii.1928, ex. "*Artocarpus chaplasha*" ; (iii) 1 Female, Middle Andaman, *B. M. Bhatia coll.*, 8.xii.1928, ex. "*Artocarpus chaplasha.*" B. *Unidentified* : 3 Females, Wright Myo, South Andaman, *B. N. Nandi and party coll.*, 24.x.1981, ex. "at light"

(b) *Description.*—(i) *Female* (Fig. 28, a-b) : Body short and cylindrical ; head, pronotum and elytra reddish brown ; antennae and legs paler than body. Body length 1.8 mm, 2.6 times as long as wide.

Head globose, weakly narrowing anteriorly; frons moderately convex, surface reticulate with large close punctures, each with a hair ; median line distinct ; epistomal margin with fringe of distinct hairs. Eye elongately oval, angularly emarginate nearly half of its width. Antennal scape short ; funicle with 5 segments ; antennal club oval and obliquely truncate ; segment 1 much enlarged and corneous ; on anterior face, basal corneous area reaching up to apical third and with a costate margin forming a complete ring ; truncate face with one more suture ; posterior face devoid of any suture.

Pronotum cylindrical, 1.10 times as long as wide ; basal margin substraight ; lateral sides subparallel up to basal two-thirds, thence broadly rounded anteriorly ; anterior half declivous with weak asperities gradually disappearing towards summit and with long erect hairs ; posterior half finely reticulate with distinct punctures and with a few scattered hairs.

Scutellum reduced and conical, not filling up the scutellar space mostly occupied by tuft of hairs.

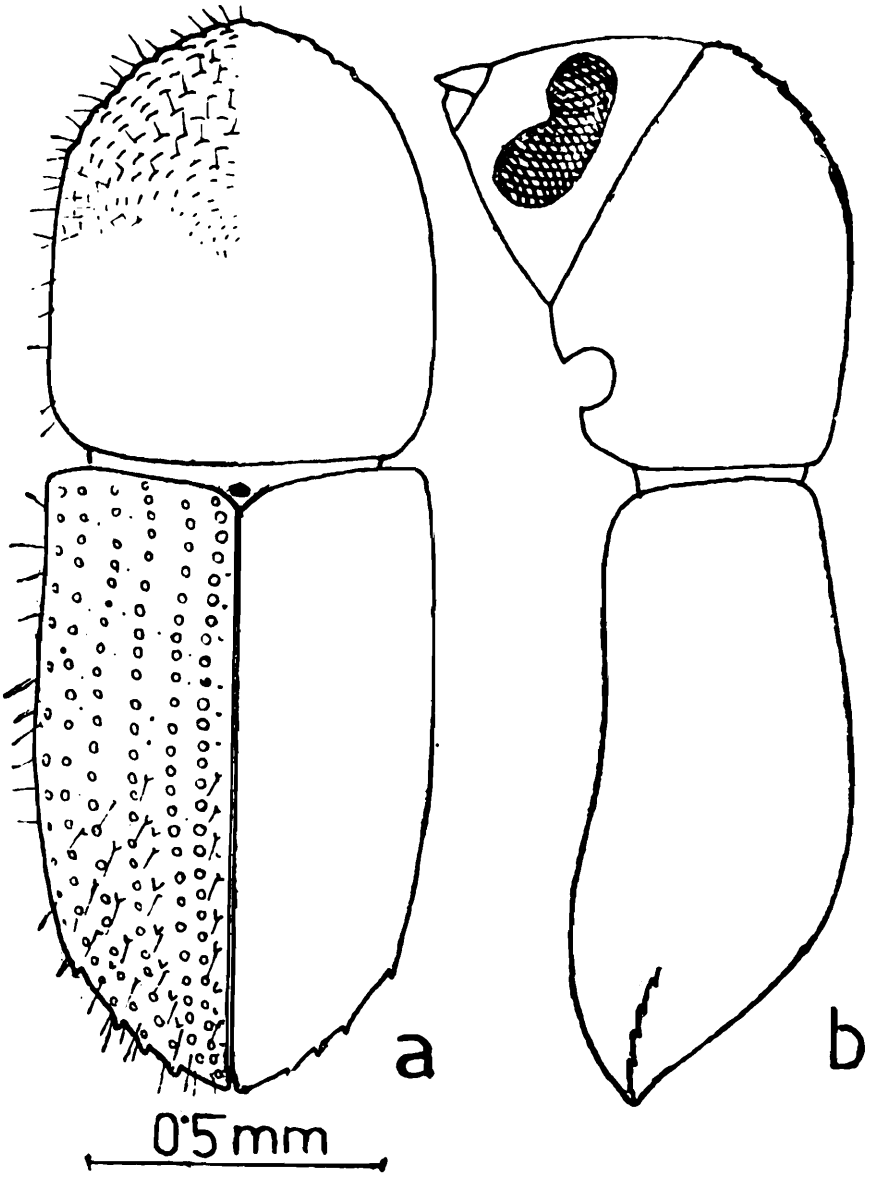

Fig. 28. a-b, *Xyleborinus exignus* (Walker), Female : a, Dorsal view ; b, Lateral view.

Elytra 1.47 times as long as and as wide as pronotum ; basal margin substraight ; lateral sides subparallel up to middle, thence narrowing posteriorly and terminating into a narrowly rounded apex ; postero-lateral margins without any carina ; nearly half of elytral surface smooth with uniseriate row of large, shallow strial punctures with microhairs ; interstriae with inconspicuous granules and erect small hairs. Declivity commencing almost at the middle, gradually sloping posteriorly with convex face ; stria 1 impressed and more closely placed to stria 2 ; strial punctures shallow, each with a microhair ; all the declivital interstriae with sparse uniseriate tubercles of variable size except on interstria 2 where only a few at declivital base ; each tubercle with a comparatively long hair ; apex with 3 large pointed tubercles from the interstriae 2 to 4.

(ii) *Male* : Unkonwn.

(c) *Distribution.*—ANDAMAN ISLANDS : North, Middle and South Andamans (Blandford, 1896). ELSEWHERE : India, Nepal, Sri Lanka, Burma, Malaya, Indonesia (Java, Sumatra and Buru Isl.), Philippines, Vietnam, Thailand, New Guinea, Goodenough Isl., New Britain, Solomon Isl., Fiji Isl., Tahiti Isl. and Australia.

(d) *Remarks.*—This species has a wider range of distribution as compared to that of the other species, *X. andrewesi* Blandford, found in Andamans. From the allied species, it can easily be separated by the presence of about three teeth on the postero-lateral margins of the declivity at apices of interstriae 2 to 4. It has been collected from the logs of *Canarium euphyllum* and *Artocarpus chaplasha* in Andamans. It is also known to be associated with many host-plants in India (Beeson, 1930) and in Malaya (Borwne, 1961). In spite of its close association with many economic plants including agricultural crops, destructive propensities are hardly considered important.

Genus : **Xyleborus** Eichhoff, 1864

Xyleborus Eichhoff, W. 1864. *Berl. ent. Z.*, **8** : 57, *Type-species* : *Bostrichus monographus* Fabricius ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 97 ; Hopkins, A.D. 1914. *U. S. nat. Mus. Proc.*, **48** : 131 ; Schedl, K. E. 1962. *Rev. Ent. Moc.*, **5** (1) : 102 ; Bright, D. E. 1968. *Canad. Ent.*, **100** (12) ; 1296 ; Wood, S. L. 1980. *Gt. Basin Nat.*, **40** (1) : 96.

Anisandrus Ferrari, J. A. 1867 *Die Forst. und Bauméuchtschadlichen Bokdnkéfer*, Wien, pp. 24-26, 82, *Type-species* : *Apate dispar* Fabricius.

Anaeritus Duge's E. 1888. *Ann. Soc. Ent. Belge*, **31** : 140, *Type-species* : *Anaeritus guanajuatensis* Duge's.

Progenius Blandford, W.F.H. 1896. *Ann. Soc. Ent. Fr.*, **65** : 20, *Type-species* : *Progenius fleutiauxi* Blandford.

Cyclorhipidion Hagedorn, M. 1912. *Dt. ent. Z.*, p. 355-356, *Type-species* : *Cyclorhipidion pelliculosum* Hagedorn=*Xyleborus perlaetus* Schedl.

Heteroborips Reitter, E. 1913. *Wien ent. Ztg.*, **32** (2) : 79, 82, *Type-species* : *Bostrichus cryptographus* Ratzeberg.

Xyloboriops Reitter, E. 1913. *Wien. ent. Ztg.*, **32** (2) : 111, *Type-species* : *Xyleborus meuseli* Reitter.

Terminalinus Hopkins, A.D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 57, *Type-species* : *Terminalinus terminaliae from* Philippines.

Boroxylon Hopkins, A.D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 58, *Type-species* : *Boroxylon stephegynis* = *Phloeotrogus bidentatus* Motschulsky.

Bufonus Eggers, H. 1919. *Ent. Blatt.*, **15** : 231, *Type-species* : *Bufonus obscurus* Eggers from Africa.

Xyleborus Eichhoff is a common and diverse genus containing a wide variety of heterogeneous groups of species occurring throughout the world except in the Northern coniferous forests. As much, it has a confused history since its inception in 1864 by Eichhoff with inclusion of a number of species including *Bostrichus monographus* Fabricius. This species was subsequently designated as the type of the genus by Hopkins, 1915. However, uptil now the genus has been either splited into numerous genera or a number of genera have been synonymised under it by Schedl (1951/52 and 1962). Even so, some of the authors, like Hagedorn (1910), Schedl (1957), Browne (1961) recognised many species-groups of subgenera under it. The detailed discussion here is certainly beyond the scope of this present account dealing with some insular fauna only. However, the generic concept and classification of the tribe Xyleborini recently proposed by Wood (1980) has been followed here. Some 11 species have been recognised in the present study from the islands of Andaman and Nicobar.

34. **Xyleborus bicolor** Blandford

Xyleborus bicolor Blandford, W.F.H. 1894. *Trans. ent. Soc. Lond.*, pp. 113-114, Female, *Type-locality* : Nagasaki, Japan ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 51, India (Middle Andaman, Uttar Pradesh, West Bengal and Assam), Bangladesh and Japan ; Beeson C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 303 p., India to Burma ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 147-148, Oriental and Japan ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 47-48.

Xyleborus subparallelus Eggers, H. 1940. *Tijdschr. Ent.* **83** : 151-152, Female and Male, *Type-locality* : Java, Indonesia ; Browne, F. G. 1948. *Ann. Mag. nat. Hist.*, **12** (1) : 908-909, Male, Malaya.

Xyleborus rameus Schedl, K. E. 1940. *Ann. Mag. nat. Hist.*, **5** (11) : 441-442, *Type-locality* : Luzon, Philippines.

(a) *Material.—Identified* : 2 Females from Middle Andaman, *B. M. Bhatia coll.*, 9.xii.1928, ex. "*Myristica andamanica*"

(b) *Description.*—(i) *Female* (Fig. 29, a-d) : Body long and cylindrical ; head and pronotum reddish brown, elytra blackish brown, antennae and legs rather yellowish. Body length 1.75-1.85 mm, 3.1 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons weakly convex, medially weakly elevated without any distinct median line, surface finely reticulate with a few deep as well as shallow punctures and with few long erect hairs ; fringe of hairs at epistomal margin rather sparse. Eyes elongate, one third of its width divided by emargination. Antennal scape short and

stout ; funicle with 5 segments ; club obliquely truncate, on anterior face, basal corneous portion reaching almost to half with substraight apical margin, truncated face with two distinct sutures ; posterior face with one suture apically.

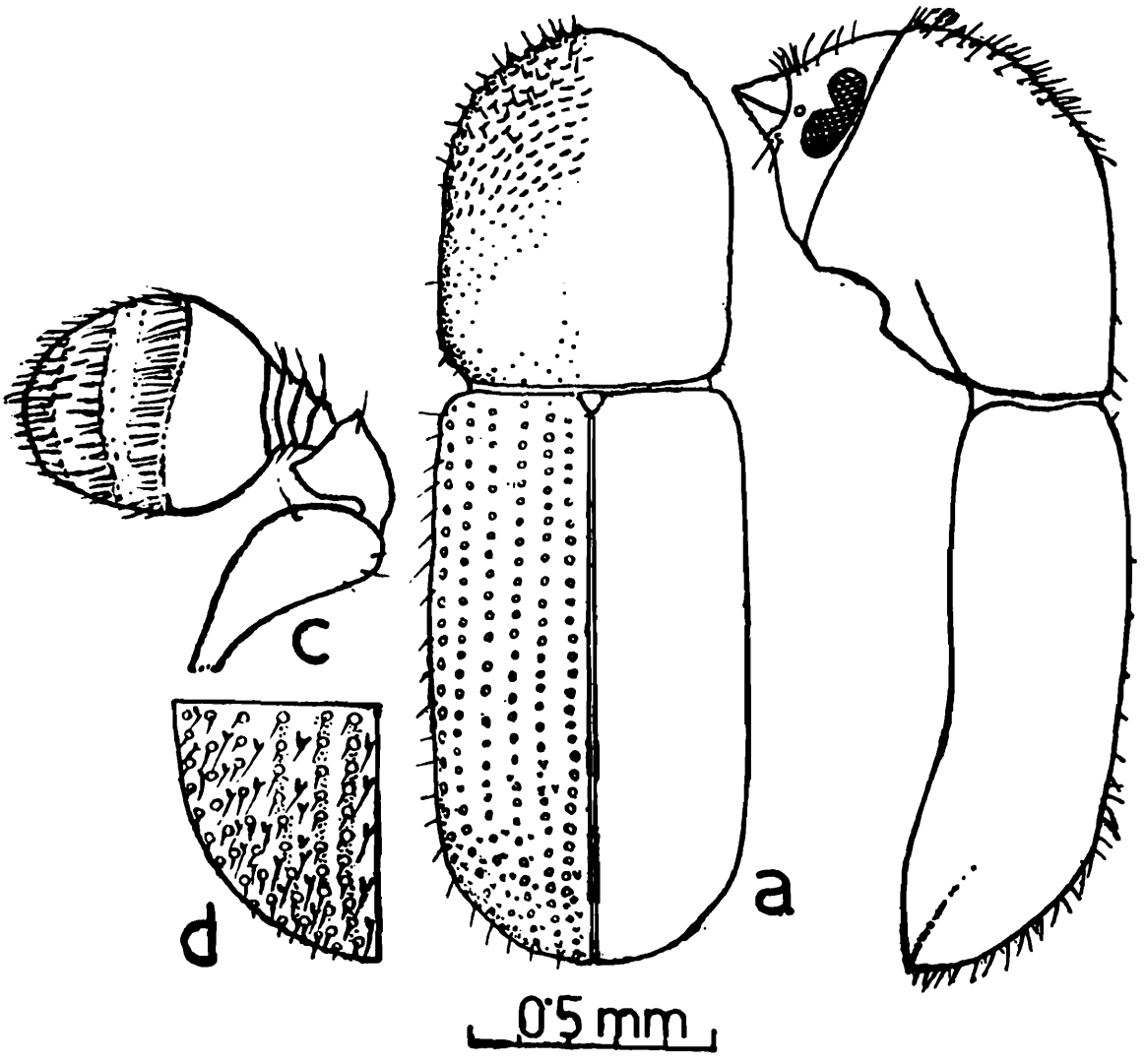

Fig. 29. a-d, *Xyleborus bicolor* Blandford, Female : a, Dorsal view ; b, Lateral view ; c, Antenna ; d, Enlarged view of elytra declivity.

Pronotum 1.2 times as long as wide ; basal margin substraight ; lateral sides subparallel up to basal two-thirds ; anterior margin broadly rounded and unarmed ; summit on anterior third ; anterior one-third with weak asperities, few extending laterally, having long erect hairs ; posterior two-thirds smooth, with fine small punctures, hairs on anterior third distinct, posteriorly inconspicuous.

Scutellum triangular.

Elytra 1.6 times as long as and as wide as pronotum, nearly twice as long as its width ; basal margin substraight ; lateral sides subparallel up to

basal two-thirds, thence weakly narrowing posteriorly and sutural apex weakly incurved ; disc flat, striae not so impressed, marked by small distinct punctures, each puncture having a microhair ; interstriae at least twice as wide as striae, punctures hardly visible, disc glabrous. Declivity commencing on posterior third ; face convex, postero-lateral margins acutely elevated, but not forming any uniform carina ; strial punctures with microhairs; all the declivital interstriae with sparse uniseriate long setiferous granules, except interstria 2, those on interstriae 1 and 3 rather distinct. Procoxae contiguous, pro- and meta-tibiae with 6 and 7 teeth respectively.

(ii) *Male* : No male is available in the material under study.

(c) *Distribution.*—ANDAMAN ISLANDS : Middle Andaman (Beeson, 1930). ELSEWHERE : India, Philippines (Luzon), Malayasia, Burma, Indonesia (Java and Borneo), Japan, Samoa and Fiji Island.

(d) *Remarks.*—This is a widely distributed species from India to Japan and Fiji including many localities in the intervening areas. It is associated with about a dozen of host-logs in India and Burma including *Myristica andamanica* from which the Andamanese population has been recorded (Beeson, 1941).

35. **Xyleborus bidentatus** (Motschulsky)

Phloeotrogus bidentatus Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** (2) : 514, Female, *Type-locality* : India.

Xyleborus riehli Eichhoff, W. 1878. *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 346-347, Female, *Type-locality* : Celebes ; Eggers, H. 1930. *Indian Forest Rec.*, **14** (9) : 14, Male ; Browne, F. G. 1961. *Malay. Forest Rec.* no. 22, p. 139.

Progeniun laeviusculus Blandford, W.F.H. 1896. *Ann. Soc Ent. Fr.*, **65** : 21-22, Female, *Type-locality* : Indochina.

Xyleborus (*Progenius*) *laeviusculus* (Blandford), Stebbing, E.P. 1914. *Indian Forest Insects* (*Coleopt.*), p. 602, Beeson, C.F.C. 1922. *Indian Forester*, **48** : 498.

Boroxylon stephegynis Hopkins, A.D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 85, Female, *Type-locality* : Mindoro, Philippines ; Schedl, K. E. 1952.

Ent. Blatt., **47/48** : 162 (Synonymy).

Xyleborus brevidentatus Eggers, H. 1930. *Indian Forest Rec.* (*Ent.*), **14** (9) : 14-15, *Type-locality* : Andaman Island, India ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 52 ; Schedl, K. E. 1952. *Ent. Blatt*, **47/48** : 188, (Synonymy).

Xyleborus bidentatus (Motschulsky), Eichhoff, W. 1879. *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 505, Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 52, North Middle and South Andaman ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 303 p., Andamans ; Wood, S. L. 1961. *Insects of Micronesia*, **18** (1) : 54-55 ; Schedl, K.E. 1971. *Steenstrupia*, **1** : 148, Nicobar Isl.

(a) *Material.*—A. *Identified* : (i) 9 Females from North Andaman, *C.F.C. Beeson coll.*, 9.iii.1930, ex. "*Terminalia procera*"; (ii) 4 Females from North Andaman, *B. M. Bhatia coll.*, 2.xii.1928, ex. "*Mimusops litoralis*" ; (iii) 21 Females, Long Island, Middle Andaman, *C. F. C. Beeson coll.*, 1930, ex. "unknown wood" ; (iv) 5 Females from Chatham, South Andaman, *B. M. Bhatia coll.*, 5.xii.1928, ex. "*Terminalia bialata*" B. *unidentified* : (v) 2 Females from Wright Myo, South Andaman, *B. N. Nandi coll.*, 22.x. 1981, "under sapwood of Mangrove log"

(b) *Description.—Female* (Fig. 30, a-b) : Body elongate, moderately tapering towards apex ; colour blackish brown to completely black, antenna and legs rather yellowish brown. Body length 3.5-3.7 mm, 2.5 times as long as wide.

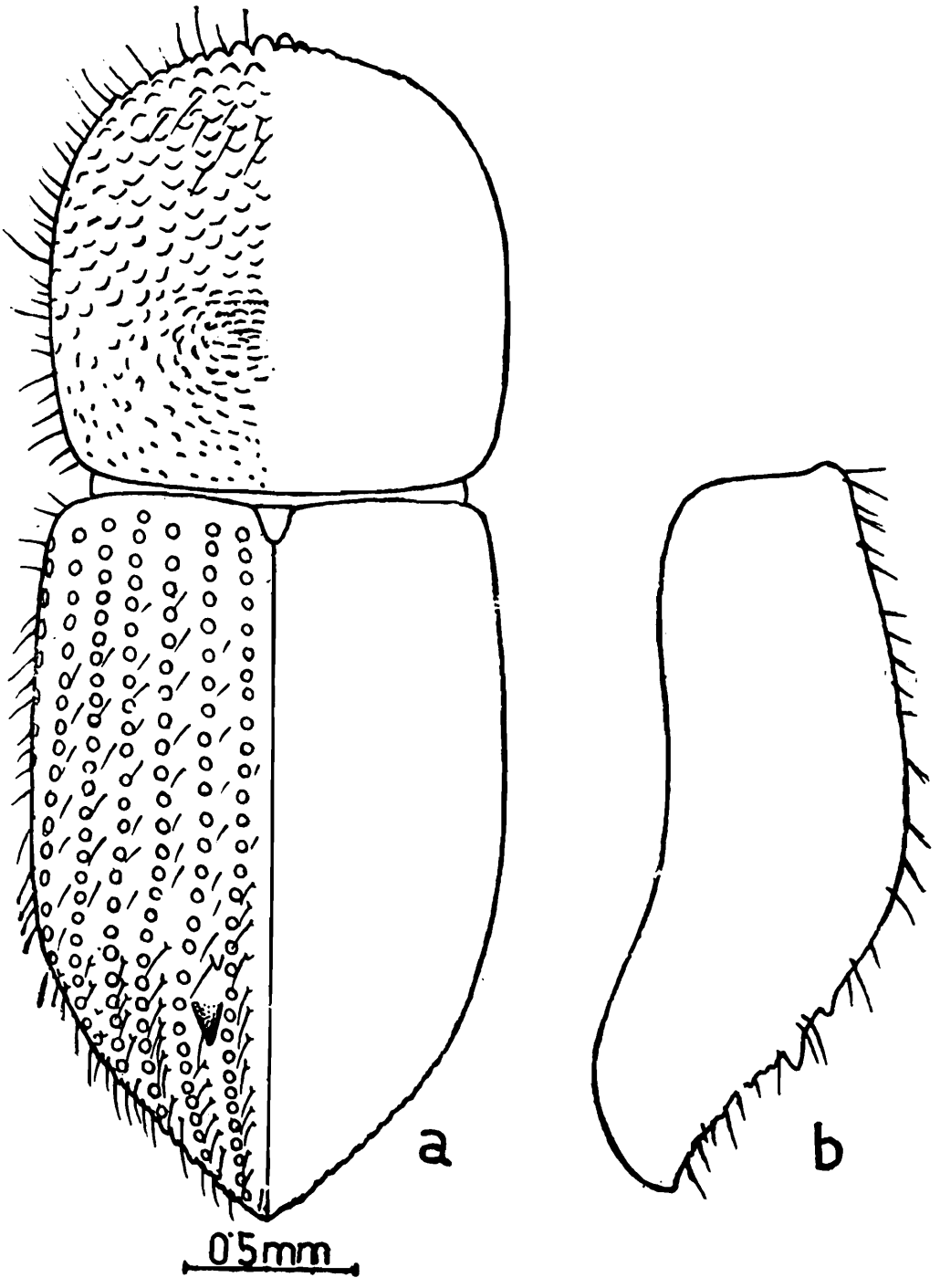

Fig. 30. a-b, *Xyleborus bidentatus* (Motschulsky), Female : a, Dorsal view ; b, Lateral view of elytra.

Head subglobose, only weakly narrowing anteriorly ; frons moderately convex, with a transverse depressed area above epistoma on either side of median line ; surface finely reticulate, with large deep, close punctures and sparse long hairs ; epistomal margin with fringe of sparse hairs. Eyes oval and very shallowly emarginate. Antennal scape long ; funicle with 5 segments ; club obliquely truncate, on anterior face, basal corneous portion, with substraight apical margin ; on truncated face, segment 2 distinct ; posterior face with two distinct sutures.

Pronotum subquadrate, nearly as long as wide ; basal margin substraight ; lateral margins slightly outcurved and widest at the middle ; antero-median portion slightly produced bearing 6-7 weak asperities ; in profile, dorsal surface very convex, summit transverse and distinct at middle ; anterior declivous portion with transverse coarse asperities in conscentric rows gradually becoming feeble postero-laterally and also extending below the summit ; post portion coarsely reticulate with few granules ; throughout pronotal surface with sparse long erect hairs.

Scutellum large, smooth, shiny and subrounded.

Elytra 1.7-1.8 times as long as and nearly as wide as pronotum, 1.6 times as long as its width ; basal margin of each elytron moderately outcarved ; lateral margins subparallel up to the middle, thence slightly diverging and again coverging posteriorly into a somewhat tapering apex ; discal striae moderately impressed, punctures large and shallow, irregular in shape ; interstriae broader than striae, weakly convex, surface coarse with irregular punctures with inconspicuous sparse hairs. Declivity convex, rather steep, commencing almost from middle of elytra ; strial punctures more distinct, closer and with microhairs ; interstriae rather weakly convex with granules and erect hairs throughout ; interstria 2 with a large sharply pointed tubercle. Procoxae contiguous, protibiae with 3-4 and mesotibiae with 7-8 teeth.

(ii) *Male* : Not available in the material under sutdy.

(c) *Distribution.*—ANNDAMAN AND NICOBAR ISLANDS : Andaman Isl. : North, Middle and South Andamans (Stebbing, 1914, Beeson 1930) ; Nicobar Isl. (Schedl, 1971). ELSEWHERE : India (West Bengal), Burma, Malaya, Indonesia (Borneo, Java, Sumatra, Sumbawa and Celebes), Philippines, East Africa, Madagascar and Australia.

(d) *Remarks.*—The species can easily be separated from all other members of the genus *Xyleborus* found in these islands by its characteristic features of strongly tapering elytral apex ; declivital interstriae 2, each

bearing one stout tubercle and pronotum with prominent transverse asperities running much below the summit. Since its first description from India as early as in 1963, it remains as a valid species occurring mostly in the coastal and mangrove areas in the tropics. Following synonymy of a number of species under it, the distribution range has much been enlarged now.

In Andamans, *X. bidentatus* was first recorded by Stebbing (1914). Later on, another species *X. brevidentatus* was described from the Andamans by Eggers (1930) which was subsequently synonymised under this species by Schedl (1952). Recently, Schedl (1971) reported the species from Nicobar also. Beeson (1941) referred to the species as a large pinhole borer of *Mimusops littoralis* and *Terminalia bialata*. *Terminalia procera* is another host species from which it is recorded here for the first time.

36. **Xyleborus cognatus** Blandford

Xyleborus cognatus Blandford, W.F.H. 1896. *Ann. Soc. Ent. Fr.*, **65** : 19-20, Female, *Type-locality* : Saigon, Vietnam ; Hagedorn, M. 1912. *Rev. Zool. Afr.*, **1** (3) : 344, Male, Sri Lanka ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 53, North, South and Middle Andamans ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 303 p., India (Sundarbans) to Malaya ; Browne, F.G. 1961. *Malay. Forest Rec.*, No. 22, p. 144. Malaya ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 49.

(a) *Material.*—A. (i) 7 Females from Bonington, North Andaman, *C. F. C. Beeson coll.*, 12.iii.1930, ex. "*Rhizophora mucronata*" ; (ii) 2 Females from Stewart Sound, North Andaman, *C. F. C. Beeson coll*, iii-1930 ; (iii) 2 Females from North Andaman, *C. F. C. Beeson coll.*, 11.iii.1930, ex. "Seeds of *Bruguiera gymnorhiza*" ; (iv) 17 Exs. from North Andaman, *B. M. Bhatia coll.* as follows : 2 Females, 3.ii.1929, ex. "*Pterocarpus dalbergioides*" ; 1 Female, 11.iii.1930, ex. "*Dipterocarpus turbinatus*" ; 3 Females, 6.ii. and 2.viii.1929, ex. "*Rhizophora mucronata*" ; 6 Females, 18.xii.1928, ex. "*Mimusops littoralis*" ; 5 Females, 16.xii.1928, ex. "*Diospyros oocarpa*" ; (v) 10 Females from Long Island, Middle Andaman, *C.F.C. Beeson coll.*, 1930, ex. "unknown wood" and "*Sterculia campanulata*" ; (vi) 14 exs. from Chatham, South Andaman, *C. F. C. Beeson Coll.* 1930. 8 Females, ex. "*Canarium euphyllum*" ; 5 Females, ex. "*Terminalia bialata*", and 1 Female ex. "*Sterculia campanulata*" ; (vii) 10 exs., Chatham, South Andaman, *B. M. Bhatia coll.*-9 Females 4.iii.1930, ex. "*Bombyx insigne*" and 1 Female, 22.xii.1928, ex. "*Terminalia bialata*"

B. *Identified* (as *X. adumbratus* Blandford) : (i) 34 Females, Chatham, South Andaman ; *B. M. Bhatia coll.*, 24.xii.1928, ex. "*Terminalia bialata*" ; (ii) 9 Females from Andaman Island, 16.xii.1930, ex. "*Pterocarpus dalbergioides*"

C. *Unidentified* : 4 Females from Choldhari, South Andaman, *B. N. Nandi coll.*, ex. "*Planchonia andamanica*"

D. 1 Female from Dilanipur, Port Blair, South Andaman, *B, N, Nandi coll.*, 13.x.1981, ex. "at light"

(b) *Description.*—(i) *Female* (Fig. 31, a-b) : Body moderately long and cylindrical ; light brown to reddish brown in colour, elytral apex comparatively darker. Body length 3.00-3.45 mm, nearly 3 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons weakly convex, a little depressed above the epistoma ; surface coarsely reticulate with close, scattered large punctures and with erect hairs. Eyes elongately oval, nearly one-third of its width angularly emarginate. Antennal scape club-shaped ; funicle with 5 segments ; club obliquely truncate ; on anterior face, basal corneous portion reaching beyond half with substraight apical margin ; truncated face with two distinct sutures ; posterior face with one suture apically.

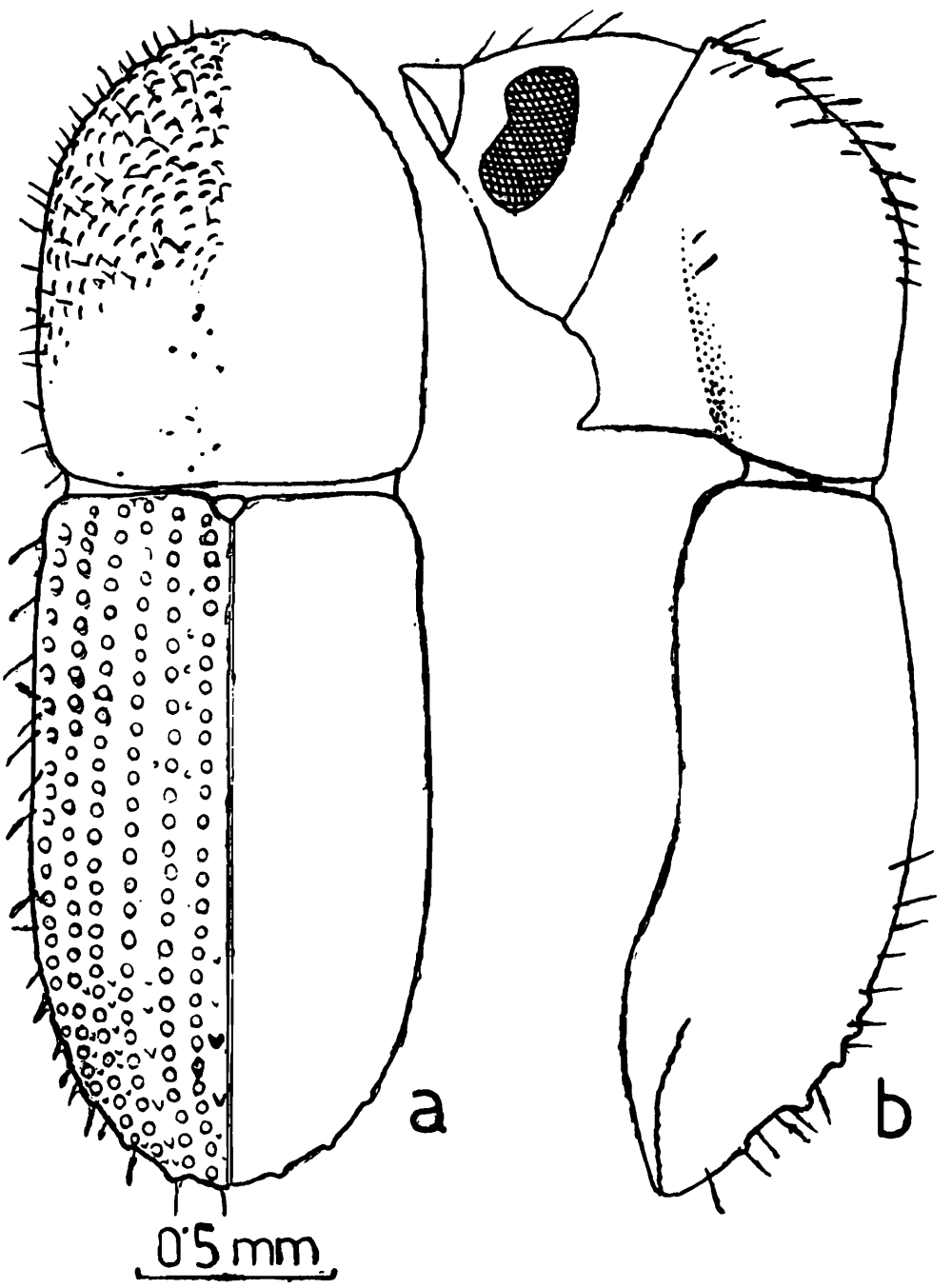

Fig. 31. a-b, *Xyleborus cognatus* Blandford, Female : a, Dorsal view ; b, Lateral view.

Pronotum as long as wide or slightly longer ; basal margin very broadly and lateral margins feebly outcurved ; anterior margin broadly rounded and unarmed ; in profile, dorsal margin almost straight up to middle whence sloping anteriorly with feebly convex surface ; declivous portion with small, but distinct asperities gradually becoming larger towards apex, asperities minute extending postero-laterally also ; posterior half smooth and shiny with fine scattered punctures ; declivous area with long erect hairs and also a few laterally.

Scutellum moderate in size, smooth and shiny ; nearly triangular in shape.

Elytra 1.6 times as long as and as wide as pronotum and 2 times as long as its width ; basal margin substraight with distinct humeral callus on interstria 7 ; lateral sides subparallel up to basal two-thirds, thence weakly narrowing posteriorly with rounded apex ; disc somewhat flat, striae not impressed, but marked by distinct shallow closely set punctures ; interstriae slightly wider than striae with irregular small setiferous punctures as well as with a few minute granules prominent at commencement of declivity, particularly more prominent on interstria 1. Declivity commencing at elytral posterior third, face plano-convex and roughened ; postero-lateral sides with elevated intercepted margins bearing fine granules, but without any carina ; strial lines displaced with irregular large punctures ; interstriae 1 and 3 with a few broad-base tubercles and others with comparatively shorter ones ; interstria 2 devoid of any granules and tubercles within the declivity ; all interstriae with sparse erect hairs. Procoxae contiguous ; pro- and meta-tibiae with 5 and 6 teeth respectively.

(ii) *Male* : No male is available in the material studied.

(c) *Distribution.*—ANDAMAN ISLANDS : North, Middle and South Andamans (Beeson, 930). ELSEWHERE : India (Wst Bengal, Uttar Pradesh, Bihar and Orissa), Sri Lanka, Burma, Malaya, Indonesia (Java, Borneo and Sumatra), Philippine Islands, Indo-china, New Guinea, Bougainville Island and Australia.

(d) *Remarks.*—Stebbing (1914) reported *Xyleborus adumbratus*, a species originally described from Japan by Blandford (1894), as a borer of Padauk in the Andamans. Beeson (1930) considered this Padauk borer as *Xyleborus vicarius* Eichhoff, a species also originally described from Japan. While dealing with the *vicarius* of Andamans, Beeson (1930) is of opinion that "X. *cognatus* should rank as a subspecies of *vicarius*, but for practical purposes they must be distinguished" But, Schedl (1966)

synonymed X. *vicarius* under another species, X*yleborus torquatus*, a widely distributed species around the tropics. More recently, the same author in 1971 reported the occurrence of *X. torquatus* Eichhoff from the Car Nicobar Island.

In the present study, the representative material of all these species except X. *torquatus*, from the Andamans and Nicobar present in F. R. I. collection, have been examined. It becomes very difficult to isolate them at least in the material from these islands on the basis of their taxonomic characters. The variations in size and colour may act as a clue, but always intergrades in large populations in the same or different colonies. The species *X. torquatus* is unknown to us. Under such circumstances, all the material represented from the islands have been considered as *X. cognatus*, except those from Car Nicobar. Until further collection and study, the presence of *X. torquatus* reported by Schedl (1971) from the Car Nicobar has been accepted as valid in the present account.

X*yleborus cognatus* is a fairly common species infesting the logs and seeds of majority of mangrove plants including some other host-plants in the Andamans. The species is found predominantly in the coastal swamps of many territories from Sundarbans (India) to Fiji island. Beeson (1930 and 1941) reported the species from about 16 host-plants in India including Andamans. In addition to some known host-plants in Andamans, it has been collected from *Bruguiera parviflora* and *Planchonia andamanica* for the first time. Biology of the species is fairly well studied by Browne (1961) in Malaya.

37. **Xyleborus corpulentus** Eggers

Xyleborus corpulentus Eggers, H. 1930. *Indian Forest Rec.* (*Ent.*), **14** (9) : 22-23, Female and Male, *Type-locality* : Lakhimpur, Assam, India ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 55, North and Middle Andamans, and Assam ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 303 p., Assam to Andaman ; Schedl, K. E. 1973. *Ent. Blatt.*, **69** (3) : 211, Nepal.

(a) *Material.*—(i) 35 Females and 7 Males from Middle Andaman, *B. M. Bhatia coll.*, 8.xii.1928, ex. "*Artocarpus chaplasha*" ; (ii) 6 Females from Middle Andaman, *B. M. Bhatia coll.*, 8.xii.1928, ex. "*Canarium euphyllum*" ; (iii) 16 Females from Middle Andaman, *B. M. Bhatia coll.*, 9.xii.1928, ex. "*Albizzia lebbek*"

(b) *Description.*—(i) *Female* (Fig. 32, a-b) : Body short and stout ; head, pronotum and elytra straw yellow to yellowish brown ; legs and

antennae slightly paler. Body length 2.90-3.05 mm, body twice as long as wide.

Head globose, slightly narrowing anteriorly ; frons plano-convex ; surface finely reticulate with distinct shallow sparse punctures and hairs ; epistomal margin with fringe of long erect hairs. Eyes broadly oval and almost half of its width emarginated. Antennal scape elongate ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with distinct recurved margin extending only up to basal third, truncate face with two more sutures, posterior face with one procurved suture almost near the apical margin.

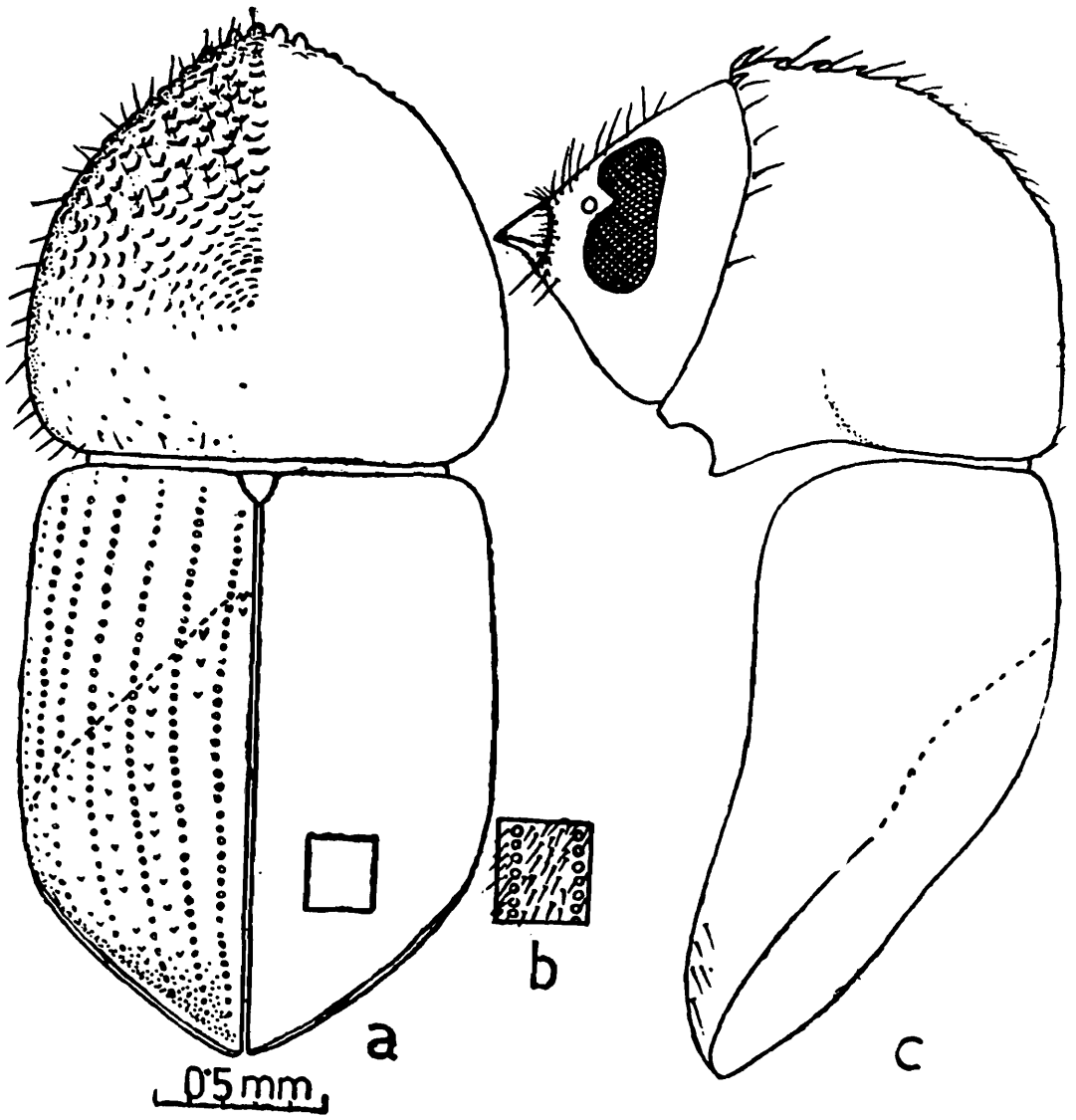

Fig. 32. a-c, *Xyleborus corpulentus* Eggers, Female : a, Dorsal view ; b, Enlarged view of elytral declivity ; c, Latéral view.

Pronotum globose, nearly 1.2 times as broad as long ; basal margin substraight, postero-lateral angles broadly rounded ; sides bulging out and converging anteriorly terminating into angular projection, armed with

5-6 asperities ; in profile, dorsal margin almost straight up to middle, whence strongly declivous anteriorly ; declivous portion pilose and armed with distinct triangular asperities in concentric rows, gradually increasing in size toward apex ; posterior half shiny, finely reticulate and punctate, without having any conspiucous hairs except a few on basal margin.

Scutellum smooth and shiny ; elongately tongue shaped.

Elytra 1.46 times as long as and as wide as pronotum, 1.2 times as long as its width ; basal margin substraight ; lateral sides subparallel up to basal two-thirds, then coverging posteriorly into an angular apex, postero-lateral angles carinate up to interstria 7 ; elytral disc feebly convex, striae marked by close fine punctures ; interstriae more than 4 times as wide as striae, surface flat with irregular punctures and inconspicuous hairs. Declivity commencing almost on basal fifth, surface opaque, flatly concave on apical half ; striae with irregular small punctures ; declivital interstriae weakly convex, except 1 and 2 ; interstria 1 narrowest, interstriae 1 and 2 only with a few granules at commencement of declivity, rest of the interstriae with uniseriate row of distinctly placed granules up to apex ; entire surface with dense coat of minute hairs and a few long hairs along lateral sides. Procoxae contiguous, protibiae with 5 teeth and meso- and meta-tibiae with 6-7 teeth.

(ii) *Male* : Males are very similar to females in overall external characters except as follows :—Body reduced, small and stout ; body length 1.90-2 mm, 1.7 times as long as wide. Frons with shallow punctures on reticulate surface and eyes feebly emarginate. Pronotum uniformly convex from base to apex ; anterior margin weakly produced but unarmed ; anterior half with transverse asperities, inconspicuous long erect hairs anteriorly and laterally.

Elytra as in female, but strial and interstrial punctures very shallow. Declivital interstriae 1, 2 and 3 with small tubercles, those on interstria 2 only at declivital basal half and those on 1 and 3 obsolete towards apex ; other interstriae with sparse granules ; postero-lateral margins distinctly carinate and elevated ; hairs inconspicuous.

(c) *Distribution.*—ANDNMAN ISLANDS : North and Middle Andamans (Beeson. 1930). ELSEWHERE : India (Assam) and Nepal.

(d) *Remarks.*—The specimens studied from the island of Andaman are slightly larger in size and having wider pronotum than the material on which the species was based.

In males, specimens from Andamans have more larger granules on the elytral declivity than those in the females.

The species has been recorded here from the hosts of *Artocarpus chaplasha*, *Canarium euphyllum* and *Albizzia lebbek* from Middle Andaman which have been already reported by Beeson (1941). It also occurs in the Himalayas in Nepal.

38. **Xyleborus criticus** Schedl

Xyleborus criticus Schedl., K. E. 1950. *Ann. Mag. nat. Hist.*, 3 (12) : 899-900, Female, *Type-localities* : Port Blair, Andaman, India and Manila, Philippine ; Schedl, K. E. **1966**. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 50, India : Andaman ; Philippines and Indonesia : Java.

(a) *Material.*—Since no material is available for study, the following morphological characters are based on the original description of the species.

(b) *Description.*—(i) *Female* : Body colour reddish brown, 2.04-2.20 mm long ; 2.63 times as long as wide.

Frons broadly convex, with small and large punctures. With indications of a longitudinal median carina.

Pronotum slightly longer than broad ; postero-lateral angles rounded; sides subparallel, weakly arcuate on the basal half, broadly rounded in front ; summit almost in middle, anterior area moderately convex and densely finely asperate ; basal area brightly shining with some extermely fine punctures and with sparse pubescence.

Scutellum small, triangular and shining.

Elytra almost 1.5 times as long as and as wide as pronotum ; sides parallel nearly up to basal three-fifths, apex moderately broadly rounded ; disc shining, striae subimpressed with row of punctures ; stria 1 more impressed and others towards declivity ; interstriae each with a row of remotely placed punctures. Declivity commencing behind the middle, declivital face steep ; interstria 1 bearing 3-4 small granules ; interstria 2 with a few similar ones above, none below ; interstria 3 similar to first, but the granules distinctly larger, pubescence arising from the interstrial punctures and granules respectively abraded on the disc.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLANDS : Port Blair. (Schedl. 1950). ELSEWHERE : Philippines (Manila) and Indonesia (Java).

(d) *Remarks.*—The species is so far known only from two distant isolated insular areas of the Andamans and Philippines. Since its description, the species is unknown from anywhere else.

39. **Xyleborus haberkorni** Eggers

Xyleborus haberkorni Eggers, H. 1920. *Ent. Bl. Biol. Syst. Kafer*, **16** : 43, Female, *Type-locality* : Dutch east Africa : Amani ; Beeson, C.F.C. 1930. *Indian Forest Rec. (Ent.)*, **14** (10) : 61, India, Sri Lanka, Burma and East Africa ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 609, Oriental and Ethiopean Regions.

(a) *Material.*—(i) 6 Females from Andaman Isl., 19-25.iii.1930, ex. "unknown climber" ; (ii) 1 Female from North Andaman, *C. F. C. Beeson coll.*, 8.iii.1930, ex. "unknown climber"

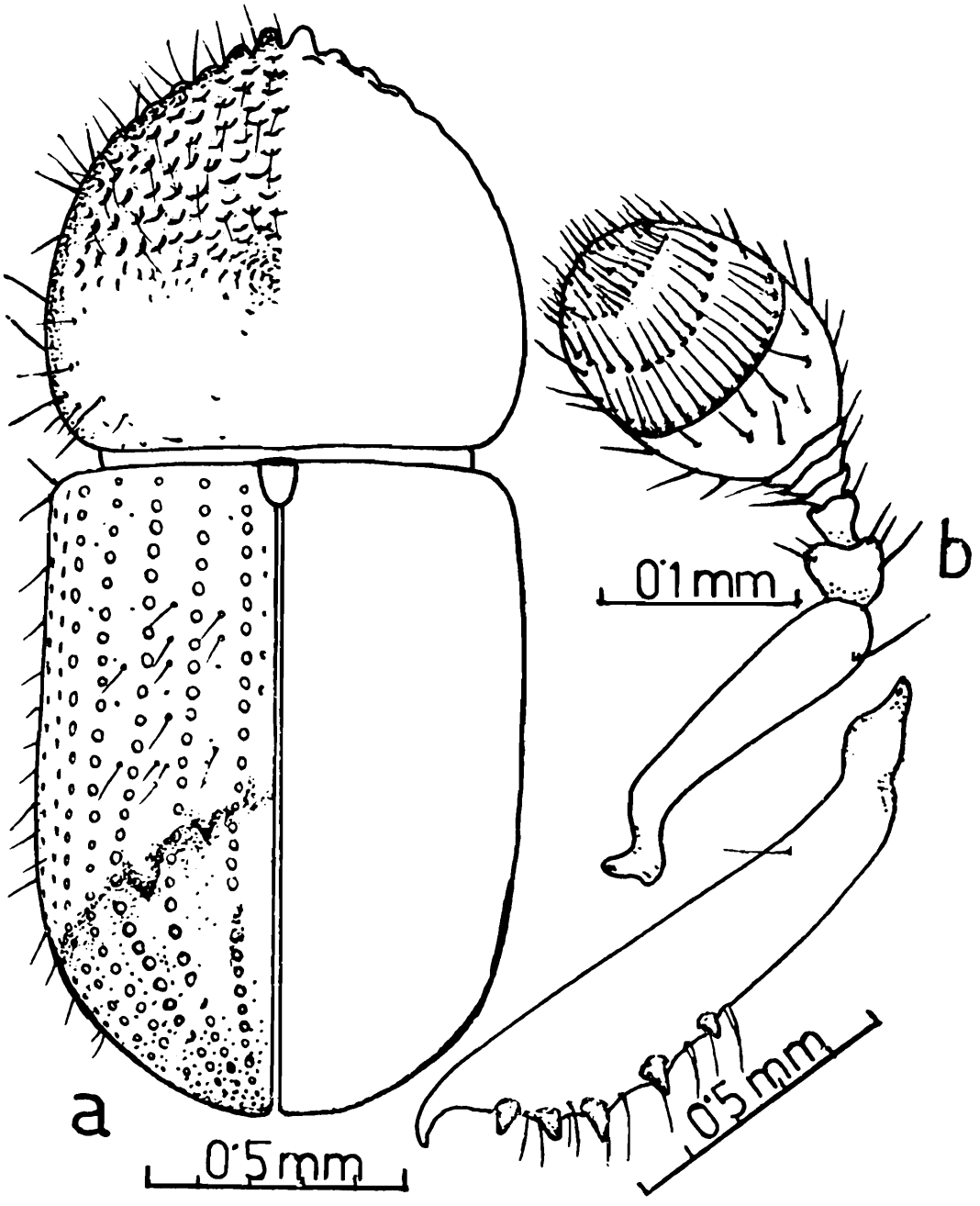

Fig. 33. a-c, *Xyleborus haberkorni* Eggers, Female
a, Dorsal view ; b, Antenna ; c, Protibia.

(b) *Description.*—(i) *Female* (Fig. 33, a-c) : Body short and stout ; head, pronotum and elytra light brown, elytral apex comparatively darker ; antennae and legs yellowish brown. Body length 2.00-2.15 mm ; 2.2 times as long as wide.

Head globose ; frons flatly convex with sparse thin hairs, surface reticulate with distinct punctures and without any median line ; epistomal margin with fringe of long hairs. Eyes elongately oval and emarginate almost half of width. Antennal scape elongate ; funicle with 5 segments ; club obliquely truncate, segment 1 corneous ; on anterior face, basal corneous portion with recurved apical margin forming a complete ring ; truncated face with one distinct sutural line marked by setae ; posterior face without any suture.

Pronotum subquadrate in shape, 1.1 times as wide as long ; basal margin substraight ; lateral sides subparaell up to half ; anterior margin broadly rounded ; in profile, dorsal surface moderately convex with a distinct summit at the middle ; anterior margin with four distinct asperities, median two more prominent ; anterior half with distinct asperities and recumbent hairs ; posterior half finely reticulate with minute punctures.

Scutellum smooth, shiny and nrearly tongue-shpaed.

Elytra 1.52 times as long as pronotum and 1.33 times as long as its width ; lateral sides subparallel up to basal three-fourths then converging posteriorly with distinct postero-lateral carinae and narrowly rounded apex; discal striae weakly impressed and marked by distinct punctures ; interstriae smooth with uniseriate punctures, nearly twice as wide as the striae. Declivity obliquely sloping with plano-convex surface and commencing almost from the middle ; two large broad-based tubercles on interstriae 2 and 3 at the commencement of declivity ; declivital striae much impressed and marked by comparatively large punctures ; interstriae weakly convex, specially towards apex with a few minute granules ; elytral surface without any conspicuous hairs. Procoxae closely placed ; protibiae with 5-6 and mesotibiae with 6-7 teeth.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISLAND : North Andaman (present record). ELSEWHERE : India (Uttar Pradesh, Assam and Tamil Nadu), Bangladesh, Burma, Sri Lanka, Malaya, Vietnam, Indonesia (Java), Taiwan and Tonkin. Originally found in Tanzania, but not recorded from Africa since then.

(d) *Remarks.*—Though the species is well known in many countries of the Oriental Region including India, it is not so far recorded from the insular areas of Andaman. In the present study, the species has been recorded only on two occasions in Andmans inhabiting some unknown climbers. Nothing particular is known about its biology in this insular area.

40. **Xyleborus lantanae** Eggers

Xyleborus lantanae Eggers, H. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 4-5, Female, *Type-locality* : Karnataka, India ; Kumar, A. and Chandra, A. 1977. *Oriental Ins.*, **11** (1) : 35, Female, West Bengal, India ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 68, Karnataka ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 306 p., India.

(a) *Material.*—1 Female from Little Nicobar, *Forest Entomologist coll.*, 1930, ex. "Chapati"

(b) *Description.*—(i) *Female* (Fig. 34, a-b) : Body fairly large and stout ; head, pronotum and elytra chestnut brown ; antennae and legs slightly paler. Body length 4.10 mm, 2.1 times as long as its width.

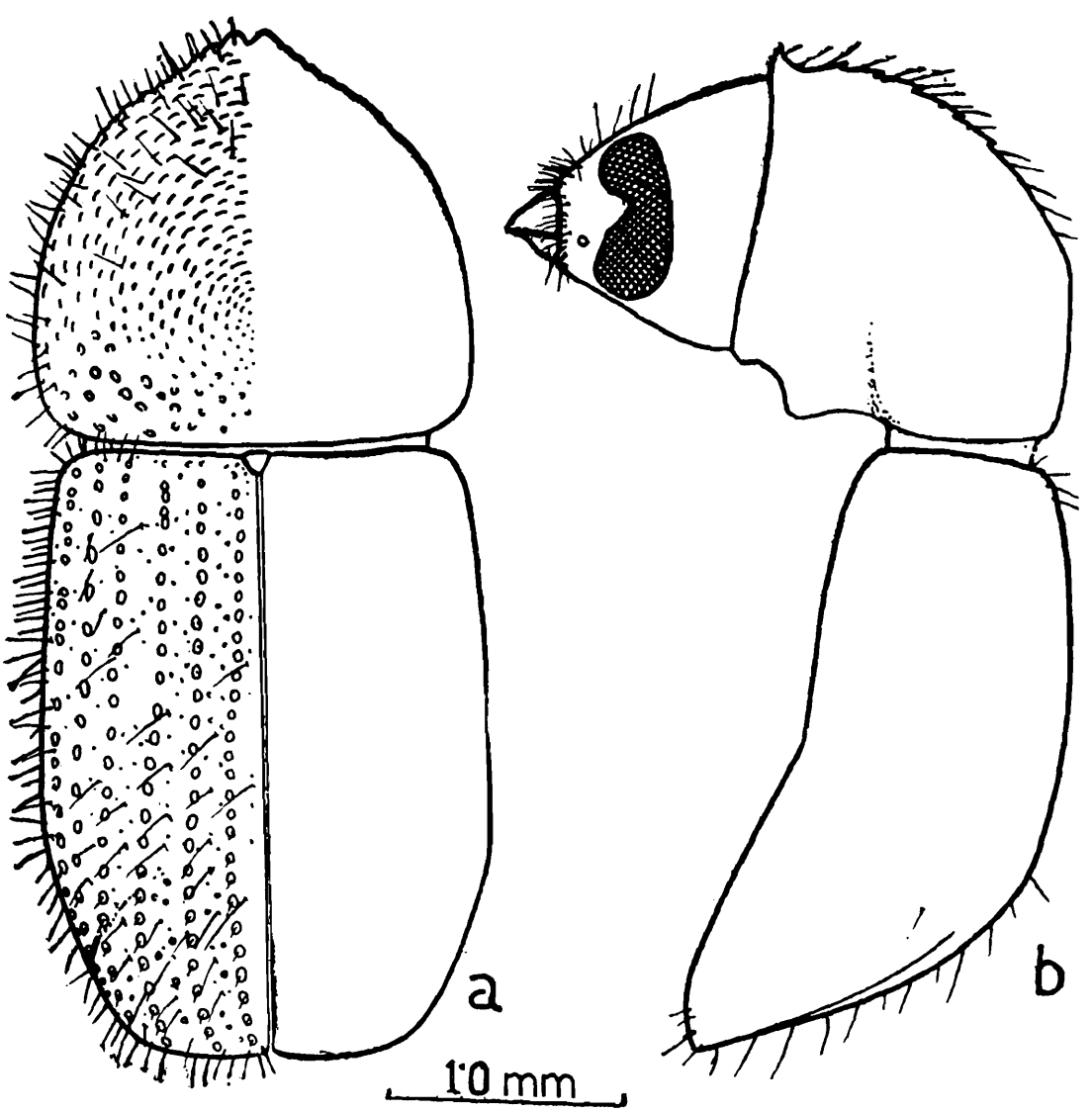

Fig. 34. a-b, *Xyleborus lantanae* Eggers, Female : a, Dorsal view ; b, Lateral view.

Head globose, moderately narrowing anteriorly ; frons weakly depressed at the upper level of eyes and just above the epistomal margin, area in between depressed area smooth and shiny ; surface weakly rugose, with deep punctures and with thin hairs ; epistomal margin with fringe of long erect hairs. Eyes large and elongately oval ; nearly half of width broadly emarginate. Antennal scape comparatively short and thin ; funicle with 5 segments ; club obliquely truncate ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with segment 2 distinct ; posterior face with two distinct sutures.

Pronotum 1.1 times as broad as long ; basal margin broadly outcurved ; postero-lateral angles obtuse ; lateral sides weakly outcurved and gradually converging anteriorly and terminating into a narrow projection accommodating a few asperities, of which two very prominent and contiguous ; in profile, dorsal margin declivous on anterior two-thirds, provided with small transverse asperities in concentric rows around indistinct summit ; asperities becoming larger anteriorly, elongate postero-laterally and granulate posteriorly ; a few small punctures along the basal margin ; declivous portion fairly densely hairy.

Scutellum smooth and shiny, distinctly triangular in shape.

Elytra 1.4 times as long as and as wide as pronotum, and 1.3 times as long as its width ; basal margin substraight ; lateral sides subparallel on basal two-thirds, then feebly narrowing posteriorly and terminating into a broadly rounded apex ; disc regularly convex ; striae very distinct but with small closely set punctures, devoid of microhair ; interstriae flat, much wider than striae with one to two irregular rows of small shallow punctures, having long, erect and sparse hairs. Declivity commencing slightly below the middle, declivital face flatly convex on anterior half and steep on posterior half ; postero-lateral sides somewhat margined ; striae distinctly marked by large, distinct punctures up to apex ; interstriae more flat with comparatively large punctures and sparse hairs. Procoxae contiguous ; protibiae abruptly cut apically with 7 teeth ; meso- and meta-tibiae with 9 teeth each.

(ii) *Male* : No male is available in the material at hand.

(c) *Distribution.*—NICOBAR ISLANDS : Little Nicobar (present record). ELSEWHERE : India (Karnataka and West Bengal).

(d) *Remarks.*—The species is very sparsely represented in the mainland of India and is recorded for the first time from 'Chapati' in the island of Little Nicobar. The species is reported from Karnatak, India, as a borer of dry portion of twings of *Lantana aculeata* killed by bark fungus.

41. Xyleborus perforans (Wollaston)

Tomicus perforans Wollaston, T. V. 1857. *Cat. Col. Madeira*, p. 96, Female and Male, *Type-locality* : Madeira Isl., Atlantic Ocean.

Bostrichus duponti Montorouzier, P. 1858. *Ann. Soc. ent. Fr.*, **1** (4) : 265, *Type-locality* : New Caledonia.

Bostrichus testaceus Walker, F. 1859. *Ann. Mag. nat. Hist.*, **3** (3) : 260, *Type-locality* : Sri Lanka ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 309 and 340 pp., Indo-Malayan to Australia and Africa.

Anodius tuberculatus Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** : 511, *Type-locality* : Sri Lanka ; Wood, S. L. 1969. *Gt. Basin Nat.*, **29** : 117 (Synonymy).

Xyleborus kraatzi Eichhoff, W. 1868. *Berl. ent. Z.*, **12** : 152, Female, *Type-locality* : Sri Lanka ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 65-66, India (North, Middle and South Andamans, Assam, Meghalaya, West Bengal, Bihar, Orissa, Karnataka, Madhya Pradesh, Tamil Nadu, Maharashtra, Punjab, Uttar Pradesh, Travancore and Goa), Sri Lanka, Burma and Bangladesh ; Hagedorn, M. 1910. *Colepot. Cat.*, **26** (4) : 108 (Synonymy).

Xyleborus immaturus Blackburn, T. 1885. *Trans. R. Soc. Dublin*, **3** : 192-194, *Type-locality* : Sandwich Island ; Perkin, C. L. 1900. *Fauna Hawaiiensis*, **2** (3) : 178, Male, Hawaii ; Schedl, K. E. 1941. *Hawaiian Ent. Soc.*, **11** (1) : 116 (Synonymised under X. *testaceus* Walker).

Xylopertha hirsuta Lea, A. 1893. *Proc. Linn. Soc. N.S. Wales*, **8** : 321, *Type-locality* : New South Wales.

X*yleborus perforans* (Wollaston), Hagedorn, M. 1910. *Coleopt Cat.*, **26** (4) : 108 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 63-65 ; Schedl, K. E. 1969. *Oriental Ins.*, **3** (1) : 54, India ; Schedl, K. E. 1975. *Revue suisse Zool.*, **82** (3) : 457, India.

(a) *Material.*—A. 27 Exs. from North Andaman,-(i) 6 Females, *B. M. Bhatia coll.*, 15-18.xii.1928, ex. "*Terminalia bialata*", (ii) 2 Females, *B. M. Bhatia coll.*, 31.i.-2.iii.1930, ex. "unknown climber" ; (iii) 11 Females, *C. F. C. Beeson coll.*, 11.iii.1930, ex. "seeds of *Bruguiera gymnorhiza*", (iv) 3 Females, *B. M. Bhatia coll.*, 15.xii.1928, ex. "*Rhizophora mucronata*", (v) 2 Females, Lakshmipur, 6 km. N.W. of P.W.D. Rest House, Diglipur, *B. N. Nandi coll.*, 23.xii.1979, ex. "*Terminalia procera*" (vi) 1 Female from Lakshmipur, 6 km. N. W. of P.W.D. Rest House, Diglipur, *B. N. Nandi coll.*, 19.xii.1979, ex. "*Parishia insignis*" (vii) 2 Females from Lakshmipur, Diglipur, *B. N. Nandi coll.*, 14.xii.1979, ex. "*Parishia insignis*"

B. 10 exs. from Middle Andaman, (viii) 2 Females, *B. N. Bhatia coll.*, 8.ii.1929, ex. "*Canarium euphyllum*", (ix) 8 Females, *B. M. Bhatia coll.*, 8. xii.1928-2.ii.1929, ex. "*Adenanthera pavonina*"; (x) 5 Females from Bakultala, *B. N. Nandi coll.*, 8.xii.1979, ex. "at light".

C. 40 exs. from South Andaman, (xi) 8 Females, Jaroacreak, 7 km. E. of Rest House, Baratang, *B. N. Nandi coll.*, 31.xii.1979-3.i.1980, ex. "*Terminalia procera*" and "*Canarium euphyllum*" ; (xii) 1 Female from Wright Myo, *T N. Khan and B. Mitra coll.*, 25.xi.1981, ex. "under bark of *Salmalia* log" (xiii) 2 Females from Haddo, *B. N. Nandi coll.*, 28.x.1981, ex. "*Planchonia andamanica*", (xiv) 12 Females from Chidiatappu, 16.x.1981, "at flight" ; (xv) 8 Females from Wimco Match Factory, Port Blair, *P. K. Maiti coll.*, 22.viii.1979, ex. "*Endospermum chinensis*" ; (xvi) 5 Females from Bimliton, *P. K. Maiti coll.*, 22.vii.1979, "under bark of unknown log" ; (xvii) 1 Male from Ferrargunj, *B. N. Nandi coll.*, 9.x.1981, ex. "fallen "*Pterocarpus dalbergioides* branch" ; (xviii) 4 Females from Alexandra Mangrove, *B. Mitra coll.*, 15.vi.1982, "at light"

D. 23 Exs. from Little Andaman.—(xix) 6 Females from 19 km logging centre, *B. Mitra coll.*, 2.vii.1982, ex. "under bark *Pterocymbium tinctorium*", (xx) 16 Females from 19 km logging centre, *B. Mitra coll.*, 2.viii.1982, "at light"

E. (xxi) 1 Female from South of Campbell Bay, Great Nicobar, *B. N. Nandi coll.*, 1.xii.1978, "under bark of Barsa log"

(b) *Description.*—(i) *Female* (Fig. 35, a-b) : Body fairly long and cylindrical ; head, pronotum and elytra light brown to reddish brown. Body length 2.10-2.35 mm, 2.80 times as long as wide.

Head globose, fairly strongly narrowing anteriorly ; frons convex with median weak smooth prominence ; surface rugosely reticulate with sparse deep punctures and sparse small hairs ; epistomal margin with dense fringe of hairs. Eyes elongately oval with more than one-third of its width divided by emargination. Antennal scape slender ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with two recurved sutures marked by hairs ; posterior face with one suture apically.

Pronotum 1.16 times as long as wide ; basal margin substraight: lateral sides straight and subparallel on more than basal half and anterior margin broadly rounded and unarmed ; summit in front of middle ; declivous portion with fine asperities ; posterior half finely punctate, smooth and shiny on postero-median portion ; pilosity inconspicuous.

Scutellum small and subrounded.

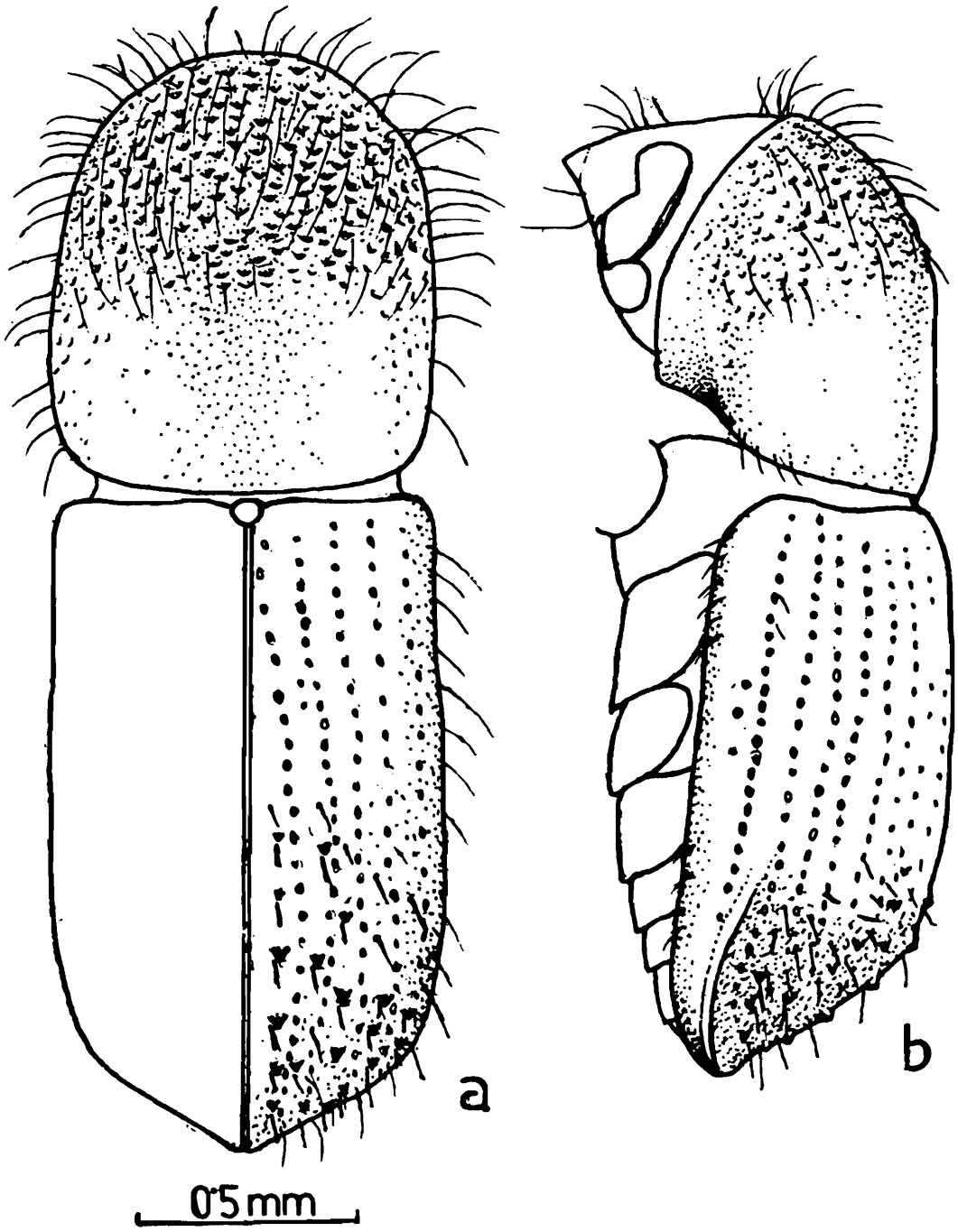

Fig. 35. a-b, *Xyleborus perforans* Wollaston, Female : a, Dorsal view ; b, Lateral view.

Elytra 1.70 times as long as broad and 1.5 times as long as pronotum ; lateral sides almost straight and subparallel on basal two-thirds, gradually narrowing posteriorly into broadly rounded apex ; discal striae not impressed, but marked by small but deep punctures ; interstriae smooth and shining, slightly wider thean striae with widely placed small punctures. Declivity commencing on apical third, with steep and convex surface ; declivital striae as on disc ; interstriae 1 and 3 each with two or three pointed tubercles along with 2-3 smaller ones towards declivital base, interstria 2 unarmed ; interstriae 4, 5 and 6 usually with 1-3 rather small tubercles on upper half of declivity ; striae with microhairs and interstriae rather with long erect hairs.

(ii) *Male* : Male are very similar to females, except smaller in size measuring about 2.00 mm ; eyes reduced to half to that of females and anteterior margin of pronotum angular, as compared to round in the female.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Isl.* : North, Middle and South Andamans (Beeson, 1930) ; Little Andaman (present record). *Nicobar Isl.* : Great Nicobar : Campbell Bay (present record). ELSEWHERE : Partically known from all the tropical and subtropical areas of the world.

(d) *Remarks.*—*Xyleborus perforans* is a very common species occurring throughout tropics and subtropics of the world. The species occurs in its greatest abundance in the islands of Andaman from north to south. In Andamans, the species was known by the name of *Xyleborus kraatzi* Eichhoff and known to be associated with many food-plants (Beeson, 1930 and 1941).

The species has been recorded for the first time from *Planchonia andamanica*, *Endospermum chinensis*, *Pterocymbium tinctorium* in the islands of Andaman and Nicobar. It is commonly found in the galleries under bark in felled logs in the timber depots and extraction centres. In addition, it infests the clibmers, seeds of mangrove plants. Adults are collected at light during the months of September to December.

42. **Xyleborus piceus** (Motschulsky)

Anodius piceus Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** : 512, *Type-locality* : Sri Lanka.

Xyleborus indicus Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 354-355, Female, *Type-locality* : Java, Indonesia ; Schedl, K. E. 1950. *Rev. Franc. Ent.*, **17** : 214, Male, Ivory Coast : Adiopodoume ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 63, India (Middle Andaman and West Bengal), Sri Lanka ; Tonkin ; Malaya ; Indonesia (Sumatra, Java, Borneo), Philippines ; New Guinea ; Congo and East Africa ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 305 p., Bengal to New Guinea ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 61-63, Africa, Southern Asia to Australia, New Guinea, Samoa and Coroline Island ; Schedl K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 56-57 ; Schedl, K. E. 1971. *Steenstrupia*, **1** : 149, Nicobar ; Wood, S. L. 1969. *Gt. Basin Nat.*, **29** : 117 (Synonymy).

Xyleborus imitans Eggers, H. 1927. *Treubia*, **9** : 404-405, Female, *Type-locality* : Mentawei Island (Si Oban).

Xyleborus indicus Eichh. var. *subcoriaceus* Eggers, H. 1927. *Philipp. J. Sci.*, **33** : 92, Female, *Type-locality* : Mount Santo Tomas, Philippines.

Xyleborus samoensis Beeson, C.F.C. 1929. *Insects of Samoa*, **4** (4) : 237-238, Female, *Type-locality* : Samoa ; Schedl, K. E. 1951. *B. P. Bishop. Mus., Occ. Paper*, **20** (10) : 137 ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 61 (Synonymy).

Xyleborus piceus (Motschulsky), Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 109 ; Wood, S. L. 1969. *Gt. Basin Nat.*, **29** : 117 ; Beaver R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 611, Tropical Africa, Oriental Region and Pacific Islands.

(a) *Material.*—(i) 1 Female from Wimco Match Factory, Port Blair, South Andaman, *P. K. Maiti coll.*, 21.vii.1979, ex. "*Pterocymbium tinctorium*" ; (ii) 82 Females from Andaman Isl,, *C. F. C. Beeson coll.*, 21st March to 1st May, 1930, ex. "*Diospyros pyrrhocarpa*"

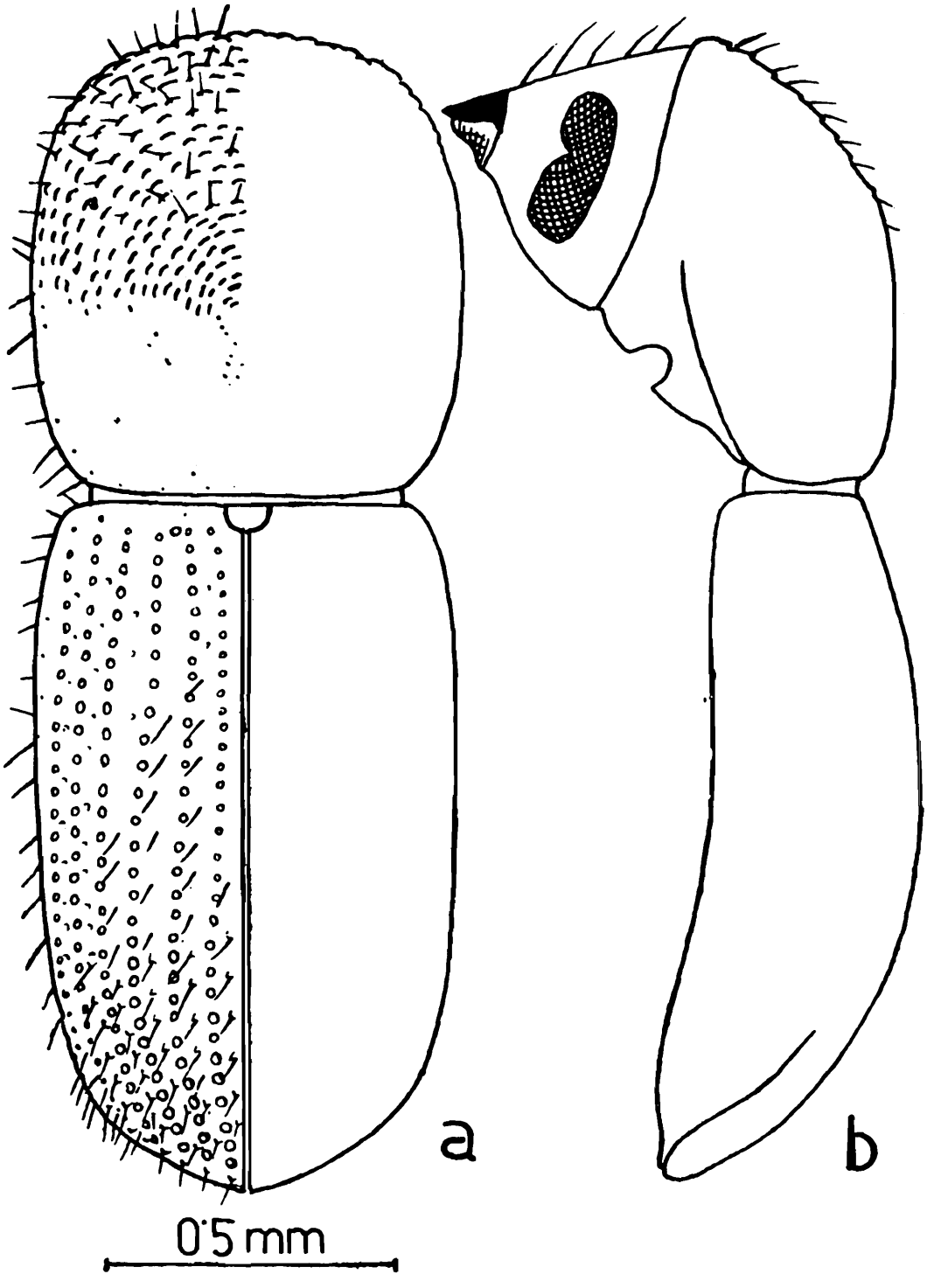

Fig. 36. a-b, *Xyleborus piceus* (Motschulsky). Female : a, Dorsal view ; b, Lateral view.

(b) *Description.*—(i) *Female* (Fig. 36, a-b) : Body short and cylindrical ; head, pronotum and elytra dark brown to blackish brown ; antennae and legs much paler. Body length 2.10-2.25 mm and 3 times as long as wide.

Head globose, moderately narrowing anteriorly ; frons plano-convex, weakly elevated medially, median line prominent anteriorly, surface finely reticulate with a few indefinite large punctures ; vestiture inconspicuous, epistomal margin with sparse fringe of hairs. Eyes elongately oval and about half width emarginate. Antennal scape short ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with two distinct sutural line marked by hairs ; posterior face marked by one suture apically.

Pronotum subquadrate, nearly 1.2 times as long as wide ; basal margin substraight ; lateral and anterior margins weakly outcurved ; anterior margin unarmed ; in profile, dorsal margin weakly convex with indefinite summit near the middle ; anterior declivous portion with small asperities ; posterior half reticulate and minutely punctate ; vestiture only conspicuous on anterior one-third.

Scutellum small and subrounded.

Elytra 1.7 times as long as wide and 1.5 times as long as pronotum ; lateral sides straight and subparallel on basal two-thirds ; postero-lateral angles broadly rounded somewhat interrupted acute margins marked by small granules ; discal straie feebly marked by small and shallow punctures ; stria 1 feebly impressed ; interstriae flat and shiny, wider than striae with inconspicuous punctures and hairs. Declivity commencing slightly below the middle with gradually sloping weakly convex surface ; striae with comparatively larger punctures, striae 1, 2 and 3 feebly impressed ; interstriae weakly elevated with uniseriate row of granules and erect hairs. Procoxae contiguous, protibiae with 9, meso- and meta-tibiae with 9-10 teeth.

(ii) *Male* : Not available in the collection under study.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Isl.* : Middle Andaman (Beeson, 1930) and South Andaman : Port Blair (present record) ; *Nicobar Isl.* : Nicobar (Schedl, 1971). ELSEWHERE : Oriental Region, Pacific Islands and Tropical Africa.

(d) *Remarks.*—The species is known to occur in the Middle Andaman as early as in 1930. Since then it was unknown to the collectors until it has been recorded from the bark of *Pterocymbium tinctorium* log in a Match Factory at Port Blair, in the present account. In face, it was known by the name of *Xyleborus indicus* Eichhoff in the Andamans and its biological information are known by the same name in India (Beeson, 1930 and 1941) as well as in Malaya (Borwne, 1961).

44. **Xyleborus rodgeri** Beeson

Xyleborus rodgeri Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 37 and 78, Female, *Type-locality* : Middle Andaman, India ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 504-505, Sri Lanka ; Schedl, K. E. 1971. *Oriental Ins.*, **5** (3) : 370, Sarawak and Borneo.

Xyleborus rodgeri var. *privatus* Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 37-38 and 79, *Type-locality* : Middle Andaman, India.

(a) *Material.—Identified* : 19 Females (Holotype and Paratypes) from Middle Andaman, *B. M. Bhatia coll.*, different dates in January and February 1929, ex. "*Pterospermum acerifolium*"

(b) *Description.*—(i) *Female* : (Fig. 37, a) : Body long and cylindrical ; head, pronotum and elytra yellowish brown to reddish brown ; pronotum comparatively lighter ; antennae and legs paler. Body length 1.75 mm, 3.1 times as long as wide.

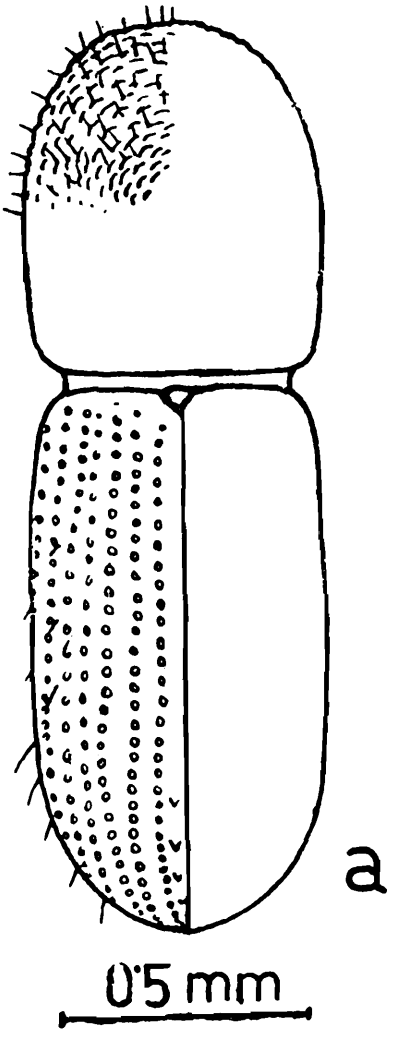

Fig. 37. a, *Xyleborus rodgeri* Beeson, Female : a, Dorsal view.

Head globose, narrowing anteriorly ; frons weakly convex, surface finely reticulate and coarsely punctate towards vertex, without any median line, frons with erect hairs and epistomal margin with fringe of hairs. Eyes elongate, one-third of width divided by emargination. Antennal scape short and stout ; funicle with 5 segments ; club obliquely truncate ; on anterior face basal corneous portion with substraight apical margin ; truncated face marked by two sutures ; posterior face with one suture apically.

Pronotum 1.2 times as long as wide ; basal margin substraight ; lateral sides subparallel up to basal two-thirds ; antero-lateral angles broadly rounded ; anterior margin unarmed ; summit at anterior one-third ; anterior declivous one-third with weak asperities, a few extending laterally and bearing erect hairs ; posterior two-thirds smooth, finely punctate and hairs inconspicuous.

Scutellum triangular.

Elytra 1.6 times as long as and as wide as pronotum, and nearly twice as long as its width ; basal margin substraight ; lateral sides subparallel up to basal two-thirds, then gradually narrowing posteriorly and feebly emarginate at sutural apex ; discal striae not so impressed, but marked by distinct punctures ; interstriae marked by uniseriate minute punctures and with a few long sparse hairs. Declivity commencing at about posterior one-third, face fairly convex, postero-lateral margins acutely elevated and granulate ; striae puncturaes with microhairs ; interstria 1 feebly elevated, bearing 2-3 setiferous tubercles in a row ; other interstriae with obsolete granules, except on 2 ; interstria 3 somewhat broad and elevated ; strial punctures with microhairs.

(c) *Distribution.*—ANDAMAN ISLANDS : Middle Andaman (Beeson, 1930). ELSEWHERE : Sri Lanka and Indonesia (Borneo).

(d) *Remarks.*—The absence of tubercles and setae on declivital interstria 1 has led Beeson (1930) to establish a variety *privatus* Beeson under the species *Xyleborus rodgeri* Beeson. The species and its variety were collected from a single colony located in the *Pterospermum* sp. in the Middle Andaman, wherein only 31 percent of the total number of individuals exhibit the character on which the variety was based. The existence of tubercles seems to be a highly adaptive character on basis of such lone character, the establishment of a variety less justified, moreover from the same colony as well. So the variation of such characters is considered here as mere intracolonial variation and the variety is synonymised with the *Xyleborus rodgeri* Beeson in the present study.

From the previous record, it appears that the species restricts itself in some insular areas of the Orient. Beeson (1930, 1941) described its nesting patterns in the hosts of *Myristica andamanica, Pterospermum acerifolium, Terminalia procera, Anacardium occidentale* and *Terminalia bialata.*

44. **Xyleborus similis** Ferrari

Bostrichus ferriëineus Boheman, C. H. 1858-59, *Zool.*, **1** : 88 , Female.

Xyleborus similis Ferrari, J. 1867. *Die Forst-und Baumzuchtschadlichen Bokenkafer*, pp. 23-24, Female (nom. nov.), *Type-locality* : Keelings Island ; Schedl, K. E. 1942. *Tijdschr. Ent.*, **85** : 47, *Male*, Malaya, Java ; Beeson C.F.C. 1941. *Ecology and Control of Forest Instects of India and Neighbouring Countries*, 309 p. ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, pp. 117-118, Malaya ; Schedl, K. E. 1975. *Revue suisse Zool.*, **82** (3) : 452, India.

Anodius denticulus Motschulsky, V. 1863. *Bull. Soc. Imp. Nat. Moscou*, **36** : 512, Female ; Wood, S. L. 1969. *Gt. Basin Nat.*, **29** : 119 (Synonymy).

Xyleborus parvulus Eichhoff, W. 1868. *Berl. ent. Z.*, **12** : 152, Female, *Type-locality* : Sri Lanka.

Xyleborus dilatus Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 64, 393-394, 484, Female, *Type-locality* : Insula St. Mauritzius Island, Africa.

Xyleborus parculus Eichhoff var. *submarginatus* Blandford, W.F.H. 1896. *Ann. Mag. nat. Hist.*, **15** (6) : 322, Female, *Type-locality* : Sri Lanka.

Xyleborus submarginatus Blandford, W.F.H. 1896. *Trans. ent. Soc. Lond.*, pp. 223-224, Female, *Type-localities* : India, Celebes, New Guinea and Sri Lanka ; Beeson, C.F.C. 1930, *Indian Forest Rec.* (*Ent.*), **14** (10) : 84, North, Middle and South Andamans.

Xyleborus bucco Schaufuss, C. 1897. *Tijdschr. Ent.* **40** : 212-214, Female, *Type-locality* : La Digue, Seychelles.

Xyleborus capito Schaufuss, C. 1897. *Tijdschr. Ent.*, **40** : 215, Male, *Type-locality* : Philippines.

(a) *Material.—Unidentified* : Several exs. from A. *South Andamans* as follows : (i) 22 Females from Chouldhari, *P. K. Maiti coll.*, 26,vii. 1978, ex. "*Samanea saman*" ; (ii) 1 Female from Wimco Match Factory, Port Blair, *P. K. Maiti coll.*, 21.viii.1979, ex. "*Endospermum chinensis*" ; (iii) 25 Females from Chidyatapu, *B. N. Nandi coll.*, 17-19.x.1981, ex. "*Canarium euphyllum*" and "*Pterocymbium tinctorium*" ; (iv) 3 Females from Wright Myo, *T N. Khan and B. Mitra coll.*, 25.x.1981, ex. "*Samania* log" ; (v) 3 Females from Ferrargunj, *B. N. Nandi coll.*, ex. "Sapwood of *Dipterocarpus* sp." and (vi) 1 Female from Pungibalu, 19.x.1981, ex. "*Dipterocarpus* sp."

B. *Little Andaman* : (vii) 1 Female from Vivekanandapur, Hut Bay, *B. N. Nandi coll.*, 13.i.1980, ex. "*Mimusops* sp." and (viii) 1 Female from 16

km. timber extraction centre, *T N. Khan and B. Mitra coll.*, ex. "*Pterocymbium tinctorium*"

C. *Nicobar Island* : (ix) 5 Females from Nancowry, Kamorta, *B. N. Nandi coll.*, 15.xi.1978, ex. "*Ficus infectoria*" and (x) 2 Females from Kamorta near Church, *B. N. Nandi coll.*, 12.xi.1978, ex. "Sapwood of *Ficus infectoria*"

D. *Great Nicobar* : (xi) 2 Females, Forest 37 km from Campbell Bay, *B. N. Nandi coll.*, 7-9.xii.1978, ex. "*Pterocymbium tinctorium*" ; (xii) 1 Female from Forest, 36 km Campbell Bay, *B. N. Nandi coll.*, 11.xii.1978, ex. "*Canarium euphyllum*" ; (xiii) 1 Female from 7 km Campbell Bay, *B. N. Nandi coll.*, ex. "*Mangifera indica*" and (xiv) 1 Female from Campbell Bay, *B. N. Nandi coll.*, ex. "*Baccaurea sapida*"

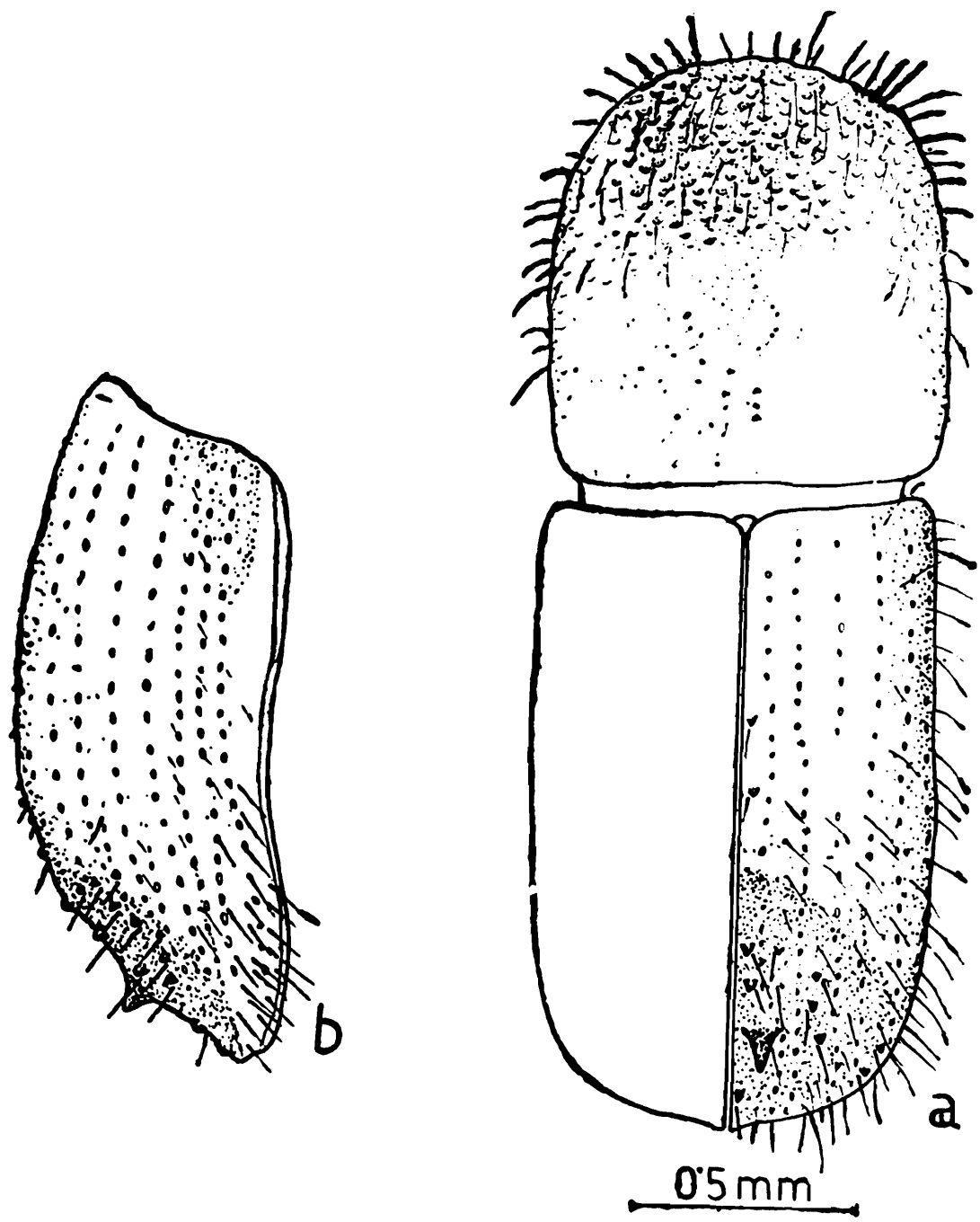

Fig. 38. a-b, *Xyleborus similis* (Ferrari), Female : a, Dorsal view ; b, Lateral view of elytra.

(b) *Description.*—(i) *Female* (Fig. 38, a-b) : Body somewhat stout and cylindrical ; head, pronotum and elytra reddish brown ; antennae and legs slightly paler. Body length 2.30-2.45 mm, 2.70 times as long as wide.

Head globose, weakly narrowing anteriorly ; frons convex, surface finely reticulate and punctate, usually with an indistinct prominence between the eyes ; vestiture inconspicuous. Eyes suboval, with more than one-third divided by an emargination. Antennal club slender ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion extending up to middle with recurved apical margin ; truncate face with 2 sutural lines marked by hairs ; posterior face with one distinct suture apically.

Pronotum subquadrate, 1.10 times as long as wide ; lateral sides straight and subparallel on more than basal half ; anterior margin very broadly rounded and unarmed ; summit almost at the middle ; anterior declivous portion pilose and finely asperate, a few weak asperities extending posterolaterally ; posterior half smooth and shiny with minute punctures, on disc, rather obscurely reticulate at sides and vestiture inconspicuous.

Scutellum smooth and shiny, and subround.

Elytra 1.30-1.60 times as long as wide, and 1.30-1.50 times as long as pronotum ; basal margin somewhat truncate ; lateral sides straight and subparallel on basal two-thirds, rather broadly bounded at apex ; discal striae not so impressed, marked by small and moderately deep punctures ; interstriae somewhat smooth and shiny, wider than striae with small irregular deep punctures. Declivity steep and flattened with a pair of very prominent tubercles on interstria 1 just below the centre of declivity ; posterolateral margins acutely elevated from apex up to interstria 7 ; sutural stria diverging distinctly from suture accommodating large tubercles on interstria 1 ; striae 2 and 3 also somewhat diverging ; interstria 1 with a few small tubercles near declivital base and another small one near apex ; interstriae 2-5 normally with 1-3 similar fine tubercles on upper half of declivity ; interstriae with long erect hairs becoming coarser on declivity. Procoxae contiguous ; protibiae with 7 and meso- and meta-tibiae with 8 teeth.

(ii) *Male* : Not available in the collection studied.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLAND : *Andaman Isl* : North, Middle and South Andaman (Beeson, 1930), Little Andaman (present record) ; *Nicobar Isl.* : Great Nicobar and Kamorta (present record). ELSEWHERE : India (Assam, West Bengal,

Bihar, Orissa, Maharashtra, Madhya Pradesh, Uttar Pradesh and Karnataka), Nepal, Sri Lanka, Burma, Taiwan, Malaysia, Indonesia, Philippines, Thailand, Christmas Island, Vietnam, Australia, Polynesia and Africa.

(d) *Remarks.*—The specimens studied are morphologically very similar to typical X. *similis*. But in some examples, the declivital tubercles on interstria 1 are comparatively large and placed more towards apex. Even instances are not uncommon where the tubercle on each elytron varies greatly in its shape, size and even in position.

This widely distributed species is by far the most common scolytid-beetle found in the islands of Andaman and Nicobar. It is a common pin-hole borer of dead and felled trees, stumps, etc., in the tropical world. In India, Beeson (1930) studied its biology in the name of *Xyleborus submarginatus*. He recorded numerous host-plants both from India and Andaman. However, the species is associated with a number of host-plants in Andamans and Nicobars (*vide*, list of host plants).

45. **Xyleborus shiva** sp. nov.

(a) *Material.*—2 Females from 16 km Timber Extraction Centre, Little Andaman, *T N. Khan and B. Mitra coll.*, 4.xii.1981, ex. "Sapwood of *Pterocymbium tinctorium*"

(b) *Description.*—(i) *Female* (Fig. 39, a-b) : Body long and slender, and of medium size ; head blackish brown ; pronotum blackish brown anteriorly, much paler posteriorly ; elytra deep brown, antennae and legs yellowish brown ; femur yellowish white. Body length 1.85 mm.

Head globose, fairly narrowing anteriorly ; frons weakly convex, surface reticulate, reticulation gradually becoming finer anteriorly, without any median line and only with a few sparse large punctures of variable size and fine hairs ; epistomal margin with sparse hairs. Eyes elongately oval, nearly half of width divided by emargination. Antennal scape elongate ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reaching up to middle and with weakly procurved apical margin, truncated face with one distinct sutural line marked by hairs ; posterior face with one suture apically.

Scutellum small and subrounded.

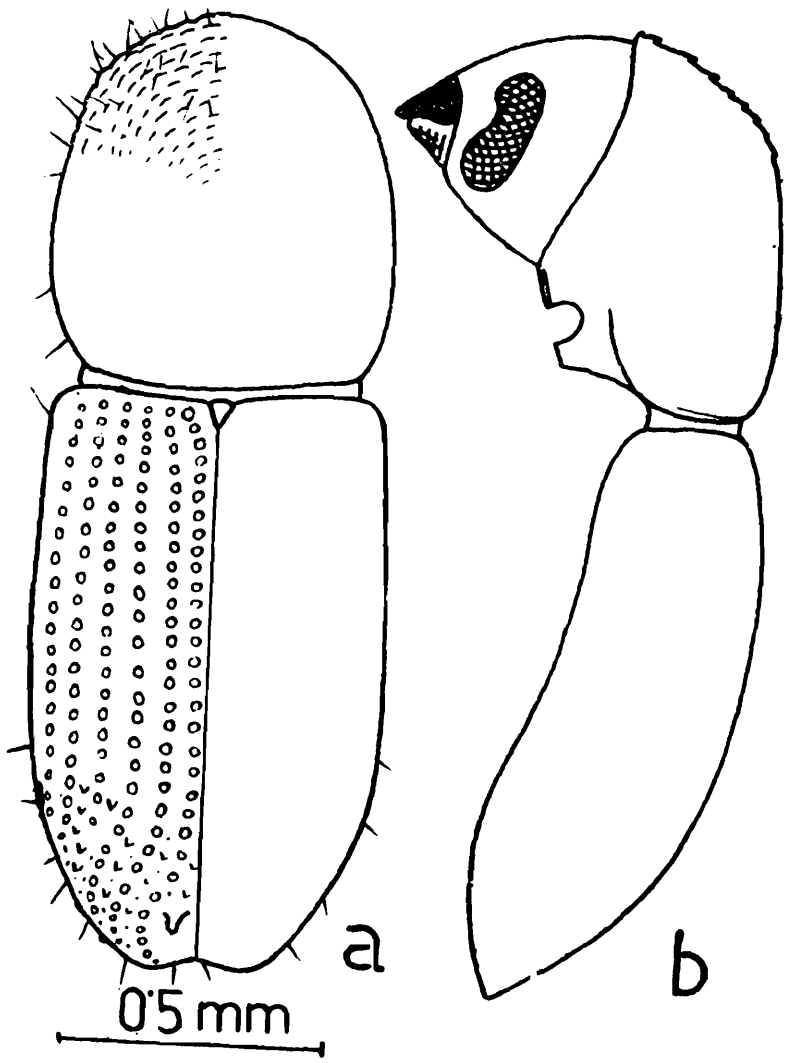

Fig. 39. a-b, *Xyleborus shiva* sp. nov., Female
a, Dorsal view ; b, Lateral view.

Pronotum subquadrate, 1.1 times as long as broad ; basal margin substriaght ; lateral sides feebly outcurved ; anterior margin broadly rounded and armed with a few weak transverse asperities ; in profile, summit indistinct, almost at the middle ; anterior declivous portion with transverse weak asperities in concentric rows, gradually increasing in size anteriorly, a few small asperities extending on either side of summit ; posterior half along with lateral side smooth and shiny, punctures rather indistinct and devoid of hiar.

Elytra 1.6 times as long as and almost as wide as pronotum, 1.8 times as long as its wdth ; basal margin substraight ; lateral sides subparallel, gradually weakly narrowing posteriorly and individual elytra somewhat rounded apically ; postero-lateral margins acute, but not distinctly carinate ; discal striae somewhat impressed but with small shallow punctures ; interstriae smooth, plano-convex, wider than striae, devoid of distinct punctures and hairs. Declivity commencing on posterior third, with medially convex and laterally depressed face, declivital striae well marked by comparatively

large shallow punctures devoid of any microhair, striae 1, 2 and 3 outcurved at middle ; interstriae with a few sparse granules of different sizes ; interstria 1 somewhat raised below the middle accommodating one distinct setiferous tubercle, interstriae 2 and 3 depressed towards apex ; a few sparse hairs along the elytral margin.

(c) *Type-locality* : Little Andaman.

(d) *Type-specimens.*—(i) *Holotype* (Female) from Little Andaman, as mentioned above under 'Material' is deposited in the Zoological Survey of India, Calcutta ; (ii) 1 *Pratype* (Female), deposited in Forest Research Institute, Dehra Dun.

(e) *Comparison.*—The species *Xyleborus shiva* sp. nov. is very close to X. *bicolor* Blandford, *X. rodgeri* Beeson and X. *similis* Ferrari, but differs from them on the basis of the following characters :

A. From X. *bicolor* : (i) Elytral disc shining and its apex with distinct emargination (in *bicolor*, not so shining and elytral apex with weak emargination). (ii) Elytral striae somewhat impressed, more conspicuous on declivital face (in *bicolor*, striae not so impressed) (iii) Declivital striae devoid of microhair (in *bicolor*, present). (iv) Declivital interstria 1 somwehat raised accommodating one distinct setifeours tubercle on lower half of declivity (in *bicolor*, tubercle indistinct).

B. From *X. similis* : (i) Comparatively small and slender species (in *similis*, large and stout species). (ii) Frons devoid of any median line and sparsely punctate (in *similis*, frons with distinct median line and closely punctate) (iii) Declivital tubercle on interstria 1 small and placed more towards apex (in *similis*, tubercle very prominent and placed medially). (iv) Postero-lateral margins of declivity devoid of any granule, but somewhat acutely margined (in *similis*, granulate).

C. From X. *rodgeri* Beeson : For comparison, *vide*, under X. *bicolor*. Mention may be made that *X. rodgeri* can hardly be separated from X. *bicolor* which indicates that the species may be ultimately synonymised under X. *bicolor*. The types of *X. bicolor* were not available for study in the present account. As such, both the species have been retained as valid for the time being.

46. **Xyleborus sundaensis** Eggers

X*yleborus sundaensis* Eggers, H. 1223. *Zool. Meded.*, 7 : 175, Female and Male, *Type-locality* : Poerwakarta, Java, Indonesia ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 107, Malaya.

(a) *Material.*—10 Females from Nancowery, Nicobar, *T N. Khan and B. Mitra coll.*, 2.viii.1980, ex. "*Samanea saman*"

(b) *Description.*—(i) *Female* (Fig. 40, a-b) : Body fairly large and stout ; head, pronotum and elytra chestnut brown to blackish brown ; elytral declivity slightly darker ; antennae and legs light brown. Body length 4.30 mm (4.00 mm), 2.26 times as long as wide.

Head globose, considerably narrowing anteriorly ; frons weakly convex with deep irregular large punctures and with scattered thin hairs ; weakly depressed just above epistoma as well as slightly below vertex ; epistomal margin with a few thin hairs. Eyes large, elongately oval, broadly emarginate up to almost half of its width. Antennal scape comparatively thin and short ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with substraight apical margin ; truncate face with segment 2 very distinct and chitinized, beyond segment 2 flat to concave ; posterior face with two sutures.

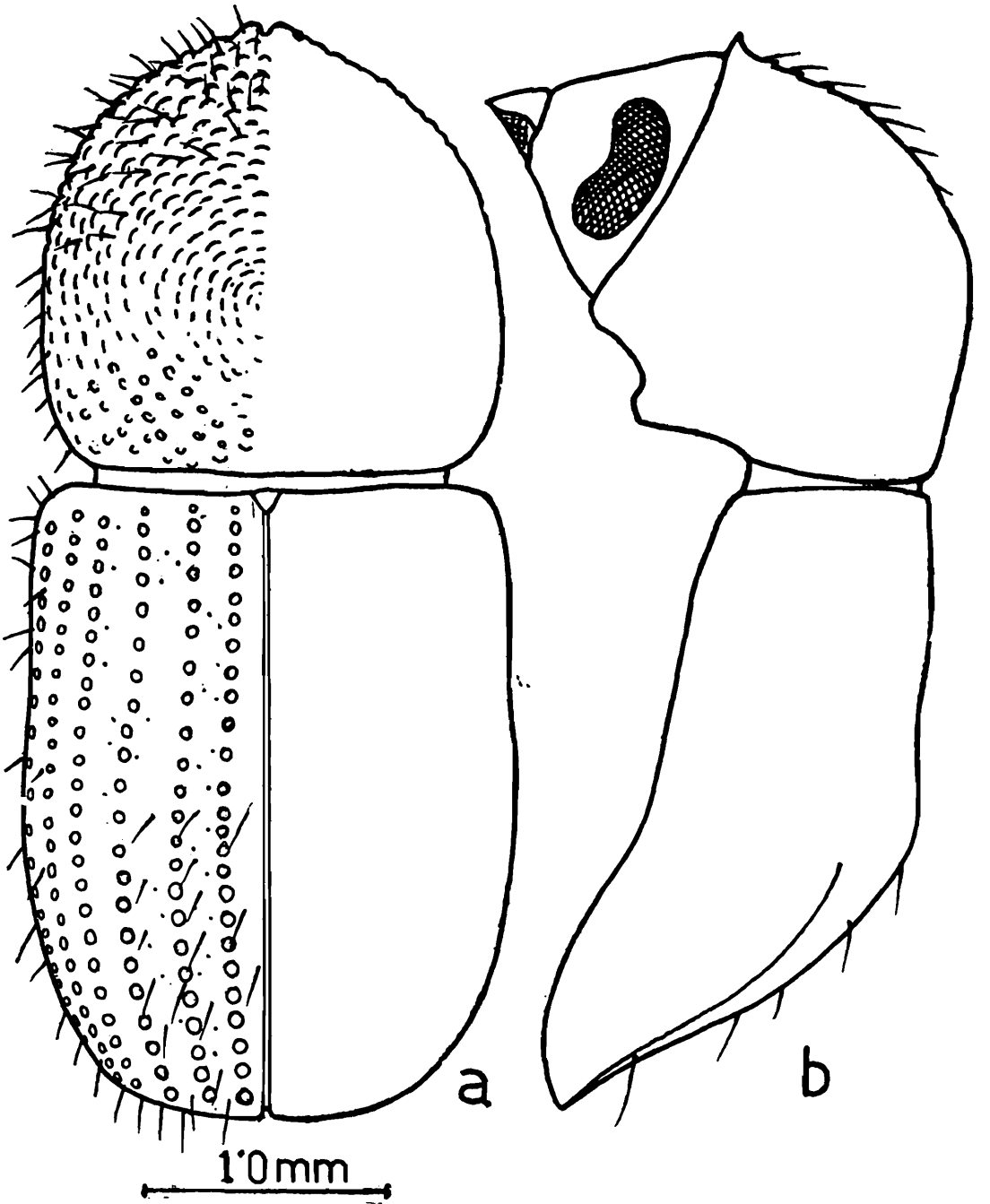

Fig. 40. a-b, *Xyleborus sundaensis* Eggers, Female : a, Dorsal view ; b, Lateral view.

Pronotum almost as long as wide ; both basal and lateral margins weakly outcurved with angularly rounded postero-lateral angles in between ; anterior margin angularly rounded with two large, blunt asperities ; in profile, dorsal summit prominent, placed at posterior one-third ; anterior two-thirds declivous portion with small asperities almost in concentric rows gradually increasing in size towards apex and also extending posteriorly in reduced size like granules ; postero-median area with a few punctures ; declivous portion with long erect hairs and basal third with sparse small hairs.

Elytra 1.4 times as long as and nearly as wide as pronotum, and 1.3 times as long as its width ; basal margin substraight ; lateral sides subparallel on basal third whence slightly outcurved up to commencement of declivity, then narrowing posteriorly with very broadly roundex apex ; disc slightly below the basal margin distinctly depressed with a few feeble transverse wrinkles and a weak hump just at commencement of declivity ; striae distinct, marked by small close punctures without any microhair ; interstriae flat and shiny, much wider than striae with a row of shallow punctures, without any distinct hairs. Declivity commencing almost at the middle, face plano-convex with oblique slope ; postero-lateral margins somewhat margined ; anterior half of declivity with striae and interstriae as on disc and apically obsolete and with irregular comparatively large punctures ; declivital periphery with a few long erect hairs. Procoxae contiguous ; protibiae with 7 teeth and meso- and meta-tibiae with 10-12 teeth.

(ii) *Male* : Not available in the collection under study.

(c) *Distribution.*—NICOBAR ISLANDS : Nancowery (present record). ELSEWHERE : Indonesia (Java) and Malaya.

(d) *Remarks.*—Since its first description from Malayan Archipelago by Eggers (1923), the species was unknown, until Browne (1961) reported it from Malayan Peninsula.

In the present study, the species has been collected from a felled log of *Samanea saman* from Nancowery, Nicobar groups.

47. **Xyleborus torquatus** Eichhoff

Xyleborus torquatus Eichhoff, W. 1868. *Berl. ent. Zeit.*, **12** : 146, Female, *Type-locality* : Cuba, Brazil and Portorico ; Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege.*, **8** (2) : 378-379 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 73-74 ; Schedl, K. E. 1971. *Steenstrupia*, **1** : 149, Nicobar.

Xyleborus badius Eichhoff, W. 1868. *Berl. ent. Zeit.*, **12** : 280, Female, *Type-locality* : Madagascar, St. Mauritius ; Eggers, H. 1927. *Rev. Zool. Afr.*, **15** : 195-196, Male, Congo Belge ; Schedl, K. E. 1966. *Ent. Arb. Mus. Frey*, **17** : 76 (Synonymy).

Xyleborus kraatzi var. *philipinensis* Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 374, *Type-locality* : Philippines.

Xyleborus proximus Eggers, H. 1933-1935. *Prac. National Albert, I Miss G. F. Witte De.*, **43** (10) : 66-67, Female, *Type-locality* : Belgium Congo.

Xyleborus vicarius Eichhoff, W. 1875. *Ann. Soc. ent. Belg.*, p. 203, Female, Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 376-377, Male ; Schedl, K. E. 1966. *Entom.Abh. Mus. Tierk. Dresden*, **35** : 74 (Synonymy).

(a) *Material.*—Since no material is available for study, the following morphological characters are based on the original description of the species.

(b) *Description.*—"Body elongate, cylindrical, blackish brown, shiny, uniformly pilose, base of pronotum out buldging, dorsal summit transverse, posteriorly minutely punctate, elytra black, striae deeply punctate, interstriae somewhat narrowly rugose and uniseriately punctate, posteriorly tuberclate, declivity plano-convex with broadly rounded margin, shiny ; interstriae 1 and 3 with uniseriate distantly placed tubercles, interstria 2 devoid of any tubercle"

(c) *Distribution.*—NICOBAR ISLANDS : Nicobar (Schedl, 1971). ELSEWHERE : Throughout tropical and subtropical parts of the world, less common in polynesian sub-region.

Genus : **Xylosandrus** Reitter, 1913

Xylosandrus Reitter, E. 1913. *Wiener Ent. Zeit.*, **32** (2) : 80 and 83, *Type-species* : *Xyleborus morigerus* Blandford ; Schedl, K. E. 1962. *Rev. Ent. Moc.*, **5** (1) : 103 (Synonymised under *Xyleborus*) ; Browne, F. G. 1963, *Ent. Ber.*, **23** : 54-55 ; Schedl, K. E. 1966. *Ent. Abh. Mus. Tierk. Dresden.*, **35** : 77 ; Wood, S. L. 1980. *Gt. Basin Nat.*, 40 (1) : 96.

Reitter (1913) proposed a genus *Xylosandrus* to include a Blandford's species *Xyleborus morigerus*. With its distinctive characters, the genus remained valid until 1962, when Schedl considered it as a synonym of the genus *Xyleborus* along with some other genera of the tribe Xyleborini. Subsequently, Browne (1963) redefined its generic characters in favour of sound validity of the genus. The broad and obtuse prosternal process widely separating the procoxae is one of the most diagnostic characters of this genus.

The genus is widely distributed in most tropical and subtropical areas of the world except in Australia. Three species are found in the islands of Andaman and Nicobar.

48. **Xylosandrus crassiusculus** (Motschulsky)

Phloeotrogus crassiusculus Motschulsky, V. 1866. *Bull. Soc. Imp. Nat. Moscou*, **39** : 403, Female, *Type-locality* : Mountain near Nuwara Eliya, Sri Lanka.

Xyleborus semiopacus Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 334, Female, *Type-locality* : Japan ; Wood, S. L. 1969. *Gt. Basin Nat.*, **29** : 119 (Synonymy).

Xyleborus semigranosus Blandford, W.F.H., 1896. *Trans. ent. Soc. Lond.*, pp. 211-212, Female, *Type-locality* : Sumatra, Indonesia ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 79, India (North and Middle Andamans, West Bengal, Uttar Pradesh, Assam, Orissa, Bihar, Orissa ; Burma ; Sri Lanka ; Sumatra, Java, Samoa; East Africa, Mauritius, Seychelles ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 308 p. ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 496 (Synonymised under *X. semiopacus*).

Dryocoetes bengalensis Stebbing, E. P. 1908. *For. Mem. Zool. Ser.*, **1** (12) : 12, *Type-locality* : West Bengal, India ; Stebbing, E. P. 1914. *Indian Forest Insects* (*Coleopt*)., 590 p. (as *Xyleborus bengalensis*) ; Beeson, C.F.C. 1915. *Indian Forester*, **41** : 297 (Synonymy) ; Schedl, K. E. 1951. *B. P. Bishop Mus., Occ. Paper.*, **20** (10) : 137.

Xyleborus mascarensis Hagedorn, M. 1908. *Dt ent. Z.*, p. 379, Female, *Type-locality* : Datch East Africa, Bomole et Amani ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 106 : Eggers, H. 1923. *Zool. Meded.*, **7** : 130 (Synonymy) ; Schedl, K. E. 1951. *B. P. Bishop Mus., Occ. Paper*, **20** (10) : 137.

Xyleborus okoumeensis Schedl, K. E. 1935. *Stylops*, **4** : 271-272, Female, *Type-locality* : Carlshafen, Germany ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **211** : 486 (Synonymised under *X. semiopacus* Eichhoff).

Xyleborus declivigranulatus Schedl, K. E. 1936. *J. fed Malay. St. Mus.*, **18** :30, Female, *Type-locality* : Kepong, Malaya Peninsula ; Browne, F. G. 1949. *Ann. Mag. nat. Hist.*, **1** (12) : 907, Male ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 486 (Synonymised under *X. semiopacus* Eichhoff).

Xyleborus crassiusculus (Motsch.), Wood, S. L. 1969. *Gt. Basin Nat.*, **29** : 119 ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 607, Oriental Region to Japan and Korea, Pacific Islands to Hawaii and Tropical Africa.

Xylosandrus crassiusculus (Motsch.), Wood, S. L. 1982. *Mem. Gt. Basin Nat.*, no. 6, p. 766, North and Central America.

(a) *Material.*—A. *Identified* : (i) 2 Females from Middle Andaman, *B. M. Bhatia coll.*, 7-25.ii.1929, ex. "*Albizzia lebbek*"

B. *Unidentified* : (ii) 3 Females from Kondul Island, Nicobar, *Forest Entomologist coll.*, ex. "Ingway" (iii) 3 Females from 36 km S. of Campbell Bay, Great Nicobar, *B. N. Nandi coll.*, 11.xii.1978, ex. "*Terminalia procera*"

(b) *Description.—Female* (Fig. 41, a-d) : Body stout and broad ; head and pronotum chestnut brown ; elytra compratively darker ; antennae and legs paler. Body length 2.20-2.50 mm, 2.5 times as long as its width.

Head globose, narrowing anteriorly , frons weakly convex with a distinct median line ; surface coarsely granulate and with erect hairs a few distinct carinulae on either side of median line converging towards epistomal margin ; sparsely punctate towards vertex ; epistomal margin with distinct fringe of hairs. Eyes elongately oval, nearly half of width divided by emargination. Antennal scape short and stout , funicle with 5 segments: club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with recurved apical margin forming a complete ring , truncate face with one suture and posterior face devoid of any suture.

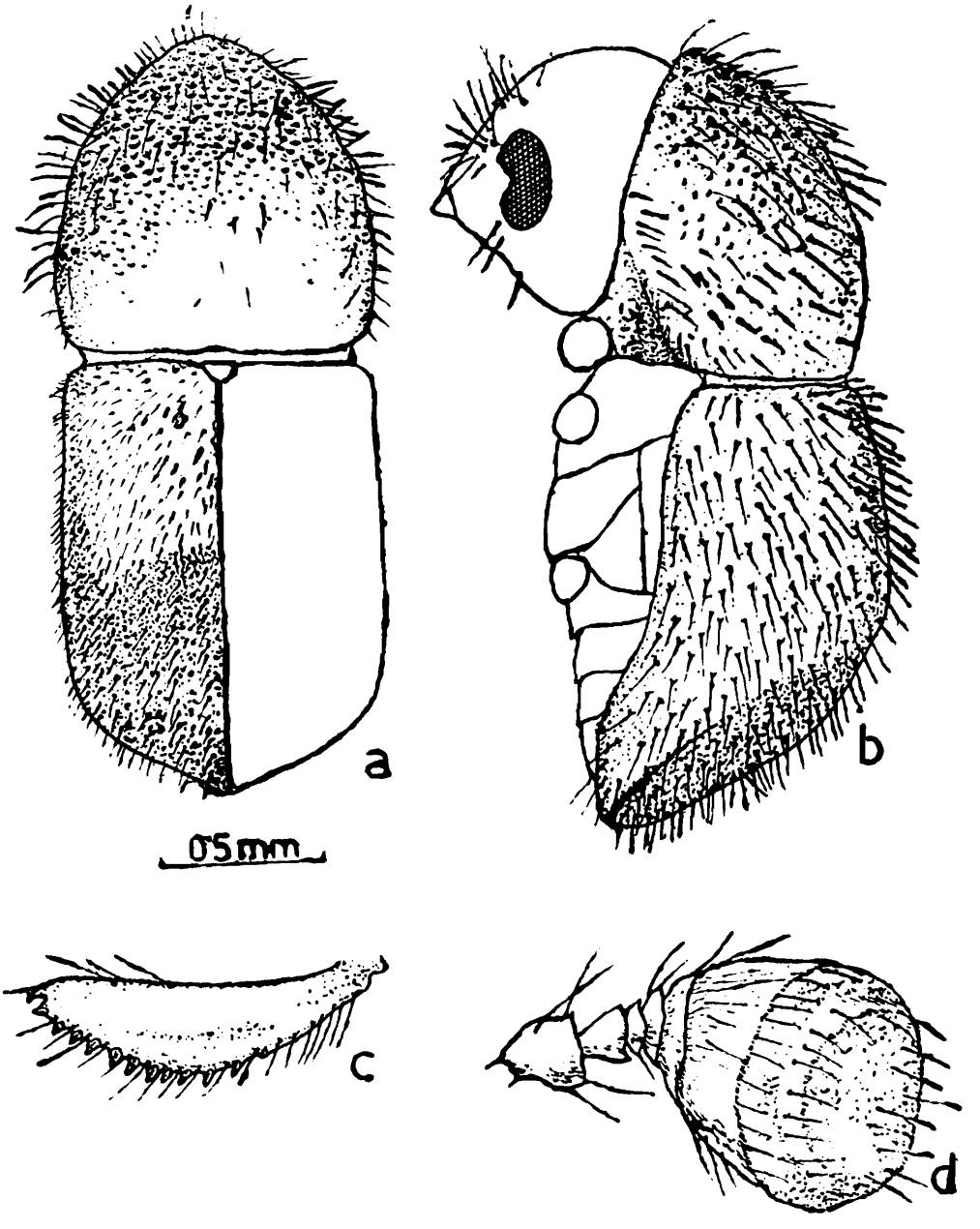

Fig. 41. a-d, *Xylesandrus crassiusculus* (Motschulsky), Female : a, Dorsal view ; b, Lateral view ; c, Metatibia ; d, Antenna.

Pronotum nearly as long as wide ; basal margin substraight ; lateral sides weakly outcurved ; anterior margin narrowly rounded accommodating 8-9 weak asperities ; dorsal surface with distinct summit at the middle ; nearly anterior two-thirds with fine asperities and presence of both small and long hairs ; posterior portion finely reticulate with distinct punctures and usually with sparse fine hairs.

Scutellum fairly large and tongue-shaped.

Elytra 1.20-1.30 times as long as pronotum, 1.20-1.30 times as long as its own width ; basal margin substraight ; lateral sides subparallel up to basal two-thirds, thence broadly rounded posteriorly ; postero-lateral margin distinctly elevated with prominent carina ; disc convex, smooth and shiny ; striae not so impressed and marked by small and shallow punctures with microhairs up to apex ; interstriae at least 3 times as wide as striae with irregular 2-3 rows of shallow punctures as in striae and granulate posteriorly ; interstriae with long erect hairs. Declivity rather abrupt, face convex, feebly elevated towards sutural apex ; surface opaque and strial punctures obsolete, rather with confused granules ; vestiture consisting of small fine hairs and also uniseriate row of long stout setae.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Isl.* : North and Middle Andamans (Beeson, 1930) ; *Nicobar Isl.* : Kondul and Great Nicobar (present record). ELSEWHERE : Oriental Region to Japan and Korea, Pacific Islands to Hawaii, Tropical Africa and North Ameraica.

(d) *Remarks.*—This species is a common pin-hole borer in the circumtropics infesting numerous host-plants. It usually infests cut poles and branches of small to moderate size, large logs and newly sawn timbers in Malaya (Browne, 1961). In Ghana, the species is knwon to kill young transplants in forest stands. However, this is recorded for the first time from Great Nicobar from a felled log of *Terminalia procera* along with its earlier record from *Albizzia lebbek* in the North and Middle Andamans. In India, a number of host-plants are reported for the species and its biology in fair detail has been dealt by Beeson (1930 and 1941). Due to its wide rage of distribution, many a species and variety have been erected in the past for the same species, which are now synonymised. The population from Andaman and Nicobar with regard to their size and morphological characters comes close to of *Xyleborus semigranosus* Blandford.

49. **Xylosandrus discolor** Blandford

Xyleborus discolor Blandford, W.F.H. 1898. *Trans. ent. Soc. Lond.*, p. 429, Female, *Type-locality* : Sri Lanka ; Beeson, C.F.C. 1930. *Indian Forest Rec.* (*Ent.*), **14** (10) : 56-57, India (Uttar Pradesh, West Bengal and Assam, Tamil Nadu) ; Burma ; Sri Lanka and Indonesia (Java) ; Schedl K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 496-497.

Xyleborus posticestriatus Eggers, H. 1939. *Arb. morph. taxon. Ent.*, **6** : 119, Male, *Type-locality* : Taiwan ; Schedl, K. E. 1950. *Tijdschr. Ent.*, **93** : 63-64, Female ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 496 (Synonymy).

Xylosandrus discolor (Blandford), Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 169, India, Sri Lanka, Burma, Indonesia (Sumatra and Java) and Malaya ; Browne, F. G. 1963. *Ent. Ber.*, **32** : 55.

(a) *Material.*—5 Females from North Andaman, *C. F. C. Beeson coll.*, 9.iii.1930, ex. "*Terminalia procera.*"

(b) *Description.—Female* (Fig. 42, a-b) : Body short and stout ; head and pronotum pale brown ; elytra blackish brown ; antennae and legs pale brown. Body length 1.90-2.00 mm ; 2 times as long as broad.

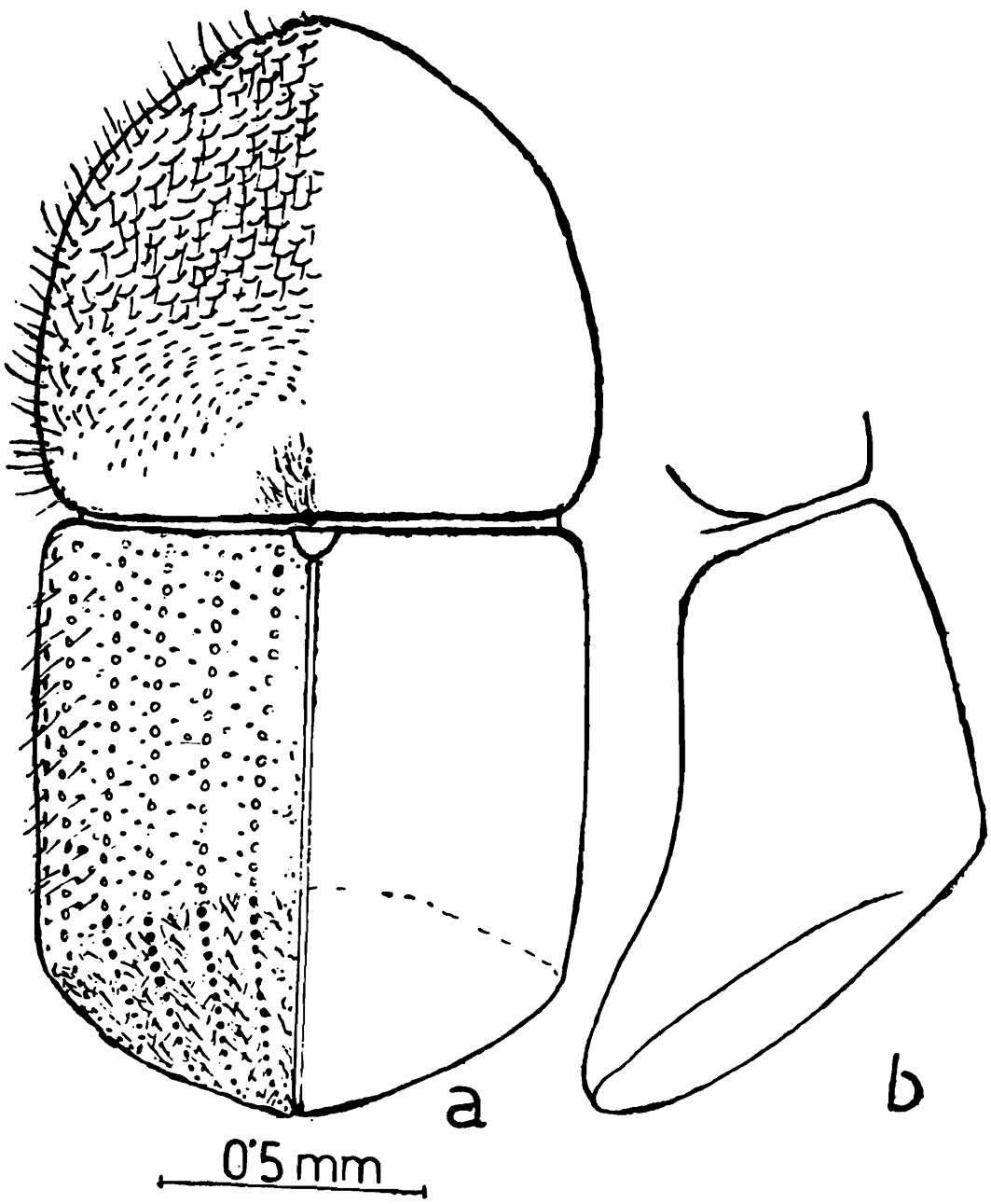

Fig. 42. a-b, *Xylosandrus discolor* (Blandford), Female : a, Dorsal view ; b, Lateral view.

Head globose, weakly narrowing anteriorly ; frons plano-convex with vestiture of erect hairs, surface finely rugosely reticulate with a few scattered punctures and granules ; median line indistinct ; epistomal margin with a fringe of erect hairs. Eyes elongately oval, with broadly rounded emargination reaching to almost half of width. Antennal scape short and stout ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion with recurved apical margin forming a complete ring ; truncate face with two recurved sutures ; posterior face devoid of any suture.

Pronotum subglobose ; 1.1 times as broad as long ; both basal and lateral margins outcurved ; anterior margin distinctly rounded and armed with 7-8 adpest asperities ; in profile, strongly convex without any distinct summit ; entire surface with closely set small but distinct asperities in concentric rows, gradually becoming granulate posteriorly and with small erect hairs throughout ; postero-median portion with a dense patch of pubescence.

Scutellum smooth, shiny and tongue-shaped.

Elytra almost as long as pronotum and its own width ; basal margin substraight ; lateral sides subparallel up to basal fifth, whence strongly converging posteriorly and terminating into an angular apex ; discal straie not so impressed, marked by small shallow linear punctures, each puncture with a microhair ; interstriae flat and shiny with comparatively small punctures and short fine hairs. Declivity commencing at posterior third, declivital face somewhat steep and convex, distinctly margined around, with porminent carina on postero-lateral sides reaching up to interstria 7 ; striae distinctly marked by a row of closely set granules and microhairs replacing punctures ; interstrial punctures also obsolete, but with irregular comparatively small granules and a single row of scale-like erect setae along with microhairs on entire surface. Procoxae moderately separated from each other, protibiae with 4 and meso- and meta-tibiae with 8 teeth.

(c) *Distribution.*—ANDAMAN ISLANDS : North Andaman (present record). ELSEWHERE : India (Uttar Pradesh, West Bangal, Assam, Tamil Nadu), Burma, Sri Lanka, Indonesia (Java, Sumba Isl.), Malaya, Taiwan.

(d) *Remarks.*—This is a fairly common short- and twig-borer of many green plants in tropical India, Sri Lanka, Burma, Malaya and Indonesia. From North Andaman, it has been recorded for the first time from *Terminalia procera.* The biological features, such as developmental period, emer-

gence of adults, gallery pattern, nest and brood size, etc. have been studied by different authors in different countries, namely, Beeson (1941) in India, Browne (1961) in Malaya and Kalshoven (1951 and 1959) in Indonesia.

50. **Xyleborus ursinus** Hagedorn

Xyleborus ursinus Hagedorn, M. 1908. *Dt. ent. z.*, p. 381, Female, *Type-locality* : Ri-Rambe, Sumatra, Indonesia ; Eggers, H. 1927. *Treubia*, **9** : 406 ; Schedl, 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 75, Mindoro, Sumatra and Soemba Isl.

(a) *Material.*—5 exs. from Campbell Bay, Gt. Nicobar : (i) 2 Females, *T N. Khan coll.*, 10.xii.1978, ex. "*Myristica* sp." ; (ii) 1 Female, *B. N. Nandi coll.*, 12.xii.1978, ex. "*Baccaurea sapida*" ; (iii) 1 Female, *B. N. Nandi coll.*, ex. "*Mangifera indica*" and (iv) 1 Female, Campbell Bay, *B. N. Nandi coll.*, 9.xii.1978, ex. "*Pterocymbium tinctorium*"

(b) *Description.—Female* (Fig. 43, a-c) : Body broad and stout ; head blackish brown, pronotum and elytra black ; antennae and legs light brown ; body densely hairy. Body length 4.25-4.60 mm ; 1.8 times as long as its width.

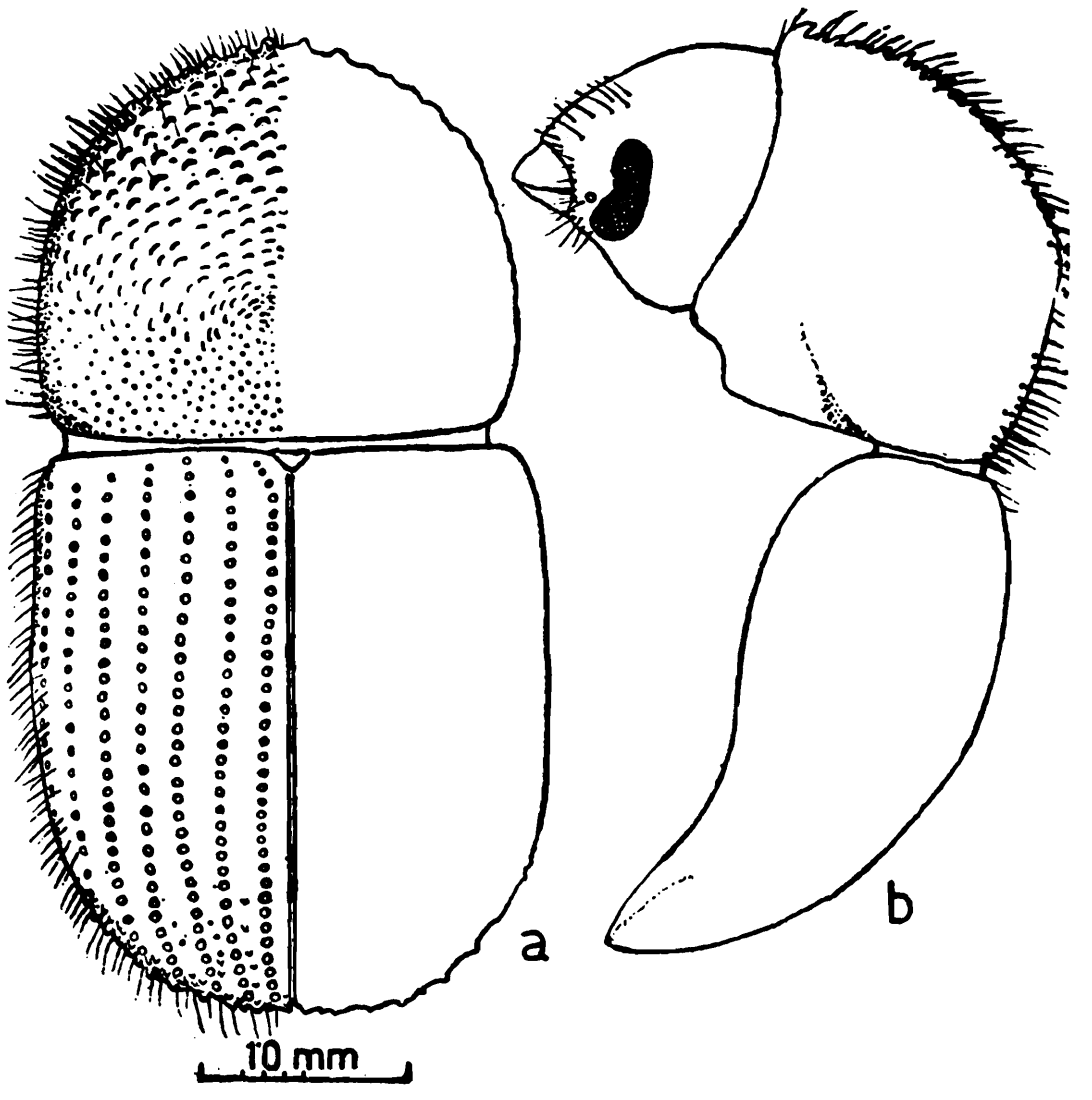

Fig. 43. a-b, *Xylosandrus ursinus* (Hagedorn), Female : a, Dorsal view ; b, Lateral view.

Head globose, weakly narrowing anteriorly, frons flat, surface finely reticulate with moderately close, deep scattered punctures without any distinct median line ; epistomal margin with fringe of hairs and a few long scattered hairs on frontal surface. Eyes comparatively small and moderately emarginate. Antennal scape long and slender ; funicle with 5 segments ; club obliquely truncate ; segment 1 corneous ; on anterior face, basal corneous portion reduced with substraight apical margin; truncate face with two sutures and posterior face unmarked by any suture.

Pronotum globose, 1.23-1.28 times as wide as long ; basal margin substraight, with weak median emargination ; lateral sides moderately outcurved with broadly rounded anterior margin accommodating 5 median asperities, middle one largest ; in profile, strongly convex with distinct summit little behind the middle ; anterior declivous two-thirds with distinct asperities becoming gradually larger anteriorly ; anterior declivous one-third with large, deep and close punctures ; entire pronotum with dense long hairs; basal margin with a tuft of hairs at its middle.

Scutellum smooth, large and subround.

Elytra 1.4 times as long as and nearly as wide as pronotum and nearly as long as its width ; basal margin substraight ; lateral sides very weakly outcurved and apical margin broadly rounded ; postero-lateral margins without any distinct carina, rather with some close, either small or large granules ; elytral disc convex, striae indistinct, but with close small shallow punctures with microhairs ; interstriae flat, much wider than striae with irregular setiferous punctures. Declivity commencing a little before the middle ; face weakly convex and gradually sloping posteriorly ; striae fairly impressed marked by shallow, comparatively large punctures, each with a microhair ; interstriae flat with irregular punctures, sparse granules and long erect dense hair like setae. Procoxae very slightly separated, protibiae with 6, meso-and meta-tibiae with 9 teeth.

(c) *Distribution.*—NICOBAR ISLANDS : Great Nicobar : Campbell Bay (present record). ELSEWHERE : Indonesia (Sumatra and Soemba Island) ; Philippines (Mindoro).

(d) *Remarks.*—The stout and strong body with profuse pilosity helps the easy recognition of the species. The tubercles on the postero-lateral margins of elytral declivity vary considerably in size in the individual of intercolonial or intracolonial population. However, the species, which is predominantly found in the Malayan Archipelago, is recorded for the first time from the Great Nicobar Island. It has been collected there from

the logs of *Baccaurea sapida*, *Mangifera indica*, *Pterocymbium tinctorium* and *Myristica* species. On one occasion, the adults along with the immature stages in the month of December, have been collected from a small colony.

Genus : **Scolytomimus** Blandford

Scolytomimus Blandford, W.F.H. 1895. *Ann. Mag. nat. Hist.*, **4** (6) : 319-320. *Type-species* : *Scolytomimus dilutus* Blandford from Sri Lanka ; Hagedorn, M. 1910 *Coleopt. Cat.*, **26** (4) : 81 ; Hopkins, A.D. 1914. *Proc. U. S. nat. Mus.*, **5** : 129 ; Browne, F. G. 1957. *Sarawak Mus. J.*, **8** : 487 ; Browne, F. G. 1961. *Malaya. Forest Rec.*, no. 22, p. 80 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 15.

Neoxyloctonus Eggers, 1923. *Zool. Meded.*, **7** : 143. *Type-species* : *Neoxyloctonus philippinensis* Eggers from Philippines ; Wood, S. L. 1978. *Annls. Soc. ent. Fr.* (*N.S.*), **14** (1) : 114 (Synonymy).

Scolytocleptes Schedl, K. E. 1962. *Beitr. Z. Ent.*, **12** : 490-491, *Type-species* : *Scolytomimus maculatus* Beeson ; Wood, S. L. 1978. *Annls. Soc. ent. Fr.* (*N.S.*), **14** (1) : 114 (Synonymy).

Blandford (1895) erected the monobasic genus *Scolytomimus* to accommodate his species *S. dilutus* from Sri Lanka. This is a small, but good genus, mostly distributed in southeast Asia extending up to Samoan Isl. The genera *Neoxyloctonus* Eggers and *Scotylocleptes* Schedl have recently been submerged under it by Wood (1978). Only two species are represented in the islands of Andaman.

51. **Scolytomimus insularis** (Schedl)

Scolytomimus insularis Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 295 p., Andaman (nom. nud.) ; Schedl, K. E. 1955. *Entom. Arb. Mus. Frey*, **6** : 287, Baudin Island ; Browne, F. G. 1957. *Sarawak Mus. J.*, **8** - 491.

Scolytocleptes insularis Schedl, K. E. 1962. *Beitr. Z. Ent.*, **12** : 491-492, Female, *Type-locality* : Andaman Island ; Schedl, K. E. 1980. *Cat. Wissens. Nat. Mus. Wien.* (*Ent.*), **2** : 12.

(a) *Material.—Identified* (as *Scolytomimus insularis* Beeson) 40 exs. from Andaman Island, *C. F. C. Beeson coll.*, February-May. 1930, ex. "*Mimusops litoralis*"

(b) *Description.*—(Fig. 44, a-c) : Body very short but stout ; head and pronotum blackish brown ; elytra pale yellow ; antennae and legs yellowish white ; body length 1.45-1.55 mm ; nearly 2 times as long as wide.

Head globose, frons flatly convex, surface rugosely reticulate throughout with indistinct median line ; fringe of hairs at epistomal margin ; surface

with short fine numerous hairs. Eyes elongate, broadly emarginate, but not completely divided. Antennal scape short, funicle with 7 segments, club large and oval, entirely pubescent with one oblique septum from lateral side.

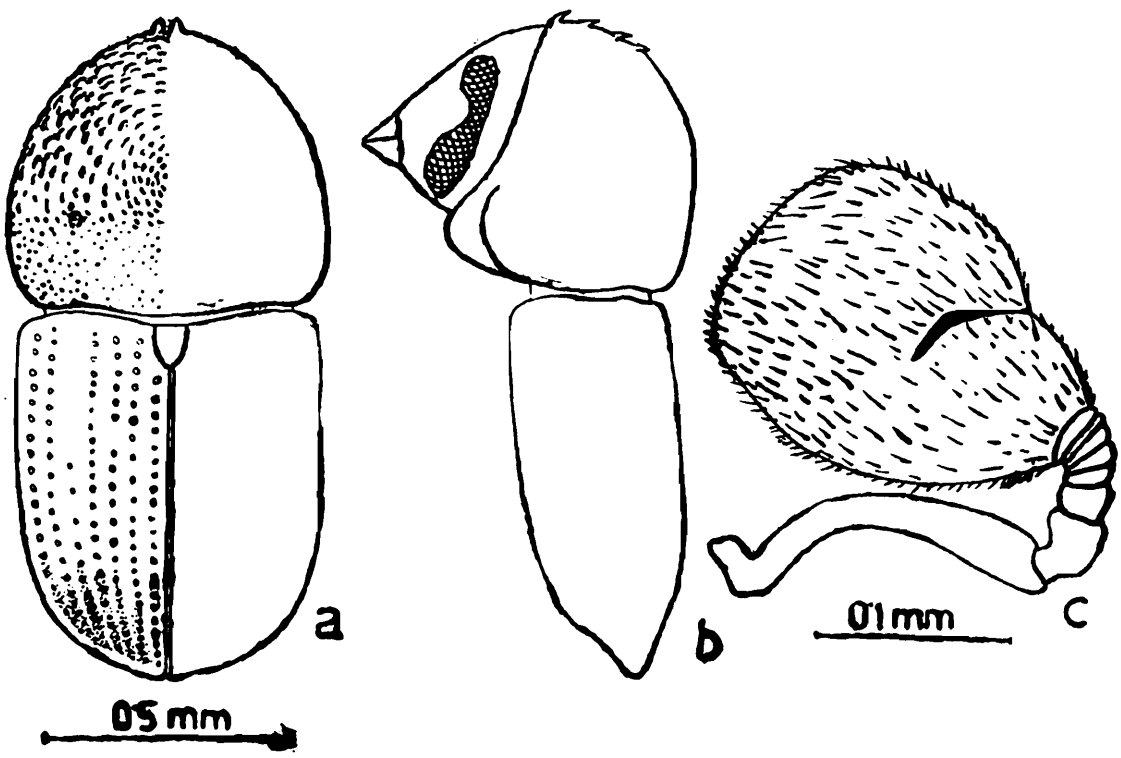

Fig. 44. a-c, *Scolytomimus insularis* (Schedl), a, Dorsal view ; b, Lateral view ; c, Antenna.

Pronotum subglobose, 1.1 times as wide as long, basal margin bisinuate, lateral sides outcurved with broadly rounded anterior margin, accommodating two distinct large asperities ; in profile, pronotum strongly convex, with indistinct summit slightly below middle ; anterior declivous portion with distinct asperities in concentric rows and becoming granulately elongate postero-laterally, granules also forming some concentric rings around the summit ; posterior half coarsely graulate with indistinct hairs.

Scutellum comparatively large, almost as long as broad, not smooth, but rather somewhat coarse, broadly tongue shaped.

Elytra subrectangular nearly 1.17 times as long as pronotum as well as its own width and slightly narrower than pronotum ; basal margin very feebly incurved in whole outline ; lateral margins weakly outcurved, postero-lateral margin somewhat angulars and distinctly margined, posterior margin weakly emarginate ; striae impressed and marked by shallow indistinct punctures without any hairs ; interstriae ridged, weakly granulate but without any distinct hair ; interstriae 3, 4 and 6 and 7 not reaching to apex. Elytra apex ascending without any distinct declivity. Procoxae contiguous.

(c) *Distribution.*—ANDAMAN ISLANDS : Andamans. (Beeson, 1941). ELSEWHERE : Baudin Island.

(d) *Remarks.*—*Scolytomimus insularis* (Schedl) is a very rare species occurring only in Andamans, recorded so far from a single host *Mimusops litoralis* as well as in Boudin Isl., Indochina. Originally the species was recognised by Beeson (1941) as *Scolytomimus insularis* from Andamans and remained undescribed until 1962, while Schedl described it under the genus *Scolytocleptes.* However, *Scolytocleptes* is no more a valid genus and is considered as a synonym of the genus *Scolytomimus* by Wood (1978).

The species can easily be distinguished from other members of the genus, *S. philippinensis* (Eggers) in Andaman by its distinctly smaller size and deeply emarginate eyes. Interestingly enough, antennal funicle with 7 segments is a peculiar character of the species, as opposed to funicle with 6 segments in all other members of the genus.

52. **Scolytomimus philippinensis** (Eggers)

Neoxyloctonus philippinensis Eggers, H. 1923. *Zool. Meded.*, **7** : 143-144, *Type-locality* : Mindanao, Philippines ; Eggers, H. 1927. *Treubia*, **9** : 406 ; Schedl, K. E. 1969. *Kontyu*, **35** (2) : 125, Australia.

Xyloctonus andamanus Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, **310** p. (nom. nud.) ; Browne, F. G. 1957. *Sarawak Mus. J.*, **8** 491 (Synonymy)

Scolytomimus philippinensis (Eggers), Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 15-16, Philippines, Andamans and New Guinea.

(a) *Material.—Identified* : (as *Xyloctonus andamanus*) (i) 26 exs. from Andaman Island, *C. F. C. Beeson coll.*, different dates between March and April, 1930, ex. "unknown log" ; (ii) 3 exs. from North Andaman, *C. F. C. Beeson coll.*, 11.iii.1930, "*Dipterocarpus turbinatus*" (iii) 13 exs. from Andaman Isl., *C. F. C. Beeson coll.*, different dates between March and May, ex. "*Sideroxylon longepetiolatum*"

(b) *Description.*—(Fig. 45, a-c) : Body short and stout ; head reddish brown, pronotum straw yellow, elytra paler ; antennae and legs straw yellow. Body length 2.50-2.60 mm, nearly 2.2 times as long as wide.

Head globose, frons flatly convex, slightly depressed above the epistomal margin ; surface reticulately arranged, distinct granules with dense coat of microhairs ; fringe of hairs at epistomal margin rather sparse. Eyes completely divided into two parts. Antennal scape long and slender, funicle with 6 segments, club very large, strongly flattened, with two oblique septa.

Scutellum comparatively small, surface somewhat coarse, broadly tongue-shaped.

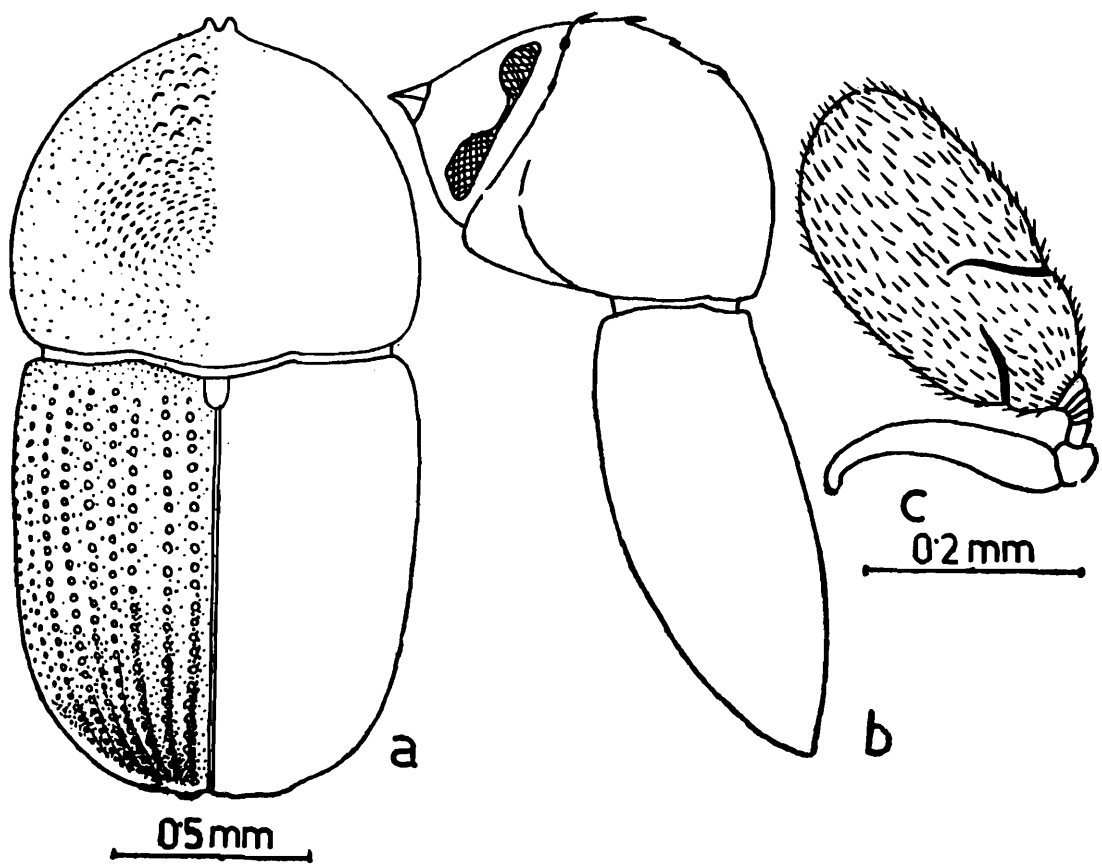

Fig. 45. a-c, *Scolytomimus philippinensis* (Eggers), a, Dorsal view ; b, Lateral view ; c, Antenna.

Pronotum subglobular, 1.1 times as wide as long, basal margin bisinuate, lateral margins outcurved, with anterior margin broadly rounded, two closely set large asperities at slightly above anterior margin, in profile pronotum strongly convex with indistinct summit ; 7-8 distinct asperities on anterior slope, other asperities very minute and abundant, surface rugose reticulate, laterally and posteriorly with close shallow punctures, abundant short fine hairs on surface.

Elytra 1.17 times as long as and slightly narrower than pronotum, 1.10 times as long as its width ; basal margin feebly outcurved, lateral margin gradually narrowing posteriorly, hemoral callous very well developed ; striae impressed, punctures rather shallow and distinct without any microhair, interstriae as wide as or slightly narrower than striae with distinct granules only. Elytral apex ascending, without any distinct declivity, alternate (2, 4, 6, 8) interstriae obsolete towards apex,. Procoxae subcontiguous, protibia with 5 marginal teeth and its inflated posterior surface bearing granules ; meso- and meta-tibiae with tarsal groove and without any marginal teeth ; metatarsus compressed.

(c) *Distribution.*—ANDAMAN ISLANDS : Andaman Isl. ELSEWHERE : Philippine Islands, New Guinea and Australia.

(d) *Remarks.*—An undescribed species of Beeson, *Xyloctonus andamanus* from Andaman, cited in literature (Beeson, 1941) has been synonymised with *Scolytomimus philippinensis* by Schedl (1966). However, *S. philippinensis* is reported from some widely separated territories of Andamans, Philippines, New Guinea and Australia. *Dipterocarpus turbinatus* and *Sideroxylon longipetiolatus* are the two hosts from which the species is recorded in the Andamans. Biologically, the species is extremely poorly known in any area of its occurrence.

Genus : **Hypocryphalus** Hopkins

Hypocryphalus Hopkins, A.D., 1915. *U. S. Dept. Agric. Rep.*, **99** : 8 and 41, *Type-species* : *Hypocyphalus rotundus* Hopkins from Philippines ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 483 ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 26.

Dacryphalus Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 42, *Type-species* : *Dacryphalus obesus* Hopkins ; Schedl, K. E. 1938. *Trans. Roy. Soc. Australia*, **62** : 48 (Synonymy).

Cryphalomimetes Browne, Schedl, K. E. 1964. *Reichenbachia*, **3** (29) : 305 (Synonymy).

Cryphalomimus Browne, Schedl K. E. 1964. *Reichenbachia*, **3** (29) : 305 (Synonymy).

Stegomerus Wood, S. L. 1967. *Gt. Basin Nat.*, **27** : 129 ; Schedl, K. E. 1979. *Ent. Arb. Mus. Frey.*, **28** : 126 (Synonymy).

The genus *Hypocryphalus* was proposed by Hopkins (1915) with the original designation of its type H. *rotundus* Hopkins from Philippines. It's generic status was widely accepted by different authors including Schedl (1959), Wood (1960) and others. *Dacryphalus*, another allied genus of Hopkins (1915), was considered as a synonym of this genus by Schedl (1938). Likewise, a few other genera, namely *Cryphalomimetes* Browne, *Cryphalomimus* Browne, and *Stegomerus* Wood were placed under the synonymy of this genus. Now, it is a well established genus with extended distribution in different parts of the world. Only a single species, *H. opacus* Schedl, is recorded from Nicobar in the present study.

53. **Hypocryphalus opacus** Schedl

Hypocryphalus opacus Schedl, K. E. 1942. *Tijdschr. Ent.*, **85** : 20-21, *Type-locality* : Buitenzorg, Java, Indonesia ; Schedl, K. E. 1971. *Steentrupia*, **1** : 146. Nicobar : Pulo Milu.

(a) *Material.*—Since no material is available for study, the following morphological characters are based on the original description of the species.

(b) *Description.*—Body colour blackish brown, elytra somewhat dull, length 1.5 mm, 2.1 times as long as broad ; body covered with close and fine punctures.

Frons flatly convex with inconspicuous punctures.

Pronotum slightly broader than long (35 : 30), comparatively narrowed at base, narrower than elytra, basal angles obtuse, lateral sides narrowed anteriorly with broadly rounded anterior margin, accommodating four large and almost closely placed similar asperities ; summit beyond the middle, strongly declivous anteriorly, with broad and large asperities ; basal portion granulate-punctate, hairs inconspicuous.

Scutellum small and triangular.

Elytra slightly broader, about 1.7 times as long as pronotum ; sides parallel up to middle, posteriorly very broadly rounded. Declivity commencing behind the middle, face obliquely convex ; entire elytral surface with minute thick punctures and with dark small hairs ; striae marked with somewhat deep punctures on the declivity ; discal interstriae slightly arched and shining, declivital interstriae comparatively narrower and somewhat strongly arched.

(d) *Distribution.*—NICOBAR ISLAND : Pulo Milu. (Schedl, 1971) ELSEWHERE : Indonesia (Java).

Genus : **Hypothenemus** Westwood

Hypothenemus Westwood, J. O. 1834. *Trans. ent. Soc. Lond.*, **1** (1) : 34, *Type-species* : *Hypothenemus eruditus* Westwood ; Hopkins, A.D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 12 ; Wood, S. L. 1954. *Univ. Kansas Sci. Bull.*, 36 : 1050.

Cryphalus (*Hypothenemus*), Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 40 ; Hagedorn, M. 1910. *Genera Insectorum* **111** : 84.

Stephanoderes Eichhoff, W. 1871. *Berl. ent. Z.*, **15** : 132, *Type-species* : *Stephanoderes chapuisii* Eichhoff (=*Crypturgus dissimilis* Zimmerman) ; Hopkins, A.D. 1914. *Proc. U. S. nat. Mus.*, 48 : 130 ; Wood, S. L. 1954. *Univ. Kansas Sci. Bull.*, **36** : 1050 ; Browne, F. G. 1963. *Ent. Ber.*, **23** : 53 (Synonymy).

Homoeocryphalus Lindemann, 1876. *Bull. Soc. Imp. Nay. Moscou*, **51** : 168, *Type-species : Stephanoderses ehlersii* Eichhoff=*Hypothenemus eruditus* Westwood, Fauvel, 1884, *Rev. d'ent.*, **3** : 315 (Synonymy).

Adiaeretus Hagedorn, M. 1909. *Dt. ent. Z.*, p. 774. *Type-species* : *Adiaeretus spinosus* Hagedorn=*elaphas* Eichhoff ; Schedl, K. E. 1939. *Rev. Zool. Bot. Afr.*, **32** : 380 (Synonymy).

The monobasic genus *Hypothenemus* was erected by Westwood (1834) for his species *H. eruditus* and proposed a three-segmented antennal funicle as the distinguishing feature of the genus. Eichhoff (1879) did not agree with its generic status and placed it in the synonymy of his genus *Stephanoderes*. Subsequent workers, such as Reitter (1894) and Hagedorn (1910) recognised both *Hypothenemus* and *Stephanoderes* as distinct genera, but considered both as subgenera of *Cryphalus*. Later on, Hopkins (1915) gave both *Hopothenemus* and *Stephanoderes* full generic status. Another genus *Adiaeretus* Hagedorn was also placed in synonymy of this genus by Schedl (1939). However, this is now a widely accepted genus occurring in tropical and subtropical regions of the world.

54 **Hypothenemus areccae** (Hornung)

Bostrichus areccae Hornung, 1842. *Stettin ent. Ztg.*, **3** : 117,, *Type-locality* : presumably Eastern India.

Bostrichus boieldieui Perroud, 1864. *Ann. Soc. Linn. Lyon.*, p. 188; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 41 (Synonymy).

Stephanoderes funigicola Eggers, H. 1908. *Ent. Blatt.*, **4** : 216, *Type-locality* : Java, Indonesia.

Hypothenemus basjoo Niisima, Y 1910. *Sapporo Nat. Hist. Soc. Trans.*, **3** : 9.

Cryphalus areccae, Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 40.

Stephanoderes areccae, Eggers, H. 1922. *Ent. Ber.*, **6** : 86 ; Eggers, H. 1929. *Wiener. Ent. Zeit.*, **46** : 56.

Stephanoderes hispidus Eggers, H. 1925. *Ent. Odd. Nar. Mus. Praze*, **3** : 156 ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 41 (Synonymy), Micronesia.

Hypothenemus capitalis Beeson, C.F.C. 1935. *B. P. Bishop Mus. Bull.*, **142** : 102, *Type-locality* : Uapou and Uahuka ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 41 (Synonymy).

Hypothenemus eupolyphagus Beeson, C.F.C. 1940. *B. P. Bishop Mus. Bull.*, **15** (18) : 193, *Type-locality* : Dehra Dun, India ; and also from other parts of India, Burma, Indonesia, Sri Lanka, Tonkin and Henderson Islands ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 41 (Synonymy).

Hypothenemus oahuensis Schedl, K. E. 1941. *Hawaiian Ent. Soc. Proc.*, **11** (1) : 110, *Type-locality* : Hawaii ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 41 (Synonymy).

Hypothenemus areccae (Hornung), Hopkins, A.D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 14 ; Wood, S. L. 1974. *Gt. Basin Nat.*, **34** (4) : 282 (Lectotype designation) ; Beeson C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 288 p.

(a) *Material.—Identified* : (i) 1 Female from Sound Island, North Andaman, *C. F. C. Beeson coll.*, 10.iii.1930, ex. "Cucurbitaceous climber" ;

(ii) 1 Female from North Andaman, *B. M. Bhatia coll.*, 10.iii.1930, ex. "unknown wood" ; (iii) 1 Female, Port Blair, South Andaman, *C. F. C. Beeson coll.*, 1930 (*det. Hypothenemus eupolyphaga*).

(b) *Description.*—(i) *Female* (Fig. 46, a-c) : Body small and cylindrical, fairly tapering towards apex ; head and pronotum dark brown ; elytra deep brown ; antennae and legs paler. Body length 1.50-1.55 mm, 2.50 times as long as broad.

Head globose, strongly narrowing anteriorly ; frons distinctly depressed, somewhat smooth and densely hairy up to the upper level of eyes marked by a transverse elevated concave margin ; antero-lateral sides with a few weak aciculations ; area above the elevated margin coarse with dense punctures and devoid of any distinct hairs ; epistomal margin with fringe of long and erect hairs. Eyes large and suboval with weak emargination. Antennal scape elongate ; funicle with 4 segments ; club somewhat flattened ; on anterior face, basal corneous portion running up to basal third

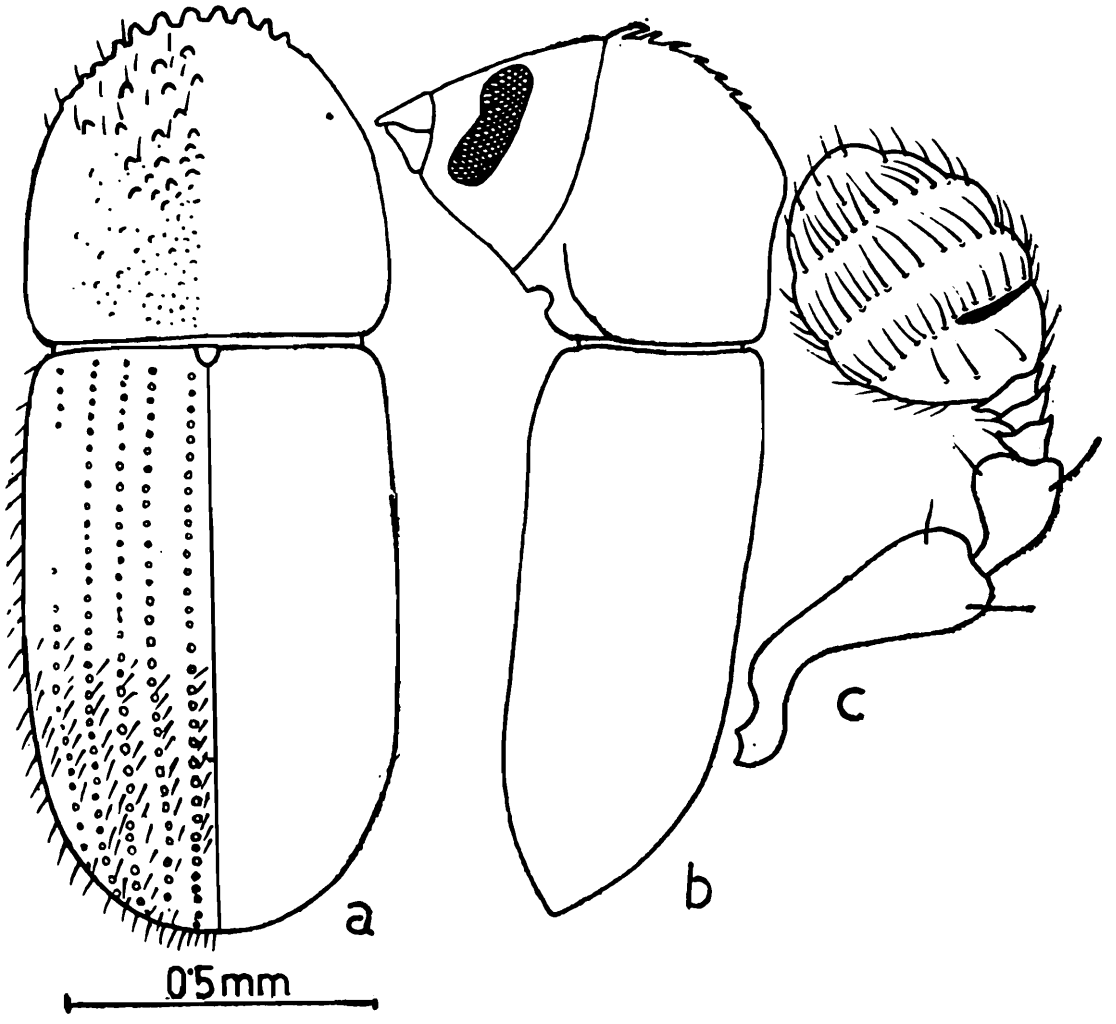

Fig. 46. a-c, *Hypothenemus areceae* (Hornung), a, Dorsal view ; b, Lateral view ; c, Antenna.

with weakly procurved anterior margin with an incomplete septum, 2 more sutures above this margin ; posterior face with 1 suture.

Pronotum as long as broad ; basal margin substraight with a feeble ridge-like margin ; sides feebly outcurved and rather broadly rounded in front ; anterior margin armed with six distinct longish asperities, lateral ones comparatively smaller; distinct summit almost at the middle ; declivous portion with numerous (40-42) distinct asperities and erect hairs ; posterior half reticulate, rather finely punctate laterally, becoming granulate behind the summit ; vestiture hair-like, intermixed on posterior area with slightly longer scale-like setae.

Scutellum small and somewhat rounded, rather indistinctly visible.

Elytra 1.60 times as long as wide and 1.60 times as long as pronotum ; basal margin substraight ; lateral sides straight and subparallel up to basal two-thirds, thence strongly narrowing posteriorly with a broadly rounded apex ; discal striae indistinctly impressed, punctures rather large with micro-hairs ; interstriae slightly wider than striae with small puncturees and confused hair-like setae. Declivity commencing on apical third with gradual sloping and convex face ; strial punctures comparatively smaller ; interstriae with scale-like setae as well as with long erect hairs.

(c) *Distribution.*—ANDAMAN ISLANDS : North and South Andamans (Beeson, 1930). ELSEWHERE : Throughout Tropical and subptropical territories of the world.

(d) *Remarks.*—The species *Hypothenemus areccae* (Hornung) can easily be separated from all other Andamanese representatives of the genus by its comparatively small and slender body form and by the presence of a short transverse carina at the upper level of eyes with weakly impressed surface below the carina. The species is widely distributed in all the tropical and subtropical parts of the world. A number of species have been synonymised under it. *Hypothenemus eupolyphaga*, a Beeson's species based on the material from the Orient including Andaman, has been synonymised under it by Wood (1960). In Andamans, it occurs in different categories of hosts from non-woody to woody plants as evidenced through Beeson's record in 1940. It has been recorded from cucurbitaceous climber, *Tamarindus indica* and from some unknown wood. No further information is available since no fresh collection is as yet made. The species is reported from the bark of a small branch of *Balanocarpus heimii* and an unknown tree in Malaya (Borwne, 1961) ; and from number of hosts in Java (Kalshoven, 1958). However, it is also known to breed in seeds, dry fruits, twigs and in a wide variety of other material in other countries (Wood, 1977).

55. **Hypothenemus birmanus** (Eichhoff)

Triarmocerus birmanus Eichhoff, W. 1878 (1879). *Mem. Soc. Roy. Sci. Liege*, **8** (2) : 486, Female, *Type-locality* : Burma ; Hagedorn, M. 1910. *Coleopt. Cat.*, **26** (4) : 46.

Stephanoderes peritus Blandford, W.F.H. 1894. *Trans. ent. Soc. Lond.*, p. 84, Female, *Type-locality* : Japan.

Stephanoderes psidii Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 32, Female, *Type-locality* : Philippines.

Stephanoderes sterculiae Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 32, Female, *Type-locality* : Philippines.

Stephanoderes uter Eggers, H. 1923. *Zool. Meded.*, 7 : 219, Feamle, *Type-localities* : Andai and Waigunina, New Guinea, Somerset and Australia.

Stephanoderes alter Eggers, H. 1923. *Zool. Meded.*, 7 : 219-220, *Type-locality* : New Guinea (Augustaflucs), Ralum, New Pommern(New Britain), Philippines (Los Banos), Borneo (Sarawak) ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of of India and Neighbouring Countries*, 298 p. Malayan region to Bengal and Sri Lanka ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 35 (Synonymy).

Stephanoderes pacificus Beeson, C.F.C. 1940. *B. P. Bishop Mus., Occ. Paper*, **15** (18) : 197, *Type-locality* : Henderson Island ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 35 (Synonymy).

Stephanoderes vafer Blandford, Beeson, C.F.C. 1940. *B. P. Bishop Mus., Occ. Paper*, **15** (18) : 198 from Henderson, Society and Marquesas Islands ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 35 (Synonymy).

Cosmoderes birmanus Schedl, K. E. 1942. *B. P. Bishop Mus. Bull.*, **172** : 148.

Stephanoderes castaneus Wood, S. L. 1954. *Univ. Kansas Sci. Bull.*, **36** (15) : 1027, *Type-locality* : Jomeslead, Fla ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 35 (Synonymy).

Stephanoderes birmanus (Eichhoff), Wood, S. L. 1961. *Insects of Micronesia*, **18** (1) : 35-36 : 35-36, Micronesia.

Hypothenemus birmanus (Eichhoff), Browne, F. G. 1970. *J. nat. Hist.*, **4** : 556 ; Wood, S. L. 1972. *Gt. Basin Nat.*, **32** : 43 ; Wood, S. L. 1977. *Gt. Basin Nat.*, **37** (1) : 70 ; Australia, Micronesia, Hawaii, Jamaica, Central and North America ; Beaver, R. A. and Browne, F. G. 1978. *Oriental Ins.*, **12** (4) : 589.

(a) *Material.*—6 Females from Long Isl., Middle Andaman, *C. F. C. Beeson coll.*, 1930, ex. "unknown wood"

(b) *Description.*—(i) *Female* (Fig. 47, a-c) : Body long and clylindrical ; head, pronotum and elytra blackish brown ; antennae and legs yellowish brown. Body length 1.70-2.00 mm, 2.30 times as long as wide.

Head globose ; frons moderately convex, feebly impressed above epistoma and median longitudinal strip smooth and shiny, laterally finely

aciculate ; punctures small and sparse becoming coarse towards epistoma ; surface with fine small hairs ; epistomal margin slightly elevated with a few erect hairs. Eyes oval and feebly emarginate. Antennal scape long and slender, funicle with 4 segments, club flattened, suture 1 partly sepatate ; other two sutures above it rather procurved.

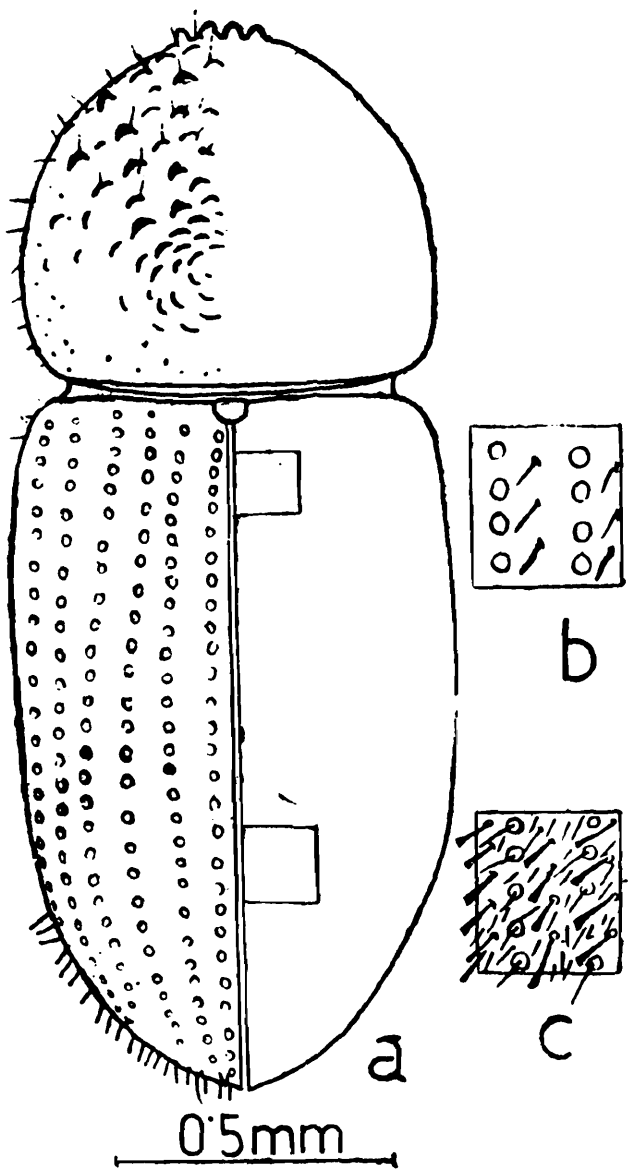

Fig. 47. a-c, *Hypothenemus birmanus* (Eichhoff), a, Dorsal view ; b, Enlarged view of elytral disc ; c, Enlarged view of elytral declivity.

Pronotum 1.17 times wider than long ; basal margin stubstraight ; lateral sides weakly outcurved, widest at basal one-fourth ; anterior margin broadly rounded accommodating four asperities ; median two comparatively large ; in profile, dorsal margin with distinct summit at middle ; anterior slope with large distinct 18-23 asperities, a few transverse ones above summit ; posterior half rugosely granulate and punctate , entire pronotal surface with small recumbent hairs and a few long erect hairs along with sparse scale-like setae on posterior half.

Scutellum fairly large, triangular and much wider than long.

Elytra 1.90 times as long as pronotum and 1.30 times as long as its width ; basal margin substraight, weakly margined ; lateral sides subparallel up to basal two-thirds, gradually narrowing posteriorly with broadly rounded apex ; disc flat, strial lines feebly impressed, with shallow minute punctures ; each interstria nearly two and a half times as wide as striae with irregular 2-3 rows of minute punctures with inconspicuous microhairs, and uniseriate sparse setae. Declivital slope gradual, commencing behind middle, face convex ; strial punctures rather distinct, entire declivital surface with abundant microhairs as in strial punctures and single row of irregular scales denser than on disc.

(i) *Male* : No male is available in the material under study.

(c) *Distribution.*—ANDAMAN ISL. : Middle Andaman : Long Isl. (present record). ELSEWHERE : South east Asia, Australia, Micronesia, Hawaii, Africa, and Central and North America.

(d) *Remarks.—Hypothenemus birmanus*, a widely distributed species around the tropical world, was knwon by a number of names in different territories. In the major part of the Orient, including India, the species was known by the name of *Stephanoderes alter* Eggers, until 1960, when it was placed under the synonymy of *H. birmanus* by wood. However, the species is recorded for the first time from an unknown wood in the Middle Andaman. Biological information is very meagre on the Indian population, except that of Beeson (1941) referring to some host-plants only. However, in Malaya, the species is known to attack pods of different species of Leguminosae including a number of other host-plants (Browne, 1961).

56. **Hypothenemus glabripennis** (Hopkins)

Stephanoderes glabripennis Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 32, Female, *Type-locality* : Bulagan, Angat, Philippines ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, 298 p., Andaman ; Kalshoven, L.G.E. 1958. *Tijdschr. Ent.*, **101** : 169-170, Java and Sumatra.

Hypothenemus glabripennis (Hopkins), Wood, S. L. 1972. *Gt. Basin Nat.*, **32** : 47 ; Beaver, R. A. and Browne, F. G. 1975. *Oriental Ins.*, **9** (3) : 290, Andaman Isl., Indonesia (Java, Sumatra), Malaya, Philippines, Thailand ; Beaver, R. A. and Browne F. G. 1978. *Oriental Ins.*, **12** (4) : 591, Andaman Isl., Indonesia (Java, Sumatra), Malaya, Philippines and Thailand.

(a) *Material.—Identified* : 1 Female from Port Blair, South Andaman, *C. F. C. Beeson coll.*, ex. "Branch of *Tamarindus indica*"

(b) *Description.*—(i) *Female* (Fig. 48, a) Body short and stout ; head chestnut brown, pronotum and elytra pale brown ; antennae and legs still paler. Body length 2.14 mm, 2.30 times as long as wide.

Head globose ; frons fairly convex, feebly impressed above epistomal margin ; surface reticulately rugose with sparse scattered punctures and fine hairs except on the area medially above epistoma ; epistomal margin with fringe of hairs. Eyes elongately oval, nearly one-third of width divided by emargination. Antennal scape elongate ; funicle with 5 segments ; club flattened ; suture 1 partly septate ; other 2 above it almost straight and marked by hairs.

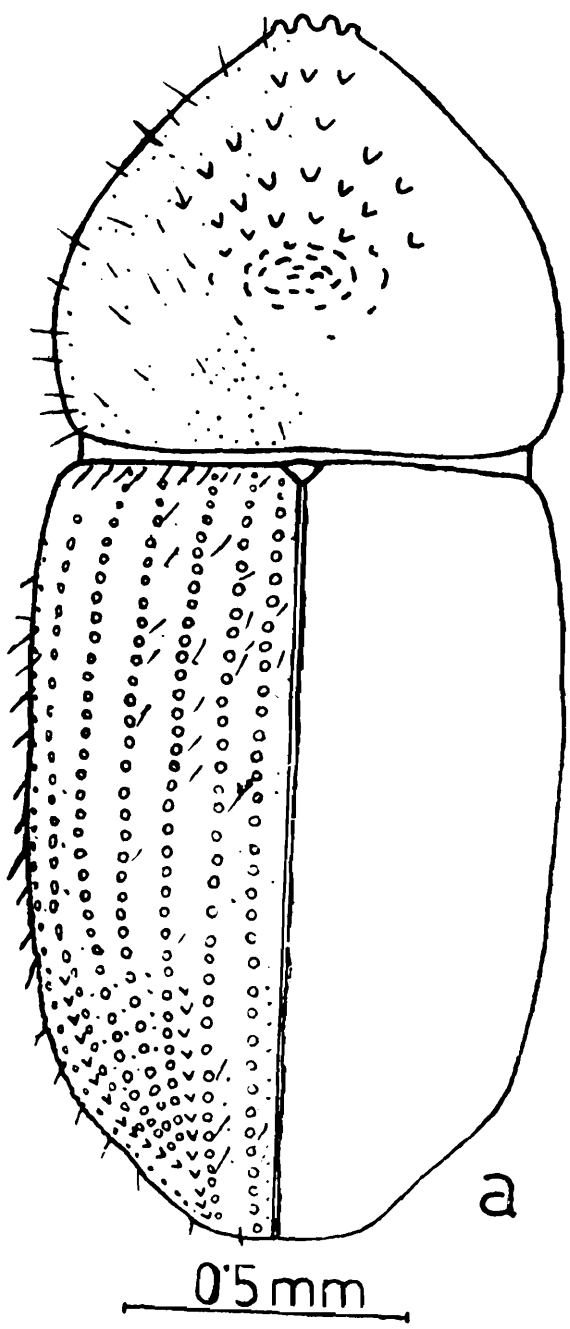

Fig. 48. a, *Hypothenemus glabripennis* (Hopkins)
a, Dorsal view.

Pronotum 1.20 times as wide as long ; basal margin substraight with feeble ridged margin ; widest at base ; lateral sides weakly outcurved ; anterior margin broadly rounded with 4 somewhat pointed asperities, of which middle two comparatively large ; distinct summit almost at the middle anterior declivous portion with at least 25 large distinct asperities and a few transverse contiguous ones around summit ; posterior half coarsely reticulate with granules, intermixed with small and large hairs ; scale-like setae absent.

Scutellum small and triangular.

Elytra nearly twice as long as pronotum and 1.50 times as long as its width ; basal margin substraight ; lateral sides straight and subparallel on basal two-thirds, whence narrowing posteriorly, with somewhat narrowly rounded apex ; discal striae impressed marked by large, close punctures ; stria 1 more impressed ; interstriae distinctly convex, slightly wider than striae with some small confused punctures and with some sparse erect hairs laterally. Declivity commencing on apical third, gradually sloping with convex face ; declivital striae prominent ; interstriae 1, 3, 5, 7 and 9 strongly elevated ; declivital interstriae uniseriately granulate with fine hairs.

(ii) *Male* : Unknown.

(c) *Distribution.*—ANDAMAN ISL. : Andaman (Beeson, 1941). ELSEWHERE : Malaya, Philippines, Indonesia (Java, Sumatra) and Thailand.

(d) *Remarks.*—The species *Hypothenemus glabripennis* is the largest species among all other Andamanese representatives of the genus. The species can readily be separated from all other Andamanese representatives of the genus in having large size and by the characteristic elytral declivity with strong elevation on every alternate interstria. It is a very uncommon species in the Andamans, only once reported from a single host of *Tamarindus indicus*. However, the species is fairly represented in Indonesia, Malaya, Philippines and Thailand. It is mostly reported from dead and dry twigs, climbers, etc. in different territories. Leguminous plants seem to be most favoured by the species. Biological features with regard to the host-records, gallery pattern, emergence of adults, etc. have been studied in different territories, such as, in Andamans by Beeson (1941), in Malaya by Browne (1961), in Thailand by Beaver and Browne (1975) and Beaver and Browne (1978) and in Java by Kalshoven (1958).

57. **Hypothenemus javanus** (Eggers).

Stephanoderes javanus Eggers, H. 1908. *Ent. Blatt.*, **4** : 215, Female, *Type-locality* : Java, Indonesia ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, **299** p., from Bengal and Sri Lanka ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 485, Sri Lanka ; India : West Bengal ; Malaya ; Philippines ; Formosa and Indonesia : Java and Borneo.

Stephanoderes pistor Schedl, K. E. 1951. *Dusenia*, **2** : 102, Female, *Type-locality* : Java ; Wood, S. L. 1976. *Gt. Basin Nat.*, **36** (3) : 348 (Synonymy).

Stephanoderes prosper Schedl, K. E. 1957. *Dusenia*, **2** : 103, Female, *Type-locality* : Guadeloupe ; Wood, S. L. 1976. *Gt. Basin Nat.*, **36** (3) : 348 (Synonymy).

(a) *Material.*—(i) 1 Female from Long Island, Middle Andaman, *C. F. C. Beeson coll.*, 1930, ex. "unknown wood"; (ii) 2 Females from Port Blair, *C. F. C. Beeson coll.*, ex. "Branches of *Tamarindus indica*" ; (iii) 2 Females from Car Nicobar, *For. Ent. coll.*, 1930, ex. "unknown wood"

(b) *Description.*—(Fig. 49, a-c) : Body short, colour yellowish brown to reddish brown, legs and antennae paler. Body length 1.60-1.70 mm, 2.2 times as long as wide.

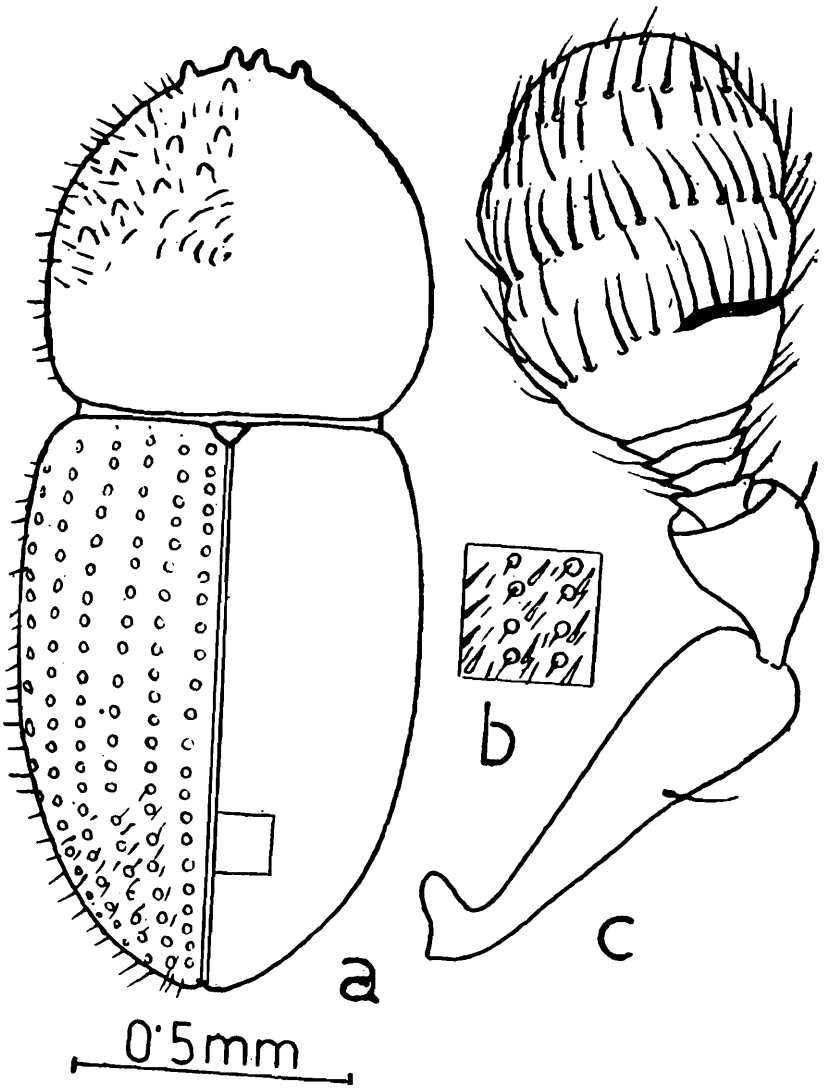

Fig. 49. a-c, *Hypothenemus javanus* (Eggers) a, Dorsal view ; b, Enlarged view of elytral declivity ; c, Antenna.

Head globose ; frons with strong elevation at upper level of eyes, moderately impressed up to epistomal margin ; surface smooth and shiny with minute punctures and dense coat of stout hairs of moderate size ; epistomal margin with two tufts of long hairs on either side. Eyes oval and very shallowly emarginate. Antennal scape long and slender ; funicle with 4 segments ; club flattened with 3 procurved sutures indicated by hairs, suture 1 partly septate.

Pronotum 1.2 times as wide as long, basal margin substraight and laterally weakly carinate extending a little ; lateral sides weakly outcurved ; anterior margin broadly rounded with 4 distinct asperities, nearly of equal size, median two rather close ; in profile, dorsal margin with distinct summit slightly behind middle ; anterior slope with 18-22 large distinct asperities, some transverse contiguous asperities around summit ; posterior third and laterally reticulate with indistinct granules ; surface with semirecumbent stout hairs intermingled with scales.

Scutellum somewhat triangular and much wider than long.

Elytra 1.8 times as long as pronotum and 1.4 times as long as its width ; basal margin substraight ; lateral sides subparallel up to basal two-thirds, gradually narrowing posteriorly with broadly rounded apex ; discal straie impressed, punctures large but shallow with microhairs ; interstriae nearly one and half times wider than striae and punctures hardly visible with only scale like sparse setae. Declivital slope gradual, commencing at posterior third, with convex face ; striae as on disc ; interstriae with both scale-like setae as well as with a few microhairs.

(c) *Distribution.*—ANDAMAN AND NICOBAR ISLANDS : *Andaman Isls.* : Middle and South Andamans ; *Nicobar Isl.* : Car Nicobar (all present records). ELSEWHERE : India, Sri Lanka, Malaya, Java, Borneo, Philippine Isl., Formosa and East Africa ; Guadeloupe Martinique, Cuba, Florida and Brazil.

(d) *Remarks.—Hypothenemus javanus*, primarily a shoot- and twig-borer, is a widely distributed species in the Orient. It was originally discovered in a Laboratory in Italy in the fructification of fungus from Java. The species, *Stephanoderes javanus* was placed in synonymy of *S. setosus* Eichhoff by Schedl (1962), whose specific status was revived by Wood (1975) and had transferred the species to the genus *Hypothenemus*. Subsequently, Wood (1976) also synonymised two more species, namely, *S. pistor* Schedl from Cuba and *S. prosper* Schedl from Guadeloupe, under *H. javanus*. Thus, its distribution limits are much enlarged. However,

the species is recorded for the first time from the islands of Andaman and Nicobar from *Tamarindus indica* along with some unknown logs. In the mainland of India and in the neighbouring countries, the species is known to be associated with seven host-plants, including the host mentioned above (Beeson, 1941). In Malaya, it has been found in dead or cut twigs of many plants (Borwne, 1961) and in Java in fungi, canes and twigs of a number of plants (Kalshoven, 1958).

Gcnus : **Ptilopodius** Hopkins

Ptilopodius Hopkins, A. D. 1915. *U. S. Dept. Agric. Rep.*, **99** : 11, *Type-species* : *Ptilopodius stephegynis* Hopkins ; Schedl, K. E. 1959. *Trans. R. ent. Soc. Lond.*, **111** : 475 ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 18 ; Browne, F. G. 1961. *Malay. Forest Rec.*, no. 22, p. 79 ; Schedl, K. E. 1966. *Entom. Abh. Mus. Tierk. Dresden*, **35** : 18 ; Schedl, K. E. 1971. *Entomologica scand.* (Suppl.) ; **1** : 274-285.

The genus *Ptilopodius* has remained valid since its establishment by Hopkins (1915), until Schedl (1971) considered it as a synonym of the genus *Cryphalops* Reitter. But recently, Wood (1978) revived its generic status and considered *Cryphalops* as a synonym of the genus *Ernoporus* Thompson. It is a small genus containing about a dozen of species, mostly found in the Oriental Region with a few species extending up to Hawaii in the east and to Madagascar in the West. However, the species *P. ramosus* Beeson is the only species represented in the Nicobars.

58. **Ptilopodius ramosus** Beeson

Ptilopodius ramosus Beeson, C. F. C. 1922. *Indian Forester*, **48** : 498 (nom. nud) ; Beeson, C.F.C. 1935. *B. P. Bishop Mus. Bull.*, **142** : 115. *Type-localities* : Fautaua Valley, Tahiti, Society Isl. and India (West Bengal : Sundarbans, Car Nicobar and Little Nicobar) ; Beeson, C.F.C. 1938. *J. fed. Malay States Mus.*, **18** : 290 ; Beeson, C.F.C. 1941. *Ecology and Control of Forest Insects of India and Neighbouring Countries*, **295** p. ; Wood, S. L. 1960. *Insects of Micronesia*, **18** (1) : 20-21, Micronesia.

(a) *Material.*—A. *Identified* : (i) 1 ex. from Little Nicobar, *Forest Entomologist coll.*, 1930, ex. "under bark of *Inpaum*" ; (ii) 5 exs., Car Nicobar, *Forest Entomologist coll.*, 1930, ex. "under bark of *Taukk*"

(b) *Description.*—(i) *Female* (Fig., 50, a-c) : Body short and stout ; body colour yellowish brown to reddish brown. Body length 1.35-1.50 mm and 2.1 times as long as wide.

Head globose, strongly narrowing anteriorly ; frons flatly convex, moderately impressed above epistoma ; median line absent ; surface feebly rugosely reticulate, finely and sparsely punctate with sparse short hairs ; epistomal margin elvated and with fringe of hairs. Eyes elongately oval

and entire. Antennal scape long and thin ; funicle with 4 segments ; club devoid of any septum or suture, entirely pubescent.

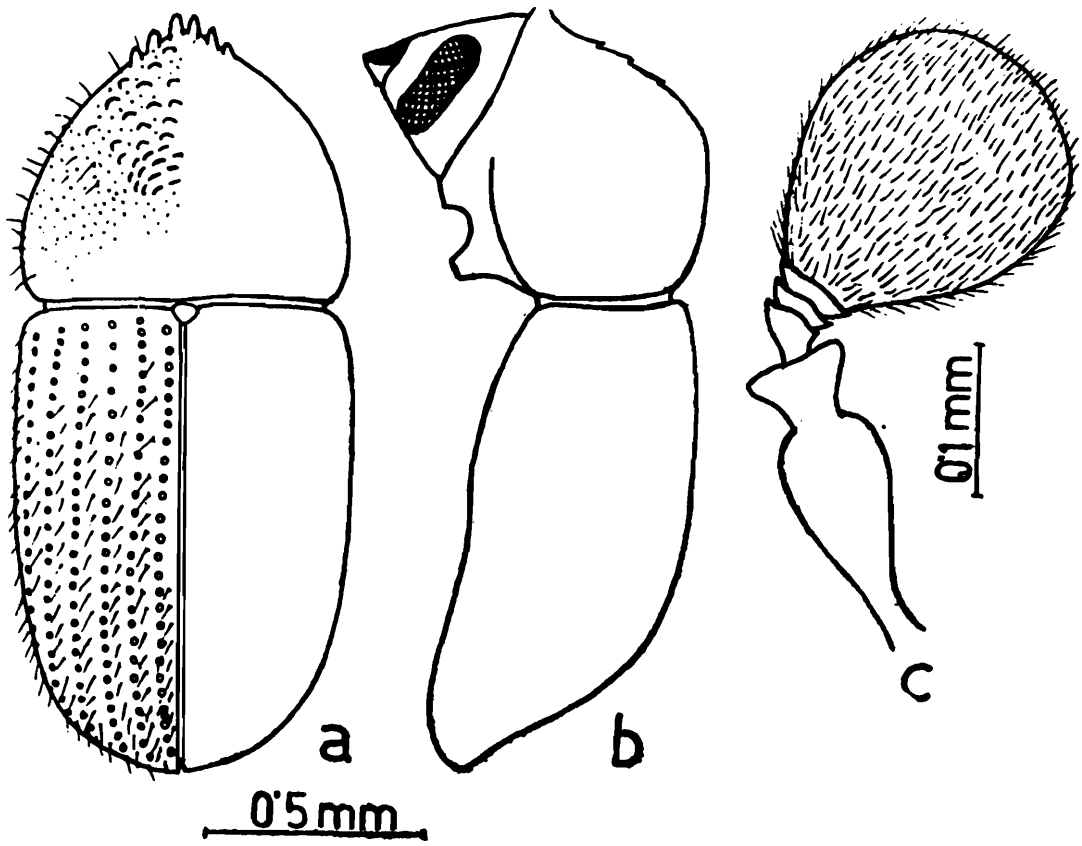

Fig. 50. a-c, *Ptilopodius ramosus* Beeson
a, Dorsal view, b, Lateral view ;
c, Antenna.

Pronotum nearly as long as broad ; basal margin substraight and weakly emarginate on either side of the middle ; entire basal margin with weak carine, extending laterally up to basal half ; widest at basal third ; lateral sides converging anteriorly ; anterior margin narrowly rounded and produced, accommodating about 6 teeth, of which median pair larger ; in profile, dorsal margin moderatley convex, summit just below the middle ; anterior slop with a few transverse rows of distinct asperities, asperities concentrically arranged around summit ; posterior and lateral areas finely reticulate with fine punctures, rather subgranuulate below the summit ; short sparse hairs on entire surface.

Scutellum smootth, shining and subrounded.

Elytra 1.40 times as long as pronotum and 1.40 times as long as broad ; basal margin substraight ; lateral sides rather feebly outcurved on bsaal half, thence gradually narrowing posteriorly with broadly rounded apex ; surface weakly convex and shiny ; discal striae not impressed, but marked by very small and shallow punctures with microhairs ; interstriae much wi-

der than striae with uniseriate row of punctures, granules and short hairs, more porminent posteriorly. Declivily commencing on apical half, gradually sloping posteriorly with regular convex face ; declivital striae comparatively wider and marked by distinct shallow and close punctures ; interstriae narrower than those on disc, granulate and punctate with uniseriate row of scale-like hairs ; tarsi of foreleg with long plumose setae and stem not laminate, but with about 10-12 branches on single side apically ; procoxae contiguous.

(ii) *Male* : Similar to female.

(c) *Distribution.*—NICOBAR ISLAND : Car Nicobar and Little Nicobar (Beeson, 1935). ELSEWHERE India (West Bengal, Sundarbans), Mangarava, Society Isl., Caroline Isl. and Micronesia.

(d) *Remarks.*—This species is recorded from Car Nicobar occurring under the bark of '*taukk*' and from Little Nicobar under the bark of '*Inpaum*' The elaborate pulmose tarsal hairs keep the species distinct from all other scolytid beetles of the islands of Andaman and Nicobar. Beeson (1941) reported the species from the bark of *Hibiscus tiliaceus* from the Sundarbans coast of India to the Pacific islands.

LIST OF SPECIES AND HOST-PLANTS

List of scolytid-species associated with host-plants

Scolytid-species	*Host-plants*
Hylesinus despectus Walker	*Artocarpus chaplasha, Ficus callosa, F. infectoria, Myristica* sp., *Mangifera indica, Terminalia procera*
Diamerus curvifer (Walker)	*Macaranga andamanica*
Coccotrypes cyperi (Beeson)	*Salmalia* sp.
Coccotrypes fallax (Eggers)	*Bruguiera gymnorhiza* (Seed)
Coccotrypes litoralis (Beeson)	*Rhizophora mucronata* (Germinating seedling).
Coccotrypes trevori Beeson	*Areca catechu* (Seed)
Ozopemon obanus Hagedorn	*Canarium euphyllum, Mangifera indica, Myristica* sp.
Anaxyleborus resecans (Eggers)	*Dipterocarpus turbinatus*

Ambrosiodmus nepos (Eggers)	*Ficus infectoria, Sterculia alata*
Arixyleborus mediosectus (Eggers)	*Artocarpus chaplasha, Canarium euphyllum, Dendrocalamus strictus, Dipterocarpus tubinatus, Terminalis* bialata
Arixyleborus rugosipes Hopkins	*Artocarpus chaplasha, Canarium euphyllum, Diospyros oocarpa, Dipterocarpus turbinatus, Terminalia bialata, T Manii*
Coptoborus emarginatus (Eichhoff)	*Myristica* sp.
Coptoborus pumilus (Eggers)	*Artocarpus chaplasha. Dipterocarpus* sp., *Sterculia campanulata, S. villosa.*
Eccoptopterus spinosus (Olivier)	*Albizzia lebbek, Calophyllum spectabile, Dipterocarpus turbinatus, Parishia insignis*
Euwallacea andamanensis (Blandford).	*Artocarpus chaplasha, Terminalia procera, Tetrameles nudiflora*
Euwallacea interjectus (Blandford)	*Calophyllum spectabile, Canarium euphyllum, Pterocymbium tinctorium, Sterculia alata, S. Campanulata, S. villosa*
Euwallacea velatus (Sampson)	*Canarium euphyllum, Pterocarpus dalbergioides*
Leptoxyleborus concisus (Blandford).	*Albizzia lebbek, Mimusops littoralia, Planchonia andamanica.*
Notoxyleborus major (Stebbing)	*Dipterocarpus turbinatus*
Webbia turbinatus sp. nov.	*Dipterocarpus turbinatus, D.* sp.
Xyleborinus andrewesi (Blandford).	*Canarium euphyllum, Dipterocarpus turbinatus, Terminalia bialata*
Xyleborinus exiguus (Walker)	*Artocarpus chaplasha, Canarium euphyllum*
Xyleborus bicolor (Blandford)	*Myristica andamanica*
Xyleborus bidentatus (Motschulsky)	*Mimusops litoralis, Terminalia bialata, T procera*

Xyleborus cognatus Blandford	*Salmalia insigne, Bruguiera gymnorhiza, Canarium euphyllum, Diospyros oocarpa, Dipterocarpus turbinatus, Mimusops litoralis, Planchonia andamanica, Pterocarpus dalbergioides,* Rhizophora *mucronata, Sterculia campanulata, Terminalia bialata*
Xyleborus corpulentus Eggers	*Albizzia lebbek, Artocarpus chaplasha, Canarium euphyllum*
Xyleborus perforans (Wollaston)	*Adenanthera pavonina, Seeds of Bruguiera gymnorhiza, Canarium euphyllum, Endospermum chinensis, Parishia insignis, Planchonia andamanica, Pterocymbium tinctorium, Rhizophora mucronata, Terminalia bilata, T procera*
Xyleborus piceus (Motschulsky)	*Diospyros pyrrhocarpa, Pterocymbium tinctorium*
Xyleborus rodgeri Beeson	*Pterospermum acerifolium*
Xyleborus similis (Ferrari)	*Baccaurea sapida, Canarium euphyllum, Dipterocarpus* sp., *Endospermum chinensis, Ficus infectoria, Ficus* sp., *Mangifera indica, Mimusops* sp., *Pterocymbium tinctorium, Samanea samon, Tetrameles nudiflora*
Xyleborus shiva sp. nov.	*Pterocymbium tinctorium*
Xyleborus sundaensis Eggers	*Samanea saman*
Xylosandrus crassiusculus (Motschulsky)	*Albizzia lebbek, Terminalia procera*
Xylosandrus discolor (Blandford)	*Terminalia procera*
Xylosandrus ursinus (Hagedorn)	*Baccaurea sapida, Mangifera indica, Myristica sp., Pterocymbium tinctorium*

Scolytomimus insularis (Schedl)	*Mimusops litoralis*
Scolytomimus philippinensis (Eggers)	*Dipterocarpus turbinatus, Sideroxylon longepetiolatum*
Hypothenemus glabripennis (Hopkins)	*Tamarindus indica*
Hypothenemus javanus (Eggers)	*Tamairndus indica*

List of host-plants infested by the scolytid-species

Host-plants	*Scolytid-species*
Adenanthera pavonina	*Xyleborus perforans* (Wollaston)
Areca catechu	*Coccotrypes trevori Beeson*
Albizzia lebbek	*Eccoptopterus spinosus* (Olivier) *Leptoxyleborus concisus* (Blandford) *Xyleborus corpulentus* Eggers *Xylosandrus crassiusculus* (Mots.)
Artocarpus chaplasha	*Hylesinus despectus* Walker *Arixyleborus mediosectus* (Eggers) *Arixyleborus rugosipes* Hopkins *Coptoborus pumilus* (Eggers) *Euwallacea andamanensis* (Blandford) *Xyleborinus exiguus* (Walker) *Xyleborus corpulentus* Eggers
Bruguiera gymnorhiza	*Cocotrypes fallax* (Eggers) *Xyleborus cognatus* Blandford *Xyleborus perforans* (Wollaston) (in seeds)
Buccaurea sapida	*Xyleborus similis* (Ferrari) *Xylosandrus ursinus* (Hagedorn)
Calophyllum spectabile	*Eccoptopterus spinosus* (Olivier) *Euwallacea interjectus* (Blandford)
Canarium euphyllum	*Ozopemon obanus Hagedorn* *Arixyleborus mediosectus* (Eggers) *Arixyleborus rugosipes* Hopkins *Euwallacea interjectus* (Blandford) *Euwallacea velatus* (Sampson) *Xyleborinus andrewesi* (Blandford)

	Xyleborinus exiguus (Walker) *Xyleborus cognatus* Blandford *Xyleborus corpulentus* Eggers *Xyleborus perforans* (Wollaston)
Dendocalamus strictus	*Arixyleborus mediosectus* (Eggers)
Dipterocarpus turbinatus	*Anaxyleborus resecans* (Eggers) *Arixyleborus mediosectus* (Eggers) *Eccoptopterus spinosus* (Olivier) *Notoxyleborus major* (Stebbing) *Webbia turbinatus* sp. nov. *Xyleborinus andrewesi* (Blandford) *Xyleborus cognatus* Blandford *Scolytomimus philippinensis* (Eggers)
Dipterocarpus sp.	*Coptoborus pumilus* (Eggers) *Xyleborus similis* (Ferrari)
Dyospyros oocarpa	*Arixyleborus rugosipes* Hopkins *Xyleborus cognatus* Blandford
Diospyros pyrrhocarpa	*Xyleborus piceus* (Motschulsky)
Endospermum chinensis	*Xyleborus perforans* (Wollaston) *Xyleborus similis* (Ferrari)
Ficus callosa	*Hylesinus despectus* Walker
Ficus infectoria	*Ambrosiodmus nepos* (Eggers) *Xyleborus similis* (Ferrari)
Ficus sp.	*Xyleborus similis* (Ferrari)
Macaranga andmanica	*Diamerus curvifer* (Walker)
Mangifera indica	*Hylesinus despectus* Walker *Ozopemon obanus* Hagedorn *Xyleborus similis* (Ferrari) *Xylosandrus ursinus* (Hagedorn)
Mimusops litoralis	*Leptoxyleborus concisus* (Blandford) *Xyleborus bidentatus* (Mots.) *Xyleborus cognatus* Blandford *Scolytominus insularis* (Schedl)
Mimusops sp.	*Xyleborus similis* (Ferrari)
Myristica andamanica	*Xyleborus bicolor* Blandford
Myristica sp.	*Hylesinus despectus* Walker *Ozopemon obanus* Hagedorn *Coptoborus emarginatus* (Eichhoff) *Xylosandrus ursinus* (Hagedorn)

Parishia insignis	*Eccoptopterus spinosus* (Olivier) *Xyleborus perforans* (Wollaston)
Planchonia andamanica	*Leptoxyleborus concisus* Blandford) *Xyleborus cognatus* Blandford *Xyleborus perforans* (Wollaston)
Pterocarpus dalbergioides	*Euwallacea velatus* (Sampson) *Xyleborus cognatus* Blandford)
Pterocymbium tinctorium	*Euwallacea interjectus* (Blandford) *Xyleborus perforans* (Wollaston) *Xyleborus piceus* (Mots.) *Xyleborus similis* (Ferrari) *Xyleborus shiva* sp. nov. *Xylosandrus ursinus* (Hagedorn)
Pterospemum acerifolium	*Xyleborus rodgeri* Beeson
Rhizophora mucronata	*Coccotrypes litoralis* (Beeson) Xyleborus *cognatus* Blandford *Xyleborus perforans* (Wollaston)
Salmalia insignis	*Xyleborus cognatus* Blandford
Salmalia sp.	*Coccotrypes cyperi* (Beeson)
Samanea saman	*Xyleborus similis* (Ferrari) *Xyleborus sundaensis* Eggers
Sideroxylon longepetiolatum	*Scolytomimum philippinensis* (Eggers)
Sterculia alata	*Ambrosiodmus nepos* (Eggers)
Sterculia campanulata	*Coptoborus pumilus* (Eggers) *Euwallacea interjectus* (Blandford) *Xyleborus cognatus* Blandford
Sterculia villosa	*Coptoborus pumilus* (Eggers) *Euwallacea interjectus* (Balndford)
Tamarindus indica	*Hypothenemus glabripennis* (Hopkins) *Hypothemus javanus* (Eggers)
Terminalia bialata	*Arixyleborus mediosectus* (Eggers) *Arixyleborus rugosipes* Hopkins *Xyleborinus andrewesi* (Blandford) *Xyleborus bidentatus* (Mots.) *Xyleborus cognatus* Blandford *Xyleborus perforans* (Wollaston)
Terminalia Manii	*Arixyleborus rugosipes* Hopikns
Terminalia procera	*Hylesinus despectus* Walker *Euwallacea andmanensis* (Blandford) Xyleborus *bidentatus* (Mots.) Xyleborus *perforans* Wollaston Xylosandrus *crassiusculus* (Mots.) *Xylosandrus discolor* (Blandford)
Tetrameles nudiflora	*Euwallacea andamanensis* (Blandford) Xyleborus *similis* (Ferrari)

ZOOGEOGRAPHICAL ANALYSIS

The present study reveals that a total of 58 species belonging to 24 genera under the subfamilies of Scolytidae, occurs in the islands of Andaman and Nicobar. Some more 18 species have not been included in the present account due to either lack of material or correct identity as mentioned earlier. Thus, all the species taken into account, a total of about 76 species inhabits this insular area, which constitutes roughly one-fourth of the species represented in the Indian mainland. The distributional record shows that the fauna of these islands is a product of some heterogenous assemblage of exotic species and of its own restricted species. Of course, the restricted species are only four, namely, *Coccotrypes nigronitens* (Scheld), *C. trevori* Beeson, *Webbia turbinatus* sp. nov. and *Xyleborus shiva* sp. nov. Likewise, four world-wide distributed species namely, *Hypothenemus areccae* (Hornung), *Hypothenemus birmanus* (Eichhoff), *Xyleborus perforans* Wollaston and *Xyleborus torquatus* Eichhoff are also found in the area. The large majority of the faunal elements are no doubt Indo-Malayan in origin and the rest also occurs in the Papuan, Australian, Ethiopean and Palaearctic Regions. However, the inter-island distributional record shows that the Andaman group of islands with its fairly large land surface area as usually support as many as 40 species which predominantly share their distribution with the fauna of eastern India and Malaya peninsula. On the other hand, the Nicobar group with its isolated scattered islands supports only some 12 species which are predominantly of Indonesian elements. Only some 6 species occur widely in the entire insular chain from the Andamans in the North to Nicobar in the south. However, the present study clearly shows that the scolytid fauna of these islands is quite rich. Further, systematic field exploration will certainly augment our faunal knowledge.

Since the islands of Andaman and Nicobar are widely separated from the adjacent land masses by a long water gap, certain questions may, however arise as to how these islands have been colonized by these beetles. It can be presumed that these insects might have reached these islands through some direct land connection during the past geological time or by some artificial means, such as drifted wood, raft, human agency, etc. or by overseas dispersal by flight. As a general rule, the dispersal of these beetles mainly depends on the dispersal of their hosts, the beetles themselves playing a passive role. This is widely accepted that they are weak flyers to low height, mostly in sheltered environment. Therefore, it is quite possible that most of the exotic species of these islands have reached the area mostly by floating logs and other commodities of international trade. However, the geographical origin, mode of dispersal and colonization pattern will be discussed elsewhere in details.

SUMMARY

The monograph deals with the bark- and timber-beetles belonging to the Coleopterous family Scolytidae of the islands of Andaman and Nicobar. These islands, situated in the Bay of Bengal and Indian Ocean, are practically the summits of a submerged mountain chain spreading from the Arakan Yomah of Burma in north to the Mentawei in the south. This chain of islands, with their characteristic physiography, climate, vegetation, etc, create ideal conditions to support a rich scolytid fauna which is so far known in a very desolute manner represented by some 44 species belonging to 19 genera under two sub-families. In the present study, some 17 species under 10 genera have been added for the first time to the existing fauna to make a total of 58 species including two new species. The present study was mainly based on the material collected under a special project of the Department of Science and Technology, New Delhi, entitled, "Investigation on ecological interaction and economic status of the xylophagus Insects of the islands of Andaman and Nicobar" under the guidance of the senior author, during the period 1978-81. This collection was augmented by an excellent collection of both unidentified and identified material including types present in FRI. For the first time, the entire fauna of these islands has been treated taxonomically in details. Each species has been dealt with regard to its current scientific name, extensive synonyms, morphological characters, range of variation and distribution, and affinities with allied species, etc. Apart from this, the generic status of a number of species has been changed, following the recent classification of Wood (1978 and 1980). The field biological notes along with host-plants are also incorporated. Both the generic and specific keys are also provided for their easy recognition.

The species already known from this area, but not represented by any material, have been dealt with the help of existing literature. A list of scolytid-species associated with different hosts as well as host-plants associated with different species are also appended. It is clear that *Canarium euphyllum* and *Dipterocarpus turbinatus* are the two susceptible hosts being attacked by a dozen of scolytid-species.

Almost all the species are illustrated as far as practicable through numerous diagrams. Zoogeographical analysis of the known fauna has also been taken into account. The list of collecting localities, spot maps, literature review, extensive bibliography, etc., are the added features of the monograph. No doubt, the present contribution is a self-content scolytid faunal account, first of its kind for any geographically defined area in the Indian subcontinent.

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