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THE IDENTITY OF THE SOUTH ASIAN TERMITE *INDOTERMES RONGRENSIS* (R. & C.) (SYNONYMS *SPECULITERMES CYCLOPS RONGRENSIS* AND *I. BANGLADESHIENSIS*) (ISOPTERA, INDOTERMITIDAE)

By

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(With 6 Figures)

INTRODUCTION

The species under consideration was initially described, from the worker caste from Meghalaya, by Roonwal and Chhotani (1962) as *Speculitermes cyclops rongrensis* (Termitidae, Amitermitinae). The imago was later described, as *S. rongrensis*, from Thailand by Morimoto (1973) and from Bhutan by Roonwal and Chhotani (1977, pp. 50-53, Fig. 5 ; actually the block above Fig. 6 on p. 54 is *S. rongrensis*. Later, a complete collection of all three castes (with associated imagoes, soldiers and workers) from Meghalaya became available to us.+ A careful examination of this material, and a re-examination of the earlier ones, showed the examples to be *Indotermes* Roonwal and Sen-Sarma 1960 (family Indotermitidae Roonwal and Sen-Sarma). The revised taxonomic position is discussed below, and the soldier re-described more fully. *Indotermes pakistanicus* Chaudhry and Ahmad (1972, *nom. nudum*) and *I. bangladeshiensis* Akhtar (1975), both from Bangladesh, are junior synonyms.

RESULTS

Indotermes rongrensis (Roonwal and Chhotani) **comb. nov.**

(Figs. 1-6)

Synonyms :

1. Speculitermes cyclops rongrensis Roonwal and Chhotani

1962. Roonwal and Chhotani, *Proc. natnl. Inst. Sci. India*, New Delhi, (B) **28** (4) : 310. Worker. Type-locality : Rongrengiri (Garo Hills, Meghalaya, India).

1965. Roonwal and Chhotani, *J. Bombay nat. Hist. Soc.*, **62** : 21, 28, Meghalaya.

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+Meghalaya, NE India : Station No. 7, along Dawki Road from Pynursila to Pomshutia (25°16′ N, 90° 50° E), coll. *G. K. Srivastava.*

2. **Speculitermes rongrensis** Roonwal and Chhotani

1973. Morimoto, *Bull. Govt. Forest Sta.*, No. 257 : 62-63. Thailand. Imago. *Status nov.* (vide remarks infra).

1977. Roonwal and Chhotani, *Ent. Basiliensia*, Basel, **2** : 50-53. Imago. Bhutan.

1980. Roonwal and Verma, *Proc. Indian natnl. Sci. Acad.*, New Delhi, **(B) 46** (3) : 253-254. Wing microsculpturing.

3. **Indotermes pakistanicus** Chaudhry and Ahmad

1972. Chaudhry and Ahmad, *Termites of Pakistan* (*Final Tech. Rept., P. L. 480 Program.*), Peshawar, p. 24. Soldier and Worker. Bangladesh. *Nom. nudum* (vide Akhtar, 1975, p. 116, foot-note).

4. **Indotermes bangladeshiensis** Akhtar

1975. Akhtar, *Bull. Dept. Zool. Punjab Univ.* (Lahore), (N. S.), Art. 7, pp. 113 et seq. Imago and soldier. Type-locality : Ukhia (SE Bangladesh).

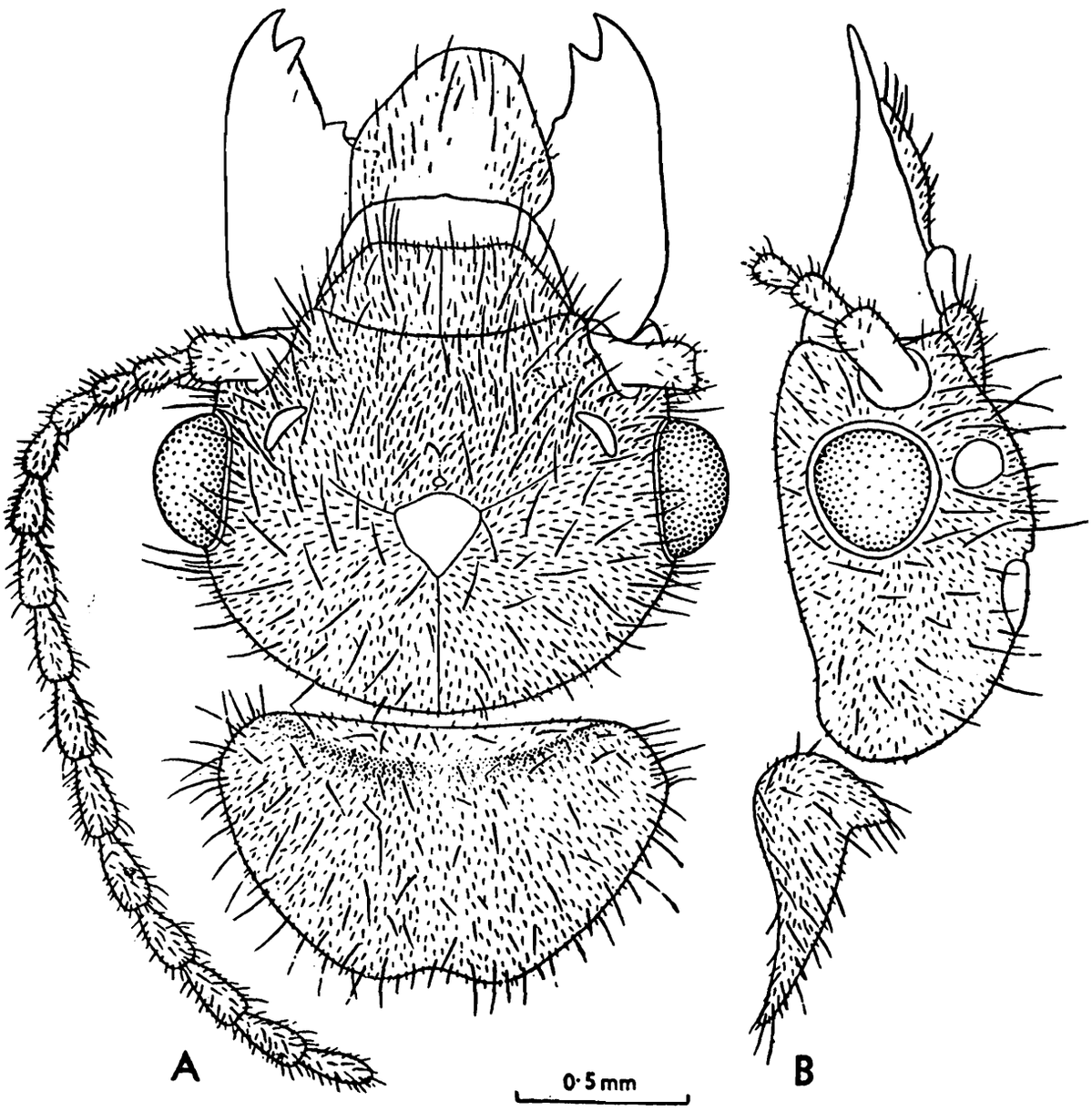

Fig. 1. *Indotermes rongrensis* Imago. Bhutan. A. Head and pronotum, in dorsal view. B. Same, in side view.

1. IMAGO (Figs. 1-3). A description is available in Morimoto (1973, pp. 62-63) and in Roonwal and Chhotani (1977, pp. 50-53*). The wings are re-described here more fully (with a different interpretation of venation) and the tarsi (given earlier as 4-segmented) are shown to be 3-segmented (Fig. 3). Head hypognathus. Wings

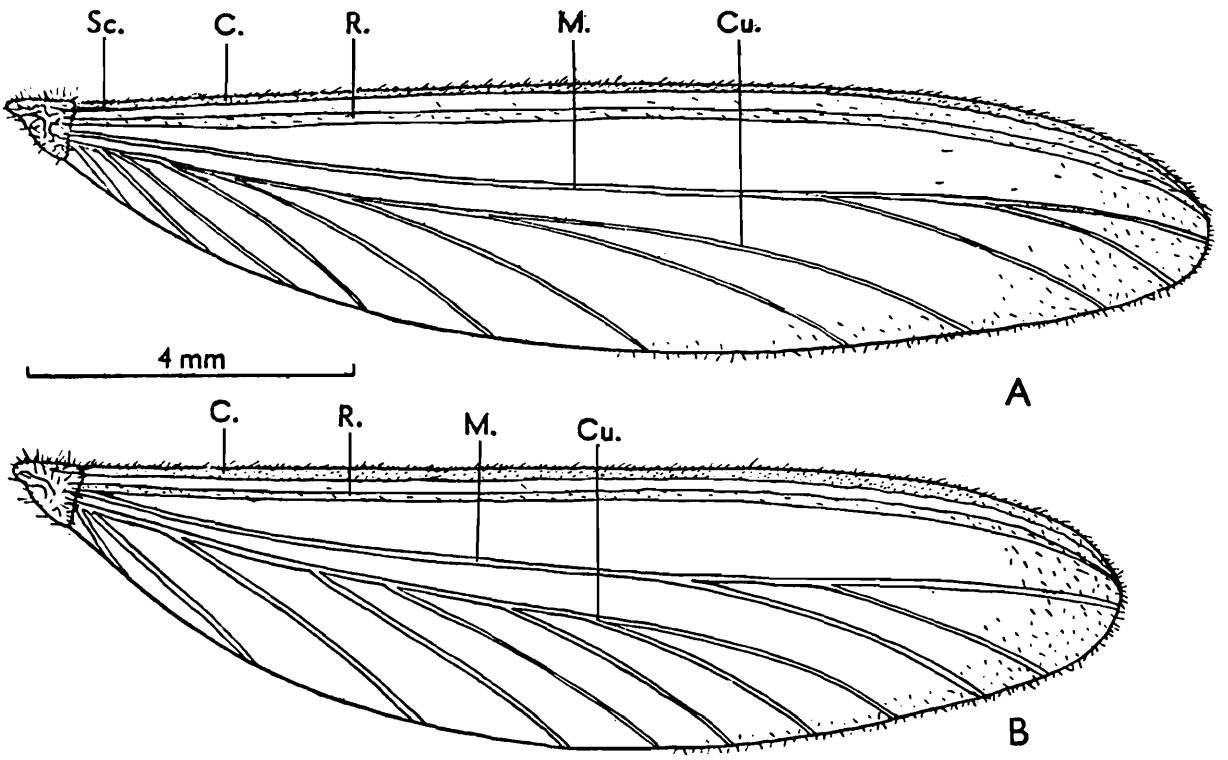

Fig. 2. *Indotermes rongrensis.* Wings (imago from Meghalaya, India). A. Forewing. B. Hindwing.
C, costa ; Cu, cubitus ; M, media ; R, radius ; Sc, subcosta.

(Fig. 2) transparent, colourless, scales and base brownish ; weakly hairy. Length with scale : forewings 13.0-16.0 mm, hindwings 12.0-14.5 mm ; maximum width : forewings 3.3 mm, hindwings 3.5 mm. Forewing scale not covering hindwing scale. Costa and radius long, well marked, running parallel and close to each other all along the length of wings ; subcosta small in forewing, absent in hindwing ; media arising independently in forewing and from radius in hindwing, and with 3-5 branches ; cubitus with 8-12 branches. Wings covered on both sides by micro-sculpturing consisting of a row of pointed papillae on the anterior margin and minute (size 2-6 μm), simple, nonasteroid micrasters (with 1-3 arms) on the membrane ; density 3100-3800/mm^2 (Roonwal and Verma 1980).

2. SOLDIER (Figs. 3 and 4). Head brown with reddish tinge. Pronotum darker, with a white, median streak extending to 9th abdominal tergum. Head and pronotum densely covered with small hairs

*The blocks of Fig. 5 and 6 were mistakenly transposed in printing. The block above Fig. 6, on p. 54, really belongs to *S. rongrensis*.

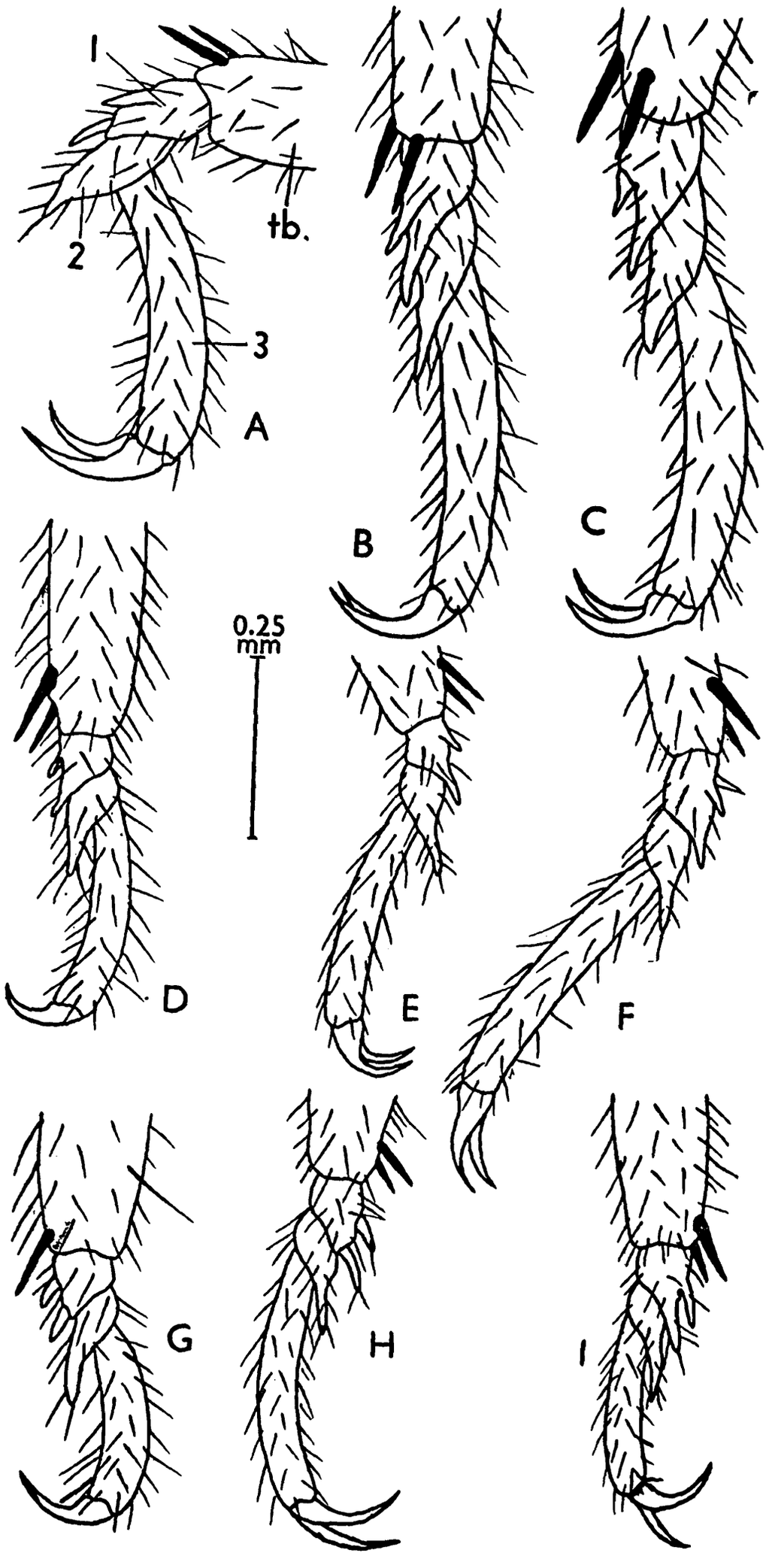

Fig. 3. *Indotermes rongrensis.* Distal parts of legs. A, B, C, Imago. Fore, middle and hind legs, respectively. D, E, F. Soldier. Fore, middle and hind legs, respectively. G, H. I. Worker. Fore, middle and hind legs, respectively.

tb., tibia ; 1, 2, 3, first, second and third tarsal segments, respectively.

and a few long bristles. Total length 7.2-7.3 mm. Head subrectangular, slightly longer than wide (length to base of mandibles 2.24-2.50 mm, maximum width 1.91-2.18 mm ; index Width/Length 0.82-0.87) ; strongly hypognathus ; Y-suture faint ; mid-dorsal spot absent. Eyes and ocelli absent. Antennae long, with 14 segments, segment 2 shortest.

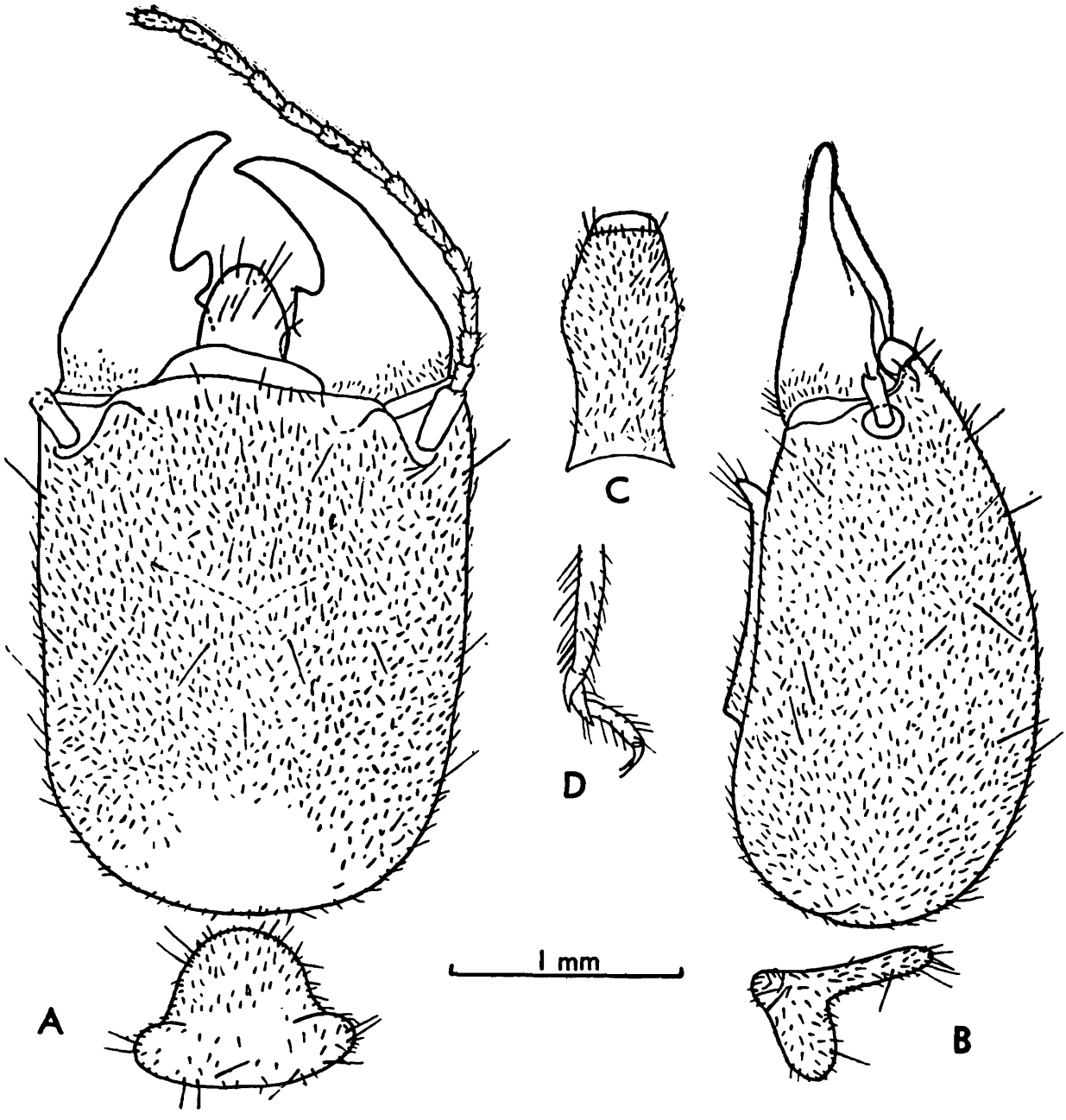

Fig. 4. *Indotermes rongrensis*. Soldier. Meghalaya. A. Head and pronotum, in dorsal view. B. Same, in side view. C. Postmentum. D. Distal part of hind leg.

Anteclypeus hyaline, apilose, anterior margin substraight. Postclypeus demarcated from frons only at the lateral corners ; with a few hairs. Labrum very small (in relation to the massive head), tongue-shaped, slightly longer than wide (length 0.44-0.47, width 0.44 mm). Mandibles much shorter than head (slightly longer than half the head-length 1.37-1.40 mm ; index Mandible-length/Head-length 0.55-0.56) ; massive, with a large basal platelet and a more slender, attenuated, incurved,

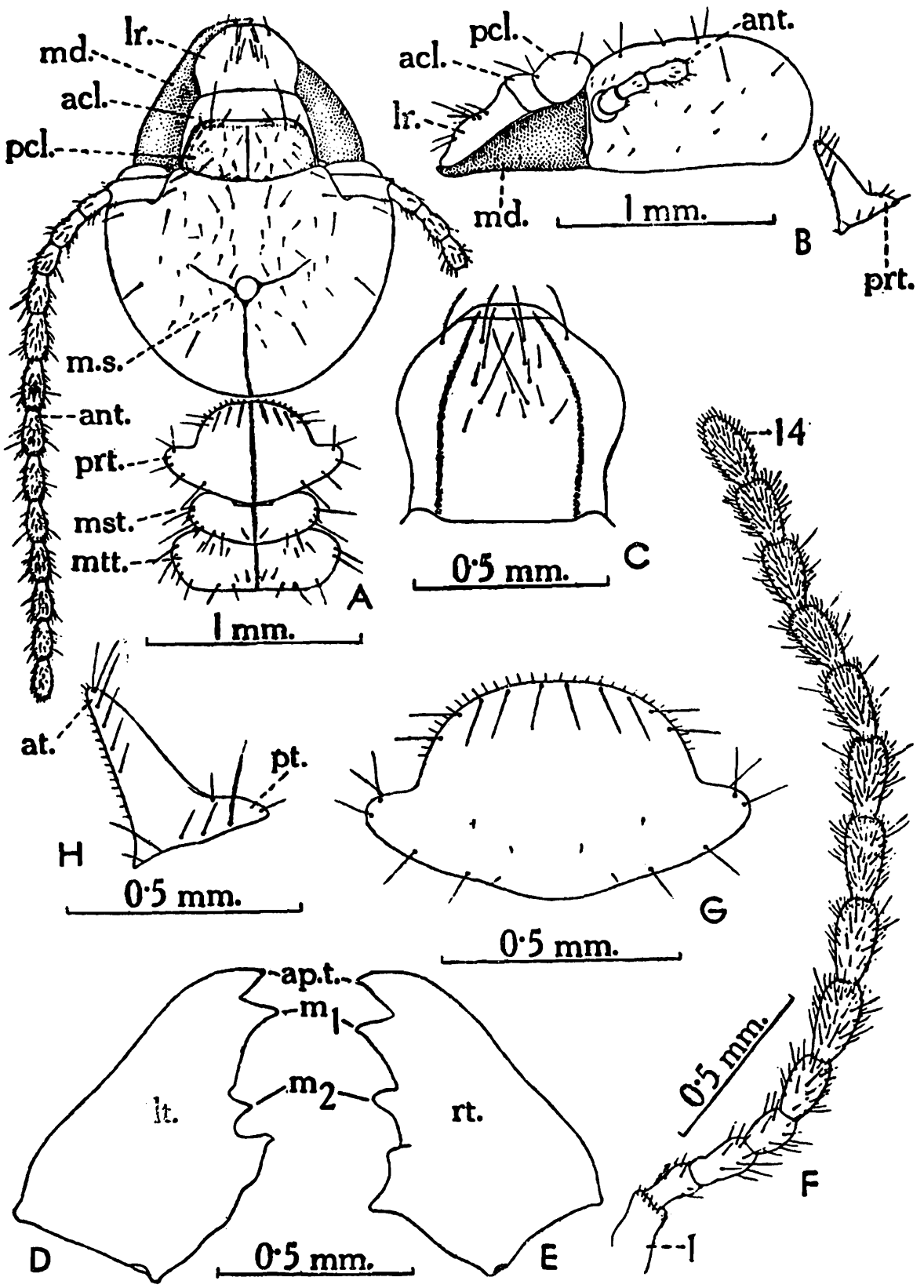

Fig. 5. *Indotecrmes rongrensis.* Worker. Meghalaya. A. Head and thorax, in dorsal view. B. Head and pronotum, in side view. C. Labrum (mounted on slide), in dorsal view. D, E. Left and right mandibles. F. Antenna. G. Pronotum, in dorsal view. H. Same, in side view. (Ex Roonwal and Chhotani 1962).

acl., anteclypeus ; ant., antenna ; apt., apical tooth of mandible ; at., anterior ; lr., labrum ; lt., left ; m1-m2, first and second marginal teeth of mandibles ; md., mandibles ; m. s., mid-dorsal spot ; mst., mesonotum ; mtt., metanotum ; pcl., postclypeus ; prt., pronotum ; pt., posterior ; rt., right.

pointed apical part ; with a large, pointed tooth at the junction of the two parts on the inner margin ; the left tooth larger than the right. Postmentum club-shaped, slightly raised, with a bulge in the middle ; short (in relation to head ; length 0.93-1.25, maximum width 0.50-0.56 mm ; index Postmentum-length/Head-length 0.6) ; the anterior margin weekly convex, the posterior slightly incurved. Pronotum much smaller than head (length 0.72-0.82, maximum width 0.99-1.06 mm) ; strongly saddle-shaped, anterior lobe much longer than posterior ; anterior margin convex, strongly rounded, posterior margin weakly incurved. Legs long, thin ; tarsi 3-segmented ; apical tibial spur formula 2 : 2 : 2. Abdomen oblong, weak and delicate (in relation to the massive head). Cerci 2-jointed ; styli absent.

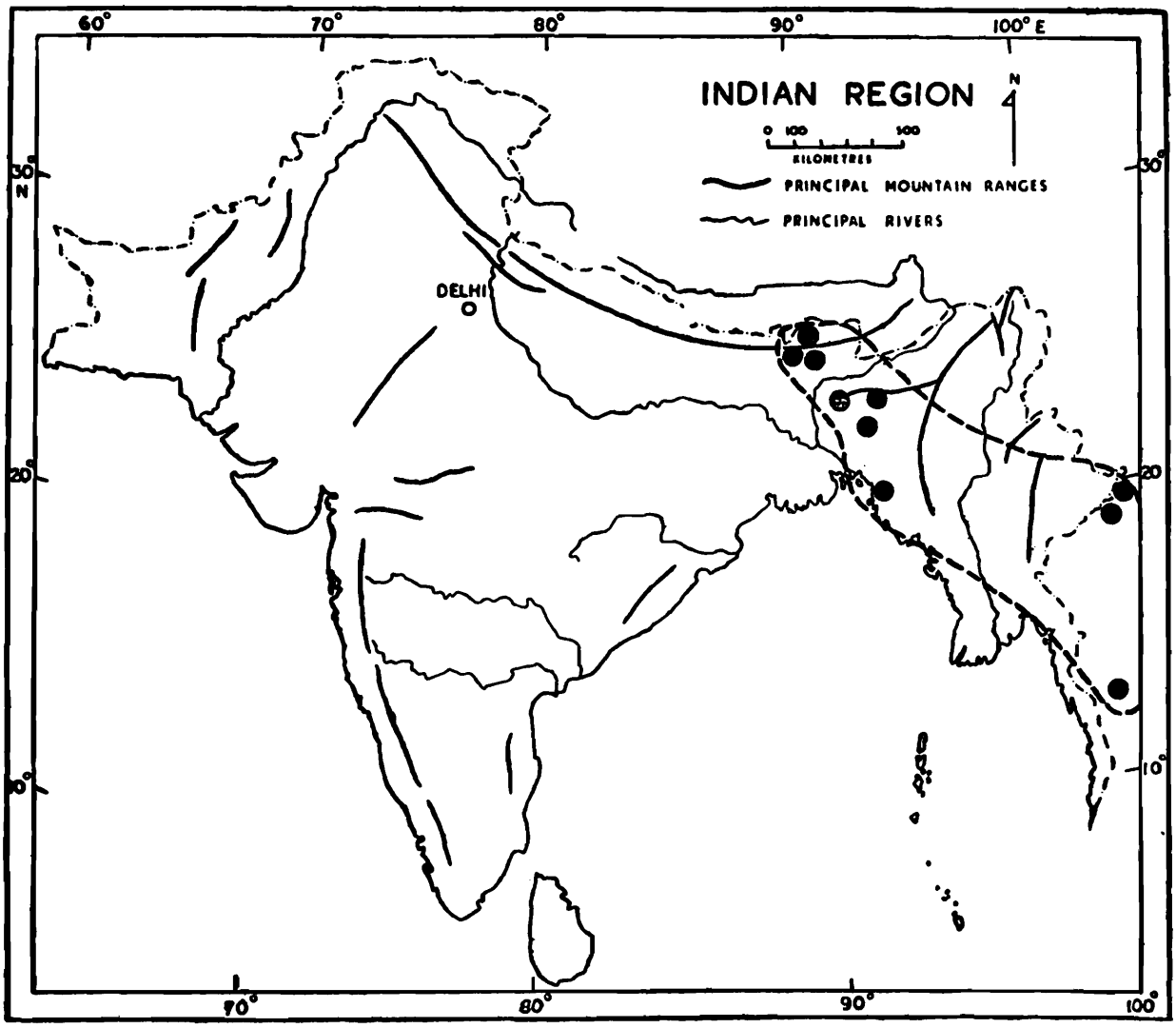

Fig. 6. Map of Indian Region, showing the distribution of *Indotermes rongrensis.*

3. WORKER (Figs. 3 and 5). A description is available in Roonwal and Chhotani (1960), but the tarsi are 3-segmented.*

*Earlier, Roonwal and Chhotani (1962, p. 315) gave the tarsi as 4-segmented. On re-examination of the holotype and paratypes, we found them to be 3-segmented.

Distribution (Fig. 6).

South and South-east Asia. From NE India east to Thailand, as follows :—BHUTAN : Thimphu river bank ; Samchi (300 m) and Puntsholing (200-400 m). INDIA (NE part, e. g., Meghalaya) : Rongrengiri (Garo Hills, 25°30'N and 90°30'E, the type-locality) ; Umsa Nongkharai (Khasi and Jaintia Hills, 25°40'N and 91°50'E) ; along the Dawki Road from Pynursila to Pomshutia, 25°15'N, 90°50'E). BANGLADESH : (Ukhia, Chittagong District). THAILAND (Fang, 19°55'N, 99°20'E), Chiong Dao (19°15'N, 98°40'E), Mae Klang Waterfall, (ca. 15° N, 99°E) [N and SW Thailand].

Discussion

I. rongrensis is the most widely distributed of the seven known species of the genus *Indotermes* Roonwal and Sen-Sarma (syn. *Sinotermes* He and Xia) which occurs in South and South-east Asia to southern China (Bhutan, NE India, Bangladesh, Burma, Thailand, S. China). The Thailand examples of *I. rongrensis* (Morimoto 1973, imagoes) are somewhat smaller than those from elsewhere, but are otherwise quite similar ; the tarsi, stated to be 4-segmented by Morimoto, are really 3-segmented, and segment 2 (in his figure 5) is incomplete and too ill-marked to be regarded as a true segment.

Acknowledgements

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Summary

The confusion regarding the identity of an interesting South Asian species, *Indotermes rongrensis* (Roonwal and Chhotani) (family Indotermitidae) is clarified. It was initially described from workers from NE India (Meghalaya) by Roonwal and Chhotani (1962), as *Speculitermes cyclops rongrensis* (Termitidae, Amitermitinae). The imago was described by Morimoto (1973, from Thailand) and by Roonwal and Chhotani (1977, from Bhutan). Akhtar (1975) described the various castes from Bangladesh as *Indotermes bangladeshiensis* (placing it in the subfamily Apicotermitinae of family Termitidae). The availability of a complete collection (of associated imagoes soldiers and workers) from Meghalaya India, has made it possible for us to re-examine and clarify the taxonomic position of the species which is a true *Indotermes*,

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ADDENDUM

The paper of Tsai, Huang and Zhu (1984) came to our attention too late for incorporation. They describe a new species of *Indotermes* (*I. menggarensis* Tsai and Zhu) and of *Sinotermes* (*S. luxiensis* Huang and Zhu) from southern China, viz., from Menggar (alt. 1375—1380 m.), Luxi County, Yunnan Province, China. This adds to the number of known species of *Indotermes* (for phylogeny, etc., vide Roonwal 1975).

ROONWAL, M. L. 1975. Phylogeny and status of termite families Stylotermitidae and Indotermitidae with three-segmented tarsi, and the evolution of tarsal segmentation in the Isoptera. *Biol. Zbl.*, **94** : 27-43.

TSAI, P. H., HUANG, F. S. and ZHU, S. M. 1984. Two new species of genera *Indotermes* and *Sinotermes* from Yunnan, China (Isoptera : Termitidae). [In Chinese with English summary.] *Zool. Research*, **5** (3) : 289-294.