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## Revision of the Indian *Stephostethus* Le Conte (Coleoptera, Lathridiidae)

by T. Sen Gupta

**Abstract:** The genus *Stephostethus* is redefined. A short history of the genus is given and comparisons are made with the related genera. Following 9 species are described as new: *S. tarunus* n.sp., *S. renukae* n.sp., *S. nepalensis* n.sp., *S. minaticus* n.sp., *S. malabicus* n.sp., *S. arunus* n.sp., *S. kashmirensis* n.sp., *S. barunus* n.sp., and *S. malinicus* n.sp. Several new characters as well as the geographical distribution are discussed. The aedeagus and the tibiae of ♂ are illustrated. Two new subgeneric groups are proposed and a key to the Indian species is provided.

Till 1976, the Indian Lathridiinae were represented by one species *Lathridius indicus* Motschulsky. SEN GUPTA (1976) is the first author who dealt with this group seriously and recorded six genera *Enicmus* Thomson, *Lathridius* Herbst, *Stephostethus* Le Conte, *Microgamme* Walkley, *Cartodere* Thomson and *Aridius* Motschulsky from India. Previously, it was thought that Lathridiinae only predominate in temperate lands. Amongst the above mentioned genera, *Stephostethus* is the largest one in India and occurs in the foot hills of the Himalaya especially in Darjeeling District of West Bengal, Sikkim, Bhutan and Nepal. The chief workers who dealt seriously with Lathridiinae are: WALKLEY (1948, 1952): Lathridiinae of the state of Washington, HATCH (1962): of Pacific North West, WATT (1969): of New Zealand, DAJOZ (1976) of Chili, and PEEZ (in FREUDE, HARDE and LHOSE, 1967) of Europa and SEN GUPTA (1976) of India.

The genus *Stephostethus* was established by LE CONTE (1874) based on his single species *Lathridius literatus* Le Conte, later on this genus was synonymised with *Lathridius* Herbst. WALKLEY (1952) reestablished Le Conte's genus *Stephostethus* and transferred the species *liratus* Le Conte, *costicollis* Le Conte, *montanus* Fall, *lardarius* De Geer and *cinnamopterus* Mannerheim from *Lathridius* to *Stephostethus*. She separated it from *Lathridius* by the coalescence of the epimera on the middle line and by the pronotal costae usually complete and prominent. SEN GUPTA (1976) added another three species from India under the genus *Stephostethus* and mentioned distinguishable characters for genus: Short and narrow prosternal process, not extending to the apex, epimera meeting each other, mandible with single apical tooth and inner margin smooth, wing with single anal vein and

not running into subcubital fleck, and, mesosternal fitting between mesocoxae with single knob. The genus *Stephostethus* has similarities with all the known genera from the Indian continent but can be separated from *Enicmus* in having a sternal fitting between the mesocoxae with single knob, a prosternal process not keeled, mandibles with single apical tooth and a smooth inner margin; from *Lathridius* and *Microgamme* by the presence of distinct median carinae on the pronotum, by a narrow and short prosternal process, not extending to the apex and by epimera meeting at centre, by the tempora of the head comparatively well developed and moderately long; unlike *Aridius* and *Cartodere*, the prothorax of *Stephostethus* is not constricted at the basal half, the former two genera have a pair of glandular cavities in the intercoxal process of the ventrite 1 and the sterna fitting between the mesocoxae with two knobs.

The present work deals with thirteen species of *Stephostethus* from India, which belong to two distinct groups, of which one may be named as *paradoxus*-group which includes six species, having no or poorly developed carina on the 7<sup>th</sup> interval of elytra, whereas, the remaining seven species have a strong and well developed carinae on the 7<sup>th</sup> interval, which may be designated as *carinatus*-group.

### Genus *Stephostethus*

General appearance (Figs 1–17) somewhat similar to *Lathridius* but usually larger, reddish brown to brownish black. Head and prothorax narrower than elytra, latter distinctly convex at middle.

Head longer than width, tempora longer than in *Lathridius*. Eyes large, somewhat projecting and finely faceted. Vertex with a distinct median groove almost extending to the basal line of antennal insertions. Tentorium with two simple tentorial arms which are narrowed at middle, and without corpora tentoria. Labrum transverse, its apical margin transversely rounded. Maxilla with lacinia simple, short and fringed with a few setae and devoid of any apical spines; Galea well developed and fringed with a few apical setae; palpi 4-segmented, first segment minute, the 2<sup>nd</sup> one largest; segment 3 narrower and slightly smaller than the 2<sup>nd</sup>; apical segment narrow and parallel-sided. Mandible with a large and well developed mola; apical tooth simple and narrow. Labium with mentum transverse and ligula small and represented by two small lobes; palpi 3-segmented, segment 1 and 3 mi-

nute, segment 2 large and globular. Antenna 11-segmented with usually 3-segmented and rarely 2-segmented club, segment 1 large and globular, the 2<sup>nd</sup> small, usually narrowed in front, the 3<sup>rd</sup> usually longer than 4 and sometimes slightly curved, 4–5 equal, 6–8 equal, slightly shorter than 5, 9–11 forming a loose club, 10 slightly transverse and smaller than 9 and 11, latter obliquely truncated at apex.

Prothorax somewhat quadrate, as long as wide. Lateral margin usually slightly sinuate towards middle, sometimes wavy. Pronotum with a distinct median carinae, lateral indentation distinct. Front coxae closely situated. Prosternal process short, narrowly elongated, pear-shaped, slightly elevated. Epimera meeting in middle.

Meso-metathorax: Mesocoxae moderately closely situated. Mesocoxal cavities closed outwardly by sterna, Sterna fitting between mesocoxae with single knob. Metasternum transverse with two pairs of glandular cavities on its apical margin, median line impressed, extending to anterior semicircular line. Metacoxae widely separated. Metendosternite simple, represented by a simple apophysis.

Wing and elytra: Wing with a single anal vein, not running to subcubital fleck. Radial cell and r-m cross vein absent. Elytra distinctly wider and markedly more convex than prothorax, widest at middle, with 8 rows of punctures, 7<sup>th</sup> interval often carinate. Epipleura narrowed towards apex.

Legs narrow and slender, trochanter slightly heteromeroid. Femora swollen towards apex. Tibiae in male usually with an apical spine or a pair of spines or even notched. Tarsi simple, segment 1 shorter than the 2<sup>nd</sup>, segment 3 longer than rest together. Claws simple.

Abdomen short and broad. Ventrite 1 longer than 2<sup>nd</sup>, intercoxal process of ventrite 1 short and broad. Aedeagus as figured (Figs 27–66).

### Genus *Stephostethus*

#### **carinatus-group**

1. *S. indicus* Motschulsky
2. *S. carinatus* Sengupta
3. *S. tarunus* n. sp.
4. *S. renukae* n. sp.
5. *S. nepalensis* n. sp.
6. *S. minaticus* n. sp.
7. *S. malabicus* n. sp.

#### **paradoxus-group**

1. *S. paradoxus* Sengupta
2. *S. arunus* n. sp.
3. *S. kashmirensis* n. sp.
4. *S. barunus* n. sp.
5. *S. nigratus* Sengupta
6. *S. malinicus* s. sp.



**Stephostethus indicus** (Motschulsky)

Fig. 1.

*Lathridius indicus* MOTSCHULSKY, 1866, Bull. Mosc. 39: 241.*Stephostethus indicus* SENGUPTA, 1976, Or. Ins. 10 (1): 121.

Type locality: Indian.

This is a very distinct species, unlike others. Elytra with 3 distinct carinae on 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> intervals and lateral margin of prothorax distinctly wavy. Dorsal pubescence sparse, distinct and erect.

General appearance rather narrowly elongate, moderately depressed, but posterior two-thirds of elytra distinctly convex, reddish brown. Carina on 7<sup>th</sup> interval prominent und puncturation large and deep in regular rows.

Head about as broad as long, exposed part wider than long. Tempora distinct but short. Eyes moderately large and finely faceted. Dorsal surface covered with dense and irregular punctures, finer towards anterior margin. Median groove narrowed towards front and almost extending to basal line of antenna. Antennae slender and long, scape large and semiglobular; pedicel short slightly or not narrowed in front, segment 3 longer and narrower; 4<sup>th</sup> slightly shorter than 3<sup>rd</sup>; segments 5–8 slightly shorter than 4 and subequal; segments 9–11 forming a loose and narrowly elongated club, which is gradually widening towards apex; 9<sup>th</sup> and 11<sup>th</sup> slightly elongated and 10<sup>th</sup> slightly transverse.

Prothorax about as broad as long, narrowed towards posterior one-third. Lateral margins distinctly wavy, with a pair of prominent median carinae, lateral margin inflected. Front angles projected forward and bluntly rounded. Pronotum uniformly, irregularly and densely punctured, almost as on the vertex. Scutellum minute and transverse.

Elytra (Fig. 1) broadly elongated, widest near middle, narrowed in front and more so posteriorly. Lateral margin uniformly curved and explanate. Humeral angles prominent and rounded, alternate interstices carinate; carinae extending almost upto posterior one-sixth, outer carina on each elytron more prominent. Punctures deep and large.

Legs narrow, slender and simple. Apex of tibiae simple and devoid of spines or hooks.

Measurements: Total length: 2.04 mm, width of head across eyes: 0.40 mm, length of antennae: 0.70 mm, length and width of prothorax: 0.46 mm and 0.48 mm, length and width of elytra: 1.40 mm and 0.90 mm.

Remark: SENGUPTA (1976) redescribed this species based on a

wrongly identified specimen as *Stephostethus indicus*, collected from Simla, where he also transferred the species from the genus *Lathridius* to the genus *Stephostethus*. In the present study the author has studied the type of *Lathridius indicus* Motsch. The wrongly identified specimen of *S. indicus* from Simla is a *Stephostethus paradoxus* Sengupta.

Distribution: Only one specimen collected from Iden (no other data mentioned in the label), deposited in Zoological Museum University of Moscow, USSR.

***Stephostethus carinatus* Sengupta**

Figs 2, 38, 39, 77–79, 80–82.

*Stephostethus carinatus* SENGUPTA, 1976, Or. Ins. 10 (1): 121–122.

Type-locality: Nainital: United Province.

General facies (Fig. 2) rather narrow-elongate oval. Dorsal surface dark reddish brown, legs and antennae moderately long.

Head (exposed part) as broad as long. Tempora shorter than width of each eye. Vertex densely and irregularly punctured, covered with minute erect setae. Median grooves distinct and eyes well developed. Antennae narrow, slender, scape moderately large; pedicel small and narrowed in front; segment 3 slightly curved, longer than pedicel and segment 4; segments 4–7 equal; segment 8 slightly shorter than segment 7; club loose and 3-segmented; segment 10 slightly shorter than segment 9.

Prothorax quadrate, its length and breadth almost equal. Lateral margins almost uniformly curved inwards and narrowest in middle. Front angles slightly rounded. Hind angles slightly obtuse. Punctuation on pronotum similar to that of the head. Median carinae, lateral pits and anterio-median circular depression, prominent. Scutellum punctate and triangular, its apex angularly rounded.

Elytra (Fig. 2) rather narrowly elongate, broadest at middle. Punctuation large and arranged in rows. Transverse depression on anterior one-third distinct. Carina on the 7<sup>th</sup> interval prominent and extending upto two-thirds of the length of the elytra; near the anterior one-third, the carina is slightly sinuate.

Legs long. Front tibiae in male with a prominent apical hooked spine, middle tibiae with an apical spine situated much above the apex (Figs 77, 78). Hind tibiae (Fig. 79) simple. The specimens collected in Bhutan have a different type of apical spine (Figs 80–82). Aedeagus (Figs 38–39) simple, broadly elongate, its apex slightly curved, the apical part not pointed but broadly rounded.

Material studied: Total 48 ex. Uttar Pradesh, Nainital, sweeping bush, 25.III.1971, T. Sengupta (24 ex.). W. Bengal, Darjeeling, on leaves, 21.II.1973, S. K. Saha (1 ex.); Darjeeling, 1976, W. Wittmer (2 ex.); Darjeeling Distr., Kurseong, sweeping, 19.II.1976, A. R. Bhawmik (1 ex.); Darjeeling Distr., Gorubathan, sweeping, 10.IV.1976, A. R. Bhawmik (1 ex.); Darjeeling Distr., Rongpo, sweeping, 19.IV.1976, A. R. Bhawmik (2 ex.); Darjeeling Distr., Tindharia, under bark, 4.V.1976, A. R. Bhawmik (1 ex.); New Jalpaiguri, Madarihat, Khairbari, flower, 9.XI.1974, T. Sengupta (7 ex.). Meghalaya, Shillong, Mawphlong, haystack, T. Sengupta (1 ex.). Assam, Phulbari, dead leaves, 24.XI.1974, T. Sengupta (2 ex.). Bhutan, Putlibir, Ganglakha, Phuntsholing, 26.I.–10.XI.1969, S. K. Mitra (6 ex.).

This is the second most common species of the genus *Stephostethus* known from India. SENGUPTA (1976) described this species from Nainital (United Province) and from Bhutan. In the present study the species have been recorded from Darjeeling and Jalpaiguri Districts of West Bengal, from Meghalaya and Assam. This species can be confused with *S. tarunus* n.sp. and has similarities with *S. nepalensis* n.sp. and *S. renukae* n.sp. Its general facies is somewhat similar to *S. nepalensis* especially in the broadly elongate elytra but the shape of prothorax and aedeagus is different; it differs from *S. tarunus* n.sp. by the presence of apical tibial spines in middle legs and absence of them in hind legs, (whereas in *S. tarunus* n.sp. the hind tibiae have a pair of spines) and also the aedeagus is different, the prothorax is smaller, its lateral margins more evenly curved, the elytra are narrow, elongate and oval; it differs from *S. renukae* n.sp. in the shape of the prothorax and of the elytra, the aedeagus is distinctly different.

Distribution: So far, this species is known from Northern India and restricted to foot-hills of the Himalaya. Common in Darjeeling District of W. Bengal, recorded from Nainital (U.P.), from various parts of Darjeeling and Jalpaiguri Districts of W. Bengal, from Assam and Meghalaya.

### ***Stephostethus tarunus* n.sp.**

Figs 3, 25, 51, 63–65.

The general appearance of this new species is broader than *S. carinatus*, the prothorax more squanish with the lateral margin slightly sinuate in middle, front and hind angles more roundish, elytra broader, colour bright reddish brown.

Head is similar to that of *S. carinatus*. Antennae narrow and slender, scape roundish, pedicel narrowed in front; segment 3 distinctly longer than pedicel and segment 4 slightly curved; segments

4–7 elongate and equal, 8<sup>th</sup> slightly shorter than 7<sup>th</sup>, 9–11 forming a 3-segmented loose club.

Prothorax (fig. 25) slightly transversely squarish, lateral margins almost straight, less arched than *S. carinatus*, front angles slightly projected in front and roundish. Hind angles forming a roundish right angle. Lateral pit, median carinae and anterio-median circular depression distinct. Punctuation on pronotum dense and irregular. Scutellum punctate, transverse, its apical margin slightly angularly rounded.

Elytra (Fig. 3) broadly oval, less sharply narrowed in front and behind than in *S. carinatus*, transverse depression on anterior one-third distinct, carina on 7<sup>th</sup> interval distinct and extending upto posterior two-thirds of the length of elytra, punctuation deep, coarse and arranged in rows.

The front tibiae with apical spine are similar to *S. carinatus*, but middle tibiae are simple and hind tibiae with a pair of spines (Figs 63–65). Aedeagus short and broad, its shape as figured (Fig. 51).

Length of holotype: 1.80 mm.

Types: Holotype ♂: Sikkim, Rangpo, bush, 26. II. 1979, S. K. Saha (Zoological Survey of India). 7 paratypes: same locality as holotype; 1 paratype: Darjeeling, on leaves, 21. II. 1979, S. K. Saha; 1 paratype: Darjeeling Distr., flower, 19. III. 1979, S. K. Saha (all paratypes in Zoological Survey of India).

Distribution: So far, this species known from Sikkim and Darjeeling District of W. Bengal.

### ***Stephostethus renukae* n. sp.**

Figs 5, 6, 54, 55, 76.

This unique species has a peculiar male genitalia, superficially it resembles *S. nigratus* but unlike latter, this species has a well developed carina on the 7<sup>th</sup> interval. Unlike *S. carinatus*, *S. tarunus* and *S. nepalensis* the prothorax of *S. renukae* is elongate and narrowed in front.

General appearance narrow, elongate, dark reddish brown.

Head slightly elongate, median groove rather indistinct. Punctuation on vertex dense and irregular, eyes globular. Antennae with pedicel rather large, broadly elongate and unlike other species not narrowed in front but somewhat parallel-sided; segment 3 markedly long, segments 4–7 elongate and equal, 8<sup>th</sup> slightly shorter than 7<sup>th</sup>; segments 9–11 forming a loose club.

Prothorax slightly elongate and narrowed in front. Lateral margin almost straight and slightly notched across middle. Front angles slightly projected and more or less acute. Hind angles almost forming a right

angle. Pronotum densely and irregularly punctured, median carinae not well distinguishable, lateral median pits almost situated near margin. Scutellum punctate, transverse and its apical margin rounded.

Elytra (Figs 5–6) long, narrowly elongate, more distinctly narrowed posteriorly, broadest across middle, shoulder not prominent, carina on 7<sup>th</sup> interval almost straight, prominent but not extending beyond half of the length of elytra, transverse depression across anterior one-third absent, puncturation coarse, deep and arranged in regular rows.

Legs long, slender. Front tibiae (Fig. 76) with hooked apical spine, middle and hind tibiae simple. Aedeagus characteristic (Figs 54, 55) posterior one-third abruptly narrowed forming a tail-like structure.

Length of holotype: 2.00 mm.

Types: Holotype ♂: W. Bengal, Darjeeling, Lebong, 1800 m, 18. IV. 1976, A. R. Bhawmik. 5 paratypes: 1 ♀, W. Bengal, Darjeeling, Tiger Hill, 2500 m, 1. IX. 1975; 3 ♀, Meghalaya, Shillong, Risa Colony, under dead leaves, 26. IX. 1974, T. Sengupta 1 ♀, Sikkim, Gangtok, on flowers, 4. VII. 1979, S. K. Saha. Holotype and 4 paratypes deposited in Zoological Survey of India and 1 paratype in NHM-Basel.

Distribution: So far, this species is only known from Eastern India, only one male specimen collected in Lebong has been studied here. Further, 5 ♀ have been collected from Tiger Hill, Gangtok and Shillong.

### **Stephastethus nepalensis** n. sp.

Figs 4, 52, 53, 75.

This species is related to *S. renukae* n. sp., *S. tarunus* n. sp. and *S. carinatus* Sen Gupta and can be separated from the above species by its distinct type of aedeagus (Figs 52, 53), different shape of prothorax, slightly narrowed posteriorly and front angle blunt and distinctly projected in front.

General appearance somewhat similar to *S. tarunus* but elytral carina on 7<sup>th</sup> interval shorter, dorsal surface dark reddish brown and species broadly elongate.

Head (exposed part) transverse. Vertex with distinct median groove, coarsely and irregularly punctured. Eyes large. Antennae long and slender, scape moderately large and globular; pedicel narrowed in front; segment 3 long and slightly curved; segments 4–7 elongate and equal, 8<sup>th</sup> slightly shorter than 7<sup>th</sup>; segments 9 to 11 forming a loose club.

Prothorax slightly narrowed posteriorly. Lateral margins rather

distinctly inwardly curved and narrowest across middle. Front angles distinctly blunt and projected in front and inflected. Hind angles almost forming a right angle. Median carinae on pronotum distinct, lateral pits situated across posterior one-third. Puncturation close and irregular. Scutellum triangular.

Elytra broadly oval, shoulder moderately prominent. Anterior half of elytra slightly depressed. Posterior half moderately distinctly humped. Transverse depression across anterior one-third rather poorly developed and V-shaped. Puncturation coarse, deep and arranged in rows. Carinae on 7<sup>th</sup> interval extending upto half of the length of elytra and slightly sinuate at anterior one-third.

Legs moderately long and slender, in male front tibiae with an apical spine (Fig. 75), middle and hind tibiae simple. Aedeagus (Figs 52, 53) short and broad, anterior half squarish, posterior half narrowed posteriorly and curved upwards, its apex moderately sharply acute.

Length of holotype: 1.90 mm.

Types: Holotype ♂: Central Nepal, Takolabeg, Umg. Ainorasha b. Marpha, IX.–X. 1971, H. Franz. 8 paratypes: 1 ex., same data as holotype: 4 ex., West Nepal, Gebiet von Jumla, Umg. Talphi, 17.–25. IX. 1972, H. Franz; 1 ex., West Nepal, Gebiet des Rarasees, 29. IX.–1. X. 1972, H. Franz; 1 ex., West Nepal, Gebiet des Rarasees, Damplek b. Jumla, H. Franz. Holotype and 4 paratypes in Manchester Museum and 4 paratypes in Zoological Survey of India.

Distribution: So far, this species is only known from Central and Western Nepal.

### **Stephostethus minaticus** n. sp.

Figs 7, 40, 41, 72.

This is a distinct species amongst the *carinatus* group with a different type of aedeagus (Figs 40, 41), facies more parallel-sided, elytral carina on 7<sup>th</sup> interval more prominent and parallel-sided, sculpture on dorsal surface comparatively more prominent, shape of prothorax (Fig. 7) different, antennal pedicel almost parallel-sided and as long as segment 3.

General appearance rather depressed, somewhat parallel-sided, dorsal surface glabrous, grooves and sculptures distinct, reddish brown.

Head (exposed part) slightly broader than long. Median groove distinct, parallel-sided and slightly wider than other related species. Antennae rather short, scape globular; pedicel very slightly narrowed in front and behind and as long as segment 3; segments 3–6 progres-



sively shorter; segments 6 to 8 almost equal in length, segments 9 to 11 forming a loose club.

Prothorax slightly elongate and narrowed posteriorly. Lateral sides distinctly inflated and slightly wavy. Front angles broadly rounded, slightly projected in front and outwardly. Hind angles forming a right angle. Pronotum with distinct median carinae and a pair of transverse lateral carinae, which form three slightly excavated areas on each lateral side of the pronotum. Lateral pits situated more towards basal margin. Scutellum small and transversely semi-circular.

Elytra (Fig. 7) broadly oval, lateral sides inflated. Carinae on 7<sup>th</sup> interval distinct, parallel-sided and extending to two-thirds of the length of elytra. Transverse depression across anterior one-third absent. Punctuation moderately large, deep and arranged in regular rows.

Front tibia (Fig. 72) in male with an apical spur, middle and hind tibiae simple. Aedeagus (Figs 40, 41) with short and broad basal half, posterior half sharply narrowed posteriorly and its apical part tail-like with pointed and sharply upturned apex.

Length of holotype: 1.64 mm.

Holotype ♂: Himachal Pradesh, Simla, 2300 m, under grass hanging from hills, 2. XI. 1975, T. Sengupta (Zoological Survey of India).

Distribution: So far, this species is only known from Simla.

### **Stephostethus malabicus** n. sp.

Figs 8, 42, 73, 74.

This is another distinct species of *carinatus* group known from India, unlike any other Indian species its elytral apices are characteristically produced backwards and outwards. This species is close to the European species *Stephostethus lardarius* (De Geer) = *Laethridius lardarius* (De Geer) but differs from the latter in having well developed wing-like apices of elytra and hind tibiae of male with well developed spine and with a distinct notch (Fig. 74).

Species large (2.60 mm in length) despressed and broadly elongate, reddish brown.

Head (exposed part) slightly transverse. Tempora parallel-sided, its hind angle at the junction of constriction not acute. Eyes rather small and finely faceted, median groove on vertex poorly developed. Punctuation fine, dense and not very prominent. Antenna long and slender, scape large and globular; pedicel elongate, rather broad and

somewhat parallel-sided; segment 3 narrower than pedicel, slightly longer and not curved; segments 4–7 elongate and equal, 8<sup>th</sup> slightly shorter than 7<sup>th</sup>; segments 9–11 forming a loose club.

Prothorax as broad as long, lateral margin uniformly curved, slightly inflated, becoming more prominent towards front angle. Prothorax narrowest across middle. Front angle rounded, projected in front and slightly outwardly. Hind angle slightly acute. Pronotum rather smooth, not much excavated. Median carinae and lateral pits rather poorly developed. Punctuation similar to that on head. Scutellum small and transversely rounded.

Elytra (Fig. 8) rather markedly long. Shoulder prominent lateral margins parallel-sided. Posterior one-third rather sharply narrowed posteriorly, apices bifurcated, wing-like with pointed apex. Carina on 7<sup>th</sup> interval prominent extending upto two-thirds of length of elytra: at anterior one-third the carinae are slightly sinuate. The transverse depression across anterior one-third of elytra is absent.

Legs long, tibiae of male rather strongly curved; front (Fig. 73) and middle tibiae with distinct apical spine. Inner margin of posterior one-third of middle tibiae slightly and longitudinally scooped. Apex of hind tibiae (Fig. 74) strongly notched. Aedeagus (Fig. 42) simple, broadly elongate and spear-shaped.

Length of holotype: 2.60 mm.

Types: Holotype ♂: Kashmir, Tangmang, Gulmarg, 2300 m, 3. VII. 1976, W. Wittmer (NHM-Basel). 1 ♀ paratype with same locality data (Zoological Survey of India).

Distribution: So far, this species is known from Kashmir.

**Stephostethus paradoxus** Sengupta      Figs 9–11, 18–24, 26–31, 58–60.

*Stephostethus paradoxus* SENGUPTA, 1976, Ori. Ins. 10 (1): 122.

Type locality: Chiru river, Chaibasa: Bihar: India.

SENGUPTA (1976) described this species from Chaibasa: Bihar (ex. bush), he also recorded the species from Daman: Nepal and Putlibir: Bhutan. In the present study specimens collected from Bhutan have been transferred to a new species *S. arunus* n. sp. which is described in this work. *Stephostethus paradoxus* Sengupta is the most common species of the genus *Stephostethus* and abundantly occurs in North East India, specially in the Darjeeling District of West Bengal.

General appearance broadly elongate, slightly broader than *S. arunus* n. sp. Newly hatched specimens are straw coloured, as they



grow older forms become dark brownish red and shining. Elytral striation is prominent, sometimes a few scattered semierect short pubescence projecting forwards and inwards.

Head elongate, exposed part wider than long, or as broad as long. Tempora slightly sinuate. Eyes normal. Dorsal median groove prominent. Dorsal surface uniformly covered with moderately deep and irregular punctures. Antenna rather slender and long, scape moderately large; pedicel short and narrowed in front or broadest in middle, segment 3 distinctly longer and sometimes slightly curved; segment 4 almost equal or distinctly shorter than segment 3 (Figs 22–24), segments 4–5 equal and usually shorter than the 3<sup>rd</sup>; segments 6–8 equal and slightly shorter than the 5<sup>th</sup>; segments 9–11 forming a loose, narrowly elongated club and its segments broader towards apex.

Prothorax quadrate (Figs 19–21) usually slightly narrowed in front and its lateral margin is slightly sinuate. Sometimes the prothorax is squarish with the lateral margins more pronouncedly and uniformly sinuate, in some examples, the prothorax is slightly narrowed posteriorly and the front angles are distinctly truncated. Front and hind angles usually forming almost a roundish right angle. Pronotum uniformly but irregularly densely punctured. Lateral pit, median paried carinae and median anterior depression distinct, sometime anterio-lateral branch from median carinae distinct (Fig. 10). Scutellum minute, usually triangular

Elytral shape slightly variable (Figs 9–11, 18) usually broadest at middle and its lateral margin uniformly rounded. Sometimes the lateral sides of posterior one third are slightly sinuate. Anterior transverse depression usually prominent. Shoulder prominent. Lateral carina may be very short to moderately long extending upto anterior one third. Punctuation on elytra usually deep and moderately large, sometimes interestices somewhat raised.

Legs narrow and slender, apex of all tibiae in female normal, not broadened at apex and without spine. In male, the apex of front tibiae is extended and forms a simple spine-like structure (Fig. 58), middle and hind tibiae (Figs 59, 60) simple. Aedeagus (Figs 27–31) simple and slightly variable in its general shape, usually broadest at middle, uniformly slightly narrowed in front and behind. Apex slightly curved and moderately pointed. Shape of parameral plate as figured (Fig. 26). One of the specimens collected in Gangtok (Sikkim) was found deformed (Fig. 11) especially in the head structure and antenna. Unlike normal 11-segmented antennae the right one is short and 8-segmented; the

segments 3, 4 and 5 are fused together forming an irregular-shaped segment.

Material examined: Total 130 ex.: Nepal: Daman, 7600 ft, grass, T. Sengupta (1 ex.). India: W. Bengal, Darjeeling Distr., Tiger Hill, 2500 m, 7. V. 1975, W. Wittmer (7 ex.); Darjeeling Distr., Lopchu, 9. V. 1975, W. Wittmer (9 ex.); Darjeeling Distr., Lopchu, 1600–1900 m, 11. V. 1975, W. Wittmer (6 ex.); Darjeeling Distr., Ghum, Chim-Khona, 2200 m, 4. VI. 1975, W. Wittmer (4 ex.); Darjeeling Distr., Rangiroom 2200 m, on grass, 7. IV. 1976, A. R. Bhawmik (12 ex.); Darjeeling Distr., Lava, 7200 ft, bush, 9. IV. 1976, A. R. Bhawmik (2 ex.); Darjeeling Distr., Chailkhola, sweeping near stream, 2. IV. 1976, A. R. Bhawmik (2 ex.); Darjeeling Distr., Ghoombanjan, 2117 m, on leaves, 2. V. 1976, A. R. Bhawmik (2 ex.); Darjeeling Distr., Jorbunglow, 2100 m, garbage, 3. V. 1976, A. R. Bhawmik (2 ex.); Darjeeling, 4. V. 1976, W. Wittmer (6 ex.); Darjeeling Distr., Kurseong, under moss, 19. III. 1978, A. R. Bhawmik (1 ex.); Darjeeling Distr., Takdah, on grass, 4. VI. 1978, A. R. Bhawmik (1 ex.); Darjeeling, sweeping, 16. II. 1979, S. K. Saha (1 ex.); Darjeeling Distr., Kurseong, root of grass, 20. II. 1979, S. K. Saha (1 ex.); Darjeeling Distr., Rangpo, bush, 24. II. 1979, S. K. Saha (2 ex.); Darjeeling Distr., Tista Bazar, bush, 25. II. 1979, S. K. Saha (1 ex.); Darjeeling Distr., Kalimpong, bush, 18. III. 1979, S. K. Saha (4 ex.); Darjeeling Distr., Baropotea Bung., Singmari, W. Wittmer (3 ex.). Sikkim, Gangtok, haystack, 24. V. 1976, A. R. Bhawmik (8 ex.); Rhenok, 1300 m, sweeping, 9. III. 1979, S. K. Saha (1 ex.). Meghalaya, Shillong, under dead leaves, 26. XI. 1974, T. Sengupta (1 ex.). Assam, Kasiranga, 7.–9. V. 1975, W. Wittmer & C. Baroni Urbani (25 ex.). Uttar Pradesh, Mussoori, 1300–2000 m, 27. VI. 1976, W. Wittmer (1 ex.); Gorakhpur, 22. XII. 1979, T. Sengupta (1 ex.). Himachal Pradesh, Simla, 2300 m, under grass, 25. VI. 1975, T. Sengupta (12 ex.). Bihar, Chaibasa, Chiru River, sweeping bush, 2. I. 1971, T. Sengupta (1 ex.).

Distribution: So far, this species is recorded from the Darjeeling District of West Bengal, from Sikkim, Meghalaya, Assam, Bihar and from the United Province. Most common in the Darjeeling District, this species extends to the South upto Chaibasa (Singbhum District of Chotonagpur, Bihar). In North West it has been recorded from Simla (Himachal Pradesh). This species might well be found in other parts of the foot-hills of the Himalaya and extend upto gangetic plain.

### **Stephostethus arunus** n. sp. (Fig. 12)

Figs 12, 43–47, 56.

This species is fairly common in the Darjeeling District of West Bengal, in Sikkim and Bhutan. It is closely related and can be confused with *S. paradoxus* Sengupta. The author himself in his earlier work in 1976 placed Bhutanese specimens mentioned below under the species *S. paradoxus*. Further study showed that the aedeagus is different from *S. paradoxus*, which makes the author to establish a distinct species. This species is narrower than *paradoxus* especially in the shape of elytra, its antennae comparatively slender and longer, the aedeagus (Figs 45–47) narrower and its apex more elongate and finely pointed,

the prothorax smaller, the head darker with the pronotum and the elytra straw-coloured and the median thoracic carinae wider.

General appearance slender, elongated, dorsal surface light to dark straw coloured.

Head narrow and dark, its dorsal surface including puncturation and a median groove. The eyes are similar to that of *S. paradoxus*. Antennae long and slender, 3<sup>rd</sup> segment distinctly longer than 4<sup>th</sup> and rather strongly curved; segments 4–8 almost equal in length, club slender.

Prothorax rather small, narrow and as broad as long. Lateral margin distinctly sinuate at middle. Front margin slightly narrower than hind margin. Front angles more rounded than hind angles. Puncturation on pronotum similar to that of head. Median paired carinae and lateral pits prominent. Scutellum small and triangular.

Elytra (Fig. 12) straw-coloured narrowly elongate, broadest at middle, uniformly narrowed in front and behind. Humeral angle moderately prominent, carina short, puncturation prominent. Interstices as broad as width of each puncture; sometimes the interstices between rows 2<sup>nd</sup> and 3<sup>rd</sup> are slightly elevated on anterior half.

Legs slender, long, similar to *S. paradoxus* (Fig. 56). Aedeagus (Figs 43–47) narrowly elongate, apical one-third narrow and its apex rather finely pointed and upturned.

Length of holotype: 1.60 mm.

Types: Holotype ♂: Darjeeling Distr., Lava, 9.IV.1976, A.R. Bhawmik (Zoological Survey of India). 34 paratypes: same data as holotype; 6 o, Darjeeling Distr., Rongpo, under loose bark, 17.V. 1976, A.R. Bhawmik; 4 paratypes, Darjeeling Distr., Gorubathan, bush near stream, 10.IV.1976, A.R. Bhawmik; 7 paratypes, Darjeeling Distr., Rangiroom, 2100 m, on grass, 4.V. 1976, A.R. Bhawmik; 1 paratype, Darjeeling Distr., Jorbunglow, 2200 m, 3.V.1976, A.R. Bhawmik; Sikkim, Gangtok, 4.III.1979, S.K. Saha; 7 paratypes, Bhutan, Patlibir; 2 paratypes, Bhutan, Susuna; 1 paratype, Bhutan, Chaselakha; 2 paratypes, Bhutan, Wongdon Phodrung; 2 paratypes, Bhutan, Puntsholing, bush 20.I.–20.II.1969, S.K. Mitra (all in Zoological Survey of India). 1 paratype, Darjeeling Distr., Lebong, 8.VI. 1975, W. Wittmer (NHM-Basel).

Distribution: Darjeeling District of West Bengal, Sikkim and Bhutan.

**Stephostethus kashmirensis** n. sp. (Figs 13, 34, 35, 57).

This is a distinct species, though it has some similarities with *S. paradoxus* in general facies. It can be easily separated from *paradoxus* in having a narrower prothorax and an apical margin distinctly and characteristically broadened. Antennal segments 3 and 4 equal, genitalia different (Figs 34, 35), which are somewhat similar to that *S. nigratus* and *S. carinatus*

General facies slightly narrowly elongate and reddish brown.

Head (exposed part) broader than long. Median groove narrow and almost uniform. Tempora slightly narrowed posteriorly. Eyes normal and similar to *S. paradoxus*. Puncturation finer less deep and distinct than *S. paradoxus*. Antennae narrow, slender, scape large; pedicel elongate and narrowed posteriorly, segments 3 to 5 equal, 6 and 7 slightly shorter than 5 and equal, 8 slightly shorter than 7; segments 9–11 forming a more or less loose club, 9 and 10 equal in length and 11 large and obliquely truncated at apex.

Prothorax almost as broad as long, distinctly broadened anteriorly, narrowest across middle and slightly brown posteriorly. Front angles rounded. Hind angles obtusely forming a right angle. Lateral pits distinct across posterior one-third. Median paired carina distinct and narrowed at middle. Puncturation irregular and distinct. Scutellum minute, triangular.

Elytra (Fig. 13) comparatively narrower than in *S. paradoxus*, broadest across middle. Anterior one-third transversely depressed, first three interstices near scutellum slightly elevated and prominent. Puncturation deep and prominent. Carina on 7<sup>th</sup> interval as in *S. carinatus* absent.

Legs same as in *S. paradoxus* (Fig. 57). Aedeagus as figured (Figs 34, 35) short, broad, plate-like and uniformly narrowed posteriorly.

Length of holotype: 1.60 mm.

Types: Holotype ♂: Kashmir, Daksum 2400–2700 m, 9.III.1976, W. Wittmer (NHM-Basel). 11 paratypes (4 ♂ and 7 ♀) same data as holotype (7 ex. in NHM-Basel, 4 ex. in Zoological Survey of India).

Distribution: So far, this species is known from Kashmir.

**Stephostethus barunus** n. sp. Figs 14, 32, 33, 61, 62.

This species is closely related to *S. arunus* n. sp. but the shape of prothorax (Fig. 14) is different and unlike *S. arunus*. The front angles of prothorax are projected and angulate and the species is more broadly elongate. Shape of aedeagus (Figs 32, 33) different. Moreover,

*S. arunus* is so far only known from North East India, whereas this species is recorded from Himachal Pradesh.

General facies similar to *S. arunus* and also has similarities with *S. paradoxus*, the species is more broadly elongate than the former one and is more elongate-oval than *S. paradoxus*. Dorsal surface dark reddish brown. Legs and antennae moderately long.

Head (exposed part) as broad as long. Median groove prominent and extending upto the line of antennal insertion. Eyes large, normally projecting and finely faceted. Puncturation irregular and rather fine. Antennae moderately long and slender, scape globular<sup>1</sup>; pedicel narrowed in front, segment 3 slightly shorter than 6; segments 9–11 forming a loose elongated club.

Prothorax somewhat squarish, as broad as long, shape as figured (Fig. 14), narrowed at posterior one-third and broadened in front and behind. Front angles projected slightly in front and outwardly. Margin near front angles slightly inflected. Hind angles almost forming a right angle. Median carinae prominent and rather broad, puncturation similar to that of on head. Scutellum triangularly semicircular.

Elytra elongate and oval, unlike *S. paradoxus*, less sharply narrowed in front and behind. Shoulder not prominent. Carina on 7<sup>th</sup> intertices slightly raised and not projecting near humeral angle. Puncturation in rows not so deep, width of each puncture slightly broader than interstices, the latter not raised and not prominent.

Legs slender, long and reddish brown, front and middle tibiae with single apical spine (Figs 61, 62) and hind tibiae simple. Aedeagus narrow-elongate, slightly turned upwards in anterior and posterior one-third, apex moderately narrow and somewhat pointed (Figs 32, 33).

Length of holotype: 2.00 mm.

Types: Holotype ♂: Himachal Pradesh, 2300 m, under grasses hanging from hills, 2.XI.1975, T. Sengupta (Zoological Survey of India). Paratype ♀: same locality as holotype (Zoological Survey of India).

Distribution: Himachal Pradesh.

**Stephostethus nigratus** Sengupta      Figs 15, 16, 36, 37, 48, 49, 66–69.

*Stephostethus nigratus* SENGUPTA, 1976, Or. Ins. 10(1): 120.

Type-locality: Upper Shillong; Shillong: Meghalaya.

SENGUPTA (1976) established this species based on a single specimen and separated it from other known species by its shape of

prothorax, which is distinctly narrowed in front and straight lateral margins. In the present study further 3 examples are added to the species, one from Darjeeling District (W. Bengal) and two examples from Kaziranga (Assam). The aedeagus was not studied earlier, two male specimens from Lava and Kaziranga are dissected and studied. The general facies of this species is somewhat similar to *S. paradoxus* but their male genitalia (Figs 36, 37) are distinctly different and come near to *S. kashmirensis* n. sp.

General facies narrow-elongate. Antennae, legs and body narrower and slightly more elongate than in *S. paradoxus*. Colour more or less uniformly blackish.

Head (exposed part) rather long. Eyes large more or less projected, finely faceted. Tempora narrowed posteriorly, vertex uniformly, densely and closely punctured. Median groove not prominent. Antennae uniformly dark reddish brown, sometimes club darker. Shape and size of segments similar to *S. paradoxus*. Shape globular; pedicel narrowed in front, segment 3 distinctly longer; segments 4–6 narrow-elongate and equal in length, segments 7 and 8 slightly shorter than 6 and equal in length, club 3-segmented loose and elongate.

Prothorax slightly longer than broad, narrowed in front. Lateral margins almost straight to slightly curved in middle. Pronotum uniformly, closely and densely punctured. Median carina comparatively less prominent. Scutellum minute and triangular.

Elytra (Figs 15–16) rather narrow-elongate, broadest at middle and uniformly narrowed in front and behind. Shoulder prominent and raised, puncturation deep, moderately closely arranged in rows. Interstices raised, the 7<sup>th</sup> distinctly raised. Carina short and only prominent near shoulder.

Legs slender, long, dark reddish-brown; in ♂ the front tibiae with has a apical normal spine (Fig. 68) as in *S. paradoxus* but unlike latter the middle tibiae have two small apical spines, one above the other (Fig. 69). Hind tibiae normal and without spine, in ♀ all tibiae (Figs 66, 67) are normal, without apical spines. Aedeagus (Figs 36, 37) broadly elongate, tongue-shaped, narrowed posteriorly, anterior one-third strongly curved upwards.

Material studied: Darjeeling Distr., Lava, 7500 ft, 9.IV.1976 Bhaumik (1 ex.). Meghalaya, Shillong, upper Shillong, 26.IV.1974, T. Sengupta (1 ex.). Assam, Kaziranga, 75 m, 7.IX.1975, W. Wittmer & C. Baroni Urbani (1 ♂ and 1 ♀). Distribution: Darjeeling Distr., Meghalaya and Assam.



**Stephostethus malinicus** n. sp.

Figs 17, 50, 70, 71.

This is a distinct species, having a two-segmented antennal club. The shape of prothorax is particular (Fig. 17), the elytral shape oval-elongate, the aedeagus of a distinct type (Fig. 50). The head is devoid of a median groove but has a basal depression (Fig. 17). General facies somewhat similar to *S. minaticus* n. sp.; it has similar type of wavy lateral margin of prothorax but the elytra are devoid of carina on the 7<sup>th</sup> elytral interval.

General facies elongate, slightly broad and more parallel-sided. Dorsal surface uniformly dark reddish brown.

Head (exposed part) transverse, eyes large, projecting and finely faceted. Basal median part of vertex depressed (Fig. 17). Clypeus broad and its front margin straight. Tempora rather short and slightly narrowed posteriorly. Punctuation unlike other species, more uniform and roundish, coarse and dense. Antennae pale, rather short, scape globular; pedicel narrowed in front and behind, segments 3–7 elongate and equal, 8 and 9 shorter than 7; segments 10 and 11 elongate and forming a loose club.

Prothorax (Fig. 17) squarish, slightly narrowed posteriorly. Lateral margins wavy, front angles blunt and projecting outwardly towards front. Hind angles almost forming a right angle. Median carinae prominent. Punctuation more irregular than that on head, dense and prominent. Scutellum small and slightly transversely semi-circular.

Elytra elongate-oval, not so sharply narrowed in front and behind. Shoulder not prominent. Carina on 7<sup>th</sup> interval less prominent extending to one-tenth of elytra. Rows of punctuation deep, moderately large and prominent. Intertices moderately raised.

Legs reddish brown, short, apical spine of front tibiae in male projected posterior (Fig. 70). Middle tibiae without spines, unlike others species and similar to *S. carinatus* (those specimens recorded from Nainital). Spine of hind tibiae projected posteriorly (Fig. 71). Aedeagus broadly elongate and its apex rounded (Fig. 50).

Length of holotype: 1.0 mm.

Types: Holotype ♂: Darjeeling Distr., 2100 m, on grass, 7. IV. 1978, A. R. Bhaumik (Zoological Survey of India). 1 paratype: Darjeeling Distr., Tiger Hill, 2150 m, 7. V. 1975, W. Wittmer (NHM-Basel).

Distribution: Darjeeling Distr.

## Discussion

The family Lathridiidae is relatively well represented in temperate zone and known to feed on moulds. Representative of Lathridiinae usually live in decaying vegetable matter, haystack refuse and foliage of trees and shrubs. We have collected specimens of the genus *Enicmus* from haystack and foliage, of *Lathridius* from bracket fungus, of *Microgamme* from bush, of *Aridius* from foliage and of *Cartodere* from haystack and foliage. Primary habitat of the genus *Stephostethus* seems to be decaying vegetable and its origin might be in temperate lands. In India we have collected them from foliage, haystack, bark, grass and grass roots. It is mentioned earlier in this paper, that Indian representatives of *Stephostethus* belong to two groups: *paradoxus* and *carinatus*, the latter group have close similarities with the species known from Europe, which have strong carinae on elytra especially on 7<sup>th</sup> interval, a lateral margin of prothorax which is usually wavy and median carinae on pronotum which are more pronounced, whereas more advanced forms belong to the *paradoxus* group, which abundantly occurs in the foot hills of the Himalaya especially on foliage; these species are devoid of carinae, only vestiges are present near the shoulder of each elytron and the lateral margin of prothorax is usually not wavy.

## Key to the Indian *Stephostethus*

1. 7<sup>th</sup> interval of elytra not carinate (Fig.12) (*paradoxus* group) . . . . . 2
- 7<sup>th</sup> interval of elytra distinctly carinate (Fig.2), which extending to half of the length of elytra or beyond (*carinatus* group) . . . . . 7
2. Lateral margin or prothorax wavy (Fig.17). Antennal club 2-segmented, Aedeagus of a distinct type (Fig.50).  

**S. malinicus** n. sp.

- Lateral margin of prothorax not wavy. Antennal club 3-segmented. Aedeagus different . . . . . 3
- 3. Prothorax somewhat elongate, its lateral margin almost straight and narrowed posteriorly (Fig.16). Aedeagus (Fig.48) plate-like and triangular. Middle tibiae of male with two apical spines (Fig.69).  

**S. nigratus** Sen Gupta

- Prothorax squarish, usually narrowed across middle and

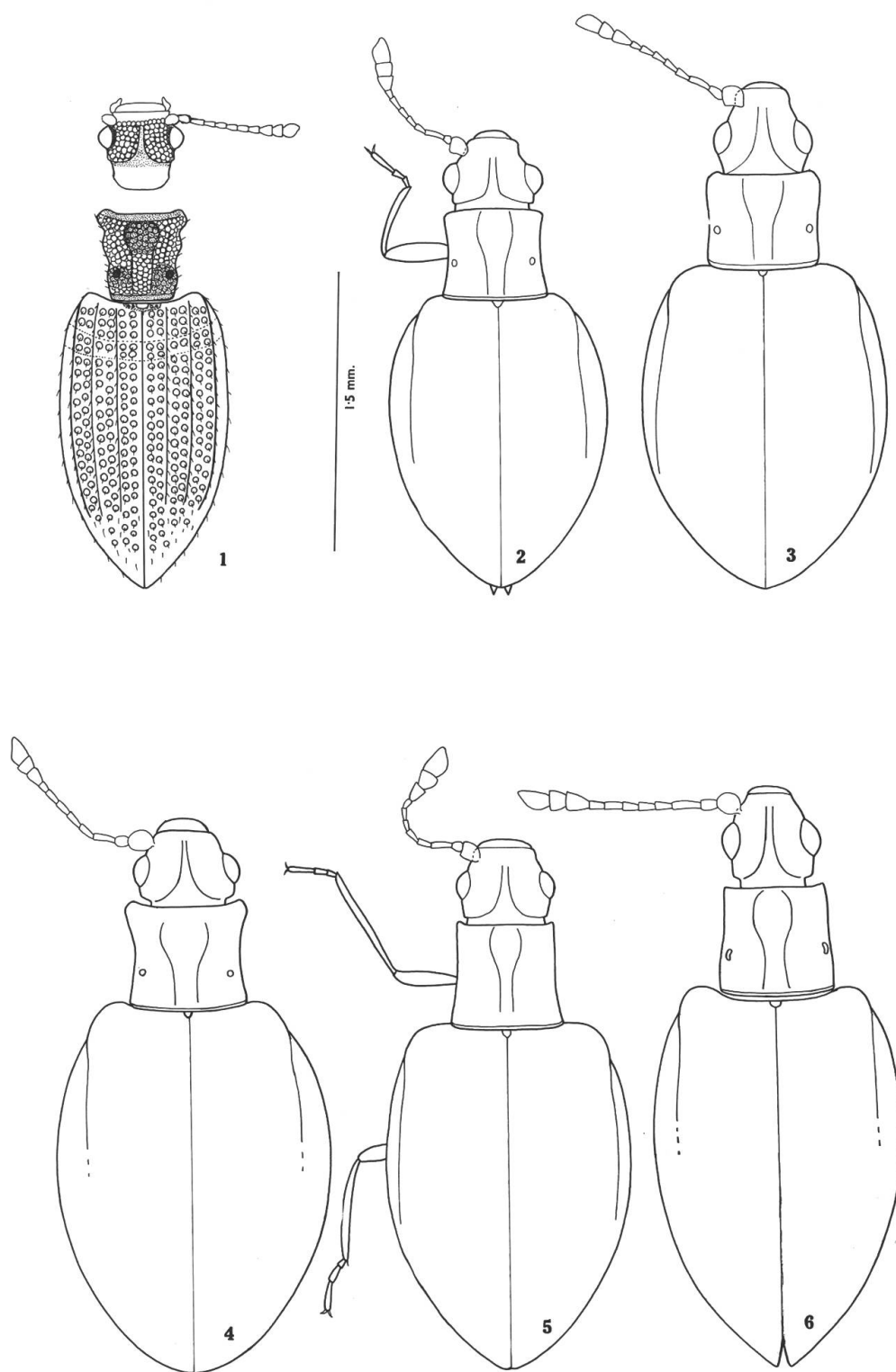


- broaden in front and behind. Lateral margins sinuate across middle. Middle tibiae of male simple or with a single apical spine . . . . . 4
4. Antennal segments 3 and 4 equal (Fig.13). Prothorax characteristically broadened in front (Fig.13). Aedeagus short, broad and plate-like (Fig.34). **S. kashmirensis** n. sp.  
 – 3<sup>rd</sup> antennal segment distinctly longer than 4<sup>th</sup>. Prothorax squarish and different . . . . . 5
5. Species (Fig. 12) narrow and slender. Prothorax small. Elytra narrowly oblong. Aedeagus (Fig.43) distinctly but progressively and sharply pointed posteriorly. **S. arunus** n. sp.  
 – Species broadly oval. Prothorax larger. Elytra broadly oblong. Aedeagus different . . . . . 6
6. Shape of prothorax as in figure 14. Elytra more elongate (Fig.14). Aedeagus (Figs 32, 33) different, anterior two – thirds parallel-sided and posterior one – third straight and narrowed. **S. barunus** n. sp.  
 – Shape of prothorax varied (Figs 9, 10, 11, 19, 20, 21) but different. Elytra more broadly oblong. Aedeagus oblong (Figs 27, 28, 29, 30, 31) and its lateral margin not parallel-sided. **S. paradoxus** n. sp.
7. Prothorax distinctly narrowed posteriorly; lateral margin wavy (Fig. 1). Elytra with 3 distinct carinae on 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> intervals (Fig. 1). **S. indicus** Motschulsky  
 – Shape of prothorax different. Elytral carinae present only on 7<sup>th</sup> interval. . . . . 8
8. Elytra markedly large and its apices wing-like, bifurcated and projected posteriorly (Fig.8). Apices of hind tibiae of male notched (Fig. 74). Aedeagus simple as figured (Fig. 42) **S. malabicus** n. sp.  
 – Elytra with its apices normal. Apices of hind tibiae of male normal and not notched . . . . . 9
9. Pedicel of antenna long and somewhat parallel-sided. Lateral side of prothorax inflated and its margins slightly wavy (Fig.7): Elytra broadly oval (Fig.7). Aedeagus (Fig.40) characteristic, triangular, its apex long and sharply pointed. **S. minaticus** n. sp.  
 – Pedicel of antenna short and distinctly narrowed in front. Lateral side of prothorax not inflated and its margins not wavy. Elytra more oblong. . . . . 10

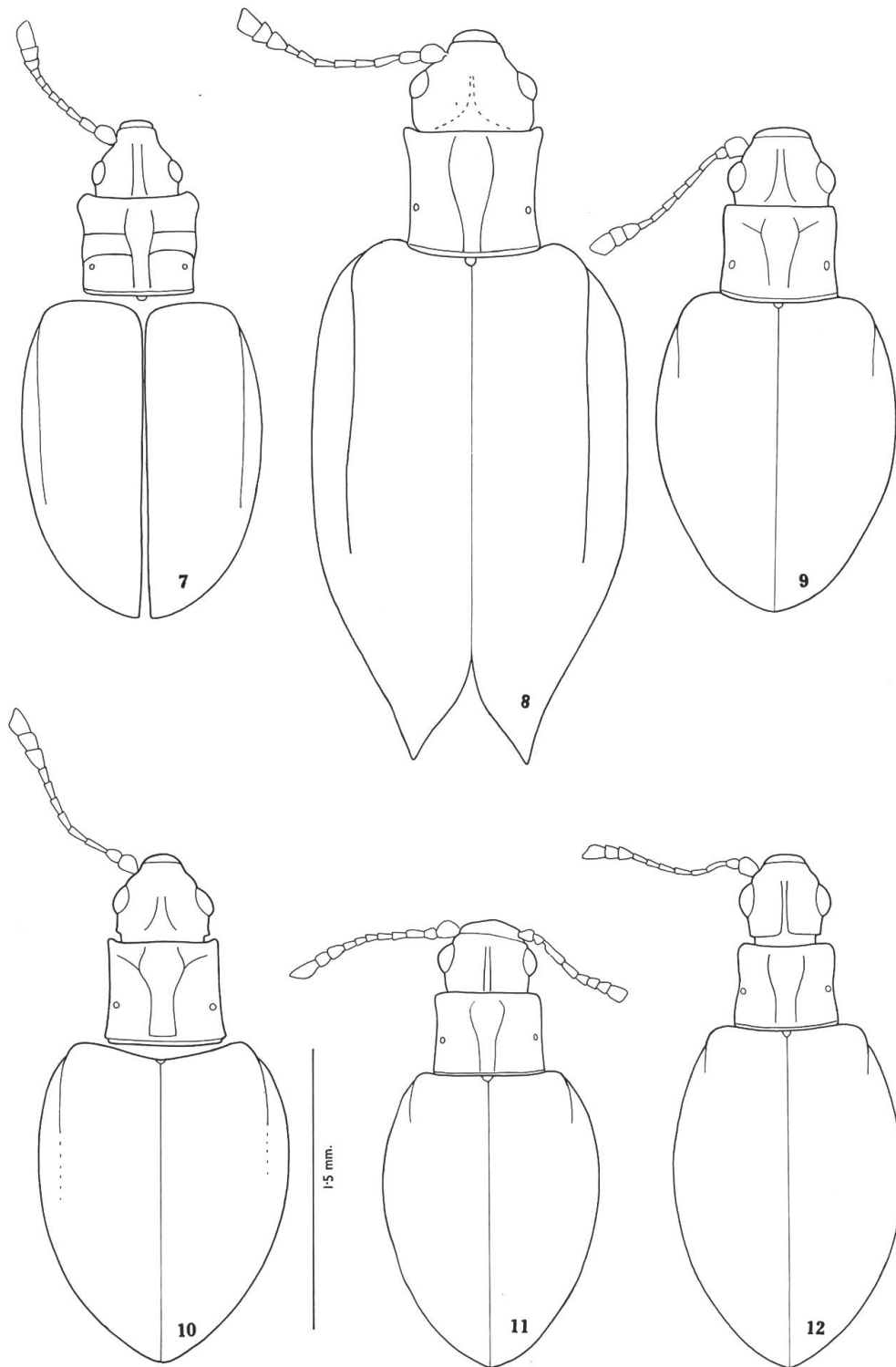
10. Prothorax somewhat elongate and progressively narrowed in front (Fig. 5). Aedeagus characteristic (Fig. 54), its apex tail-like. **S. renucae** n. sp.
- Prothorax squarish, sinuate and narrowed across middle. Aedeagus different . . . . . 11
11. Front angles of prothorax projected and blunt (Fig. 4). Aedeagus plate-like, anterior two-thirds parallel-sided (Fig. 52) **S. nepalensis** n. sp.
- Front angles of prothorax not projected. Aedeagus different . . . . . 12
12. Front and hind angles of prothorax more roundish (Fig. 3). Hind tibiae of male with two apical spines (Fig. 65). Aedeagus as figured (Fig. 51) **S. tarunus** n. sp.
- Front and hind angles of prothorax more acute (Fig. 2). Hind tibiae of male simple (Figs. 78, 81). Aedeagus (Fig. 38) different, oblong and narrowed posteriorly **S. carinatus** Sen Gupta

### Acknowledgement

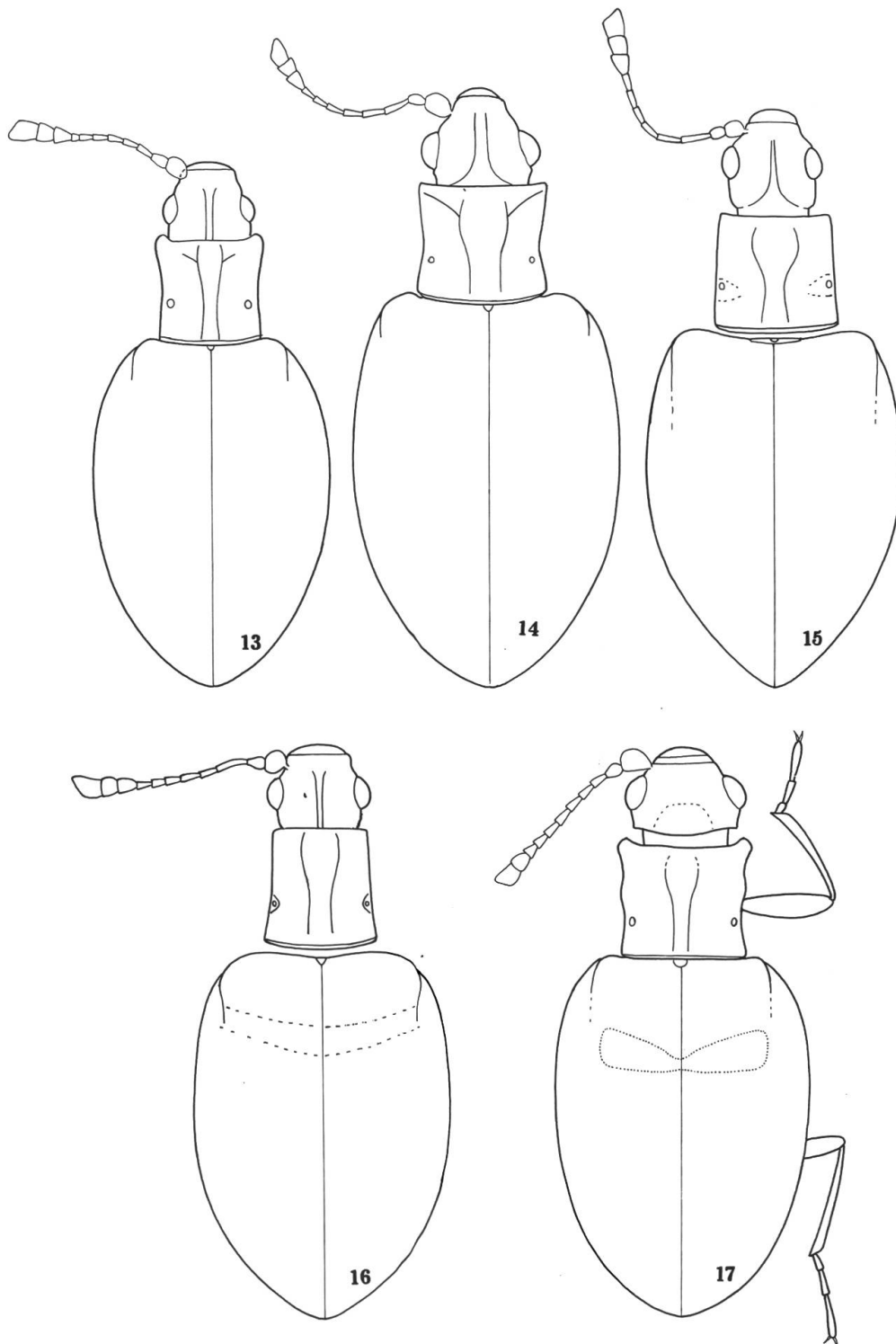
This work was carried out in the Zoological Survey of India and the author is grateful to the Director for the necessary Laboratory facilities, and to the staff of the Coleoptera section for various assistance and co-operation. Other persons to whom the author is indebted for the material used in the study are Dr M. Brancucci of Naturhistorisches Museum, (Basel), Mr Colin Johnson of Manchester Museum (Manchester), Dr N. B. Nikitsky of Zoological Museum of Moscow (Moscow), and Drs I. Löbl and C. Besuchet of Muséum d'Histoire naturelle (Geneva).



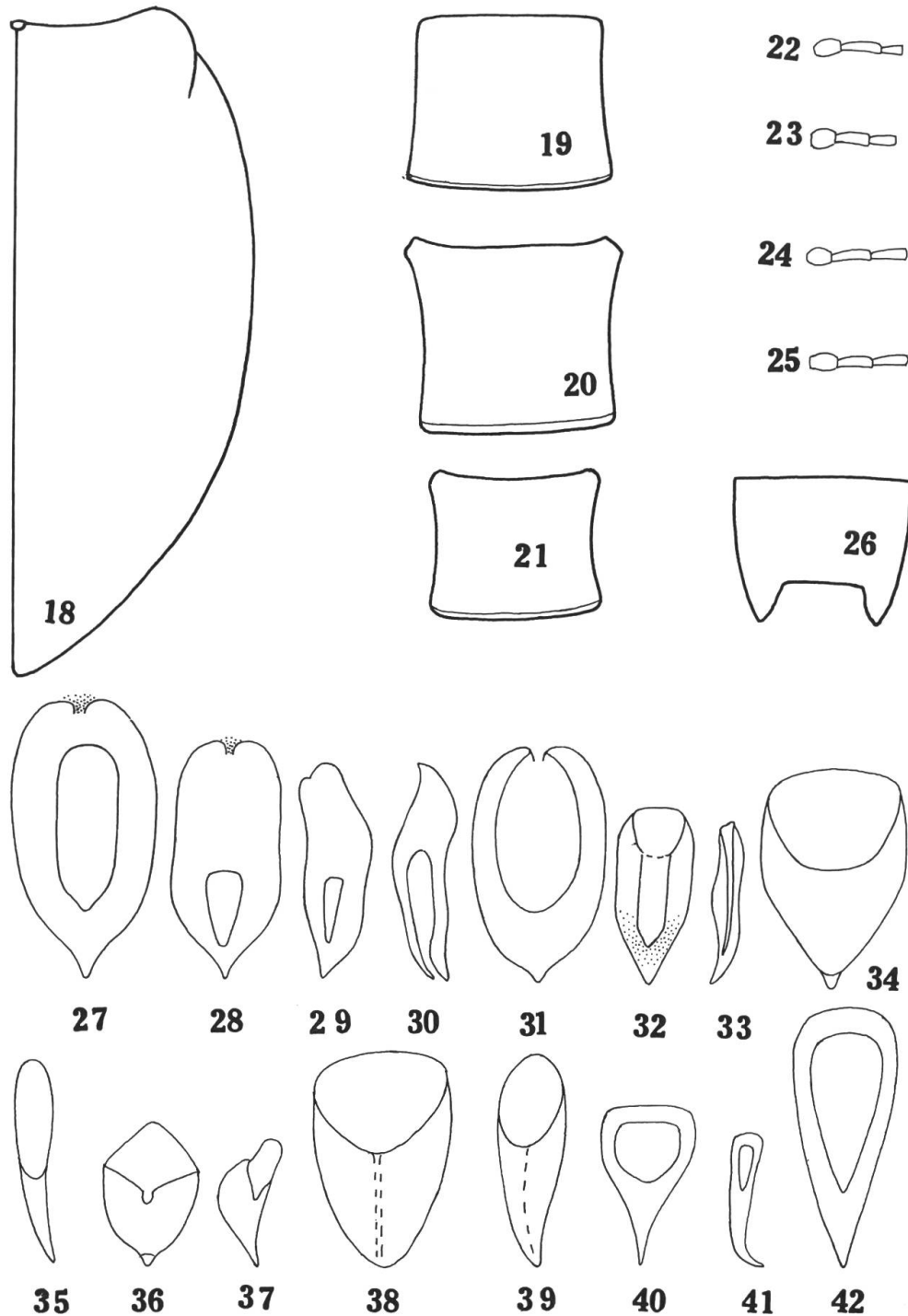
Figs 1-6: Habitus of: 1, *Stephostethus indicus* Motsch. 2, *S. carinatus* Sengupta. 3, *S. tarunus* n. sp., 4, *S. nepalensis* n. sp. 5, *S. renukae* n. sp., ♂ Lebong. 6, Idem, ♀ Gangtok.



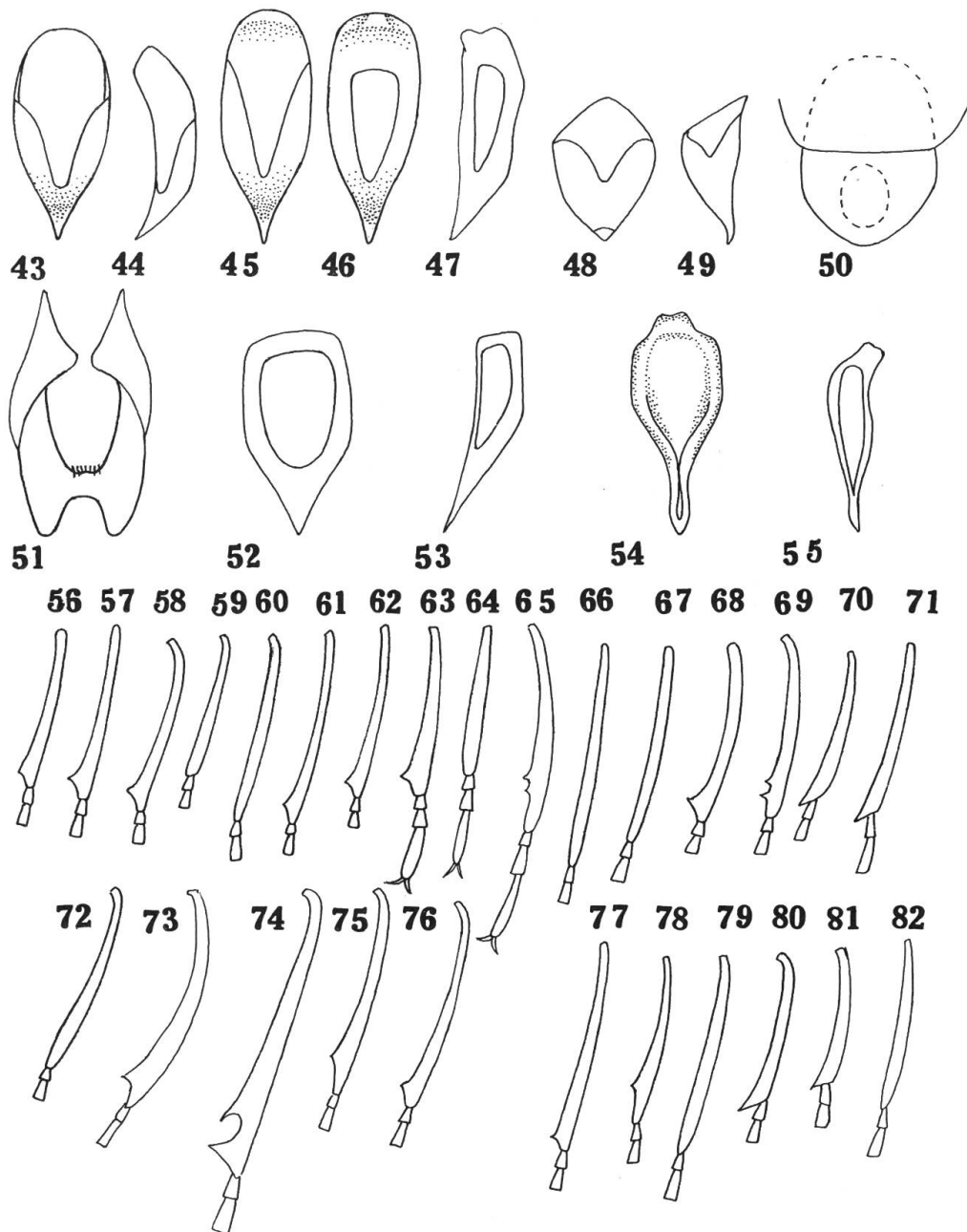
Figs 7-12: Habitus of: 7, *Stephostethus minaticus* n.sp. 8, *S. malabicus* n.sp. 9, *S. paradoxus* Sengupta, ♂, Chaibasa. 10, Idem, ♂, Kaziranga. 11, Idem, ♀ deformed, Gangtok. 12, *S. arunus* n.sp.



Figs 13–17: Habitus of: 13, *Stephostethus kashmirensis* n.sp. 14, *S. barunus* n.sp. 15, *S. nigratus* Sengupta, ♂, Kaziranga. 16, Idem, ♂, Lava, 17, *S. malinicus* n.sp.



Figs 18-42: 18. Right elytron of *Stephostethus paradoxus* Sengupta. 19-21. Variation in shape of prothorax of *S. paradoxus* Sengupta: 19, ♀, Mussoorie. 20, ♂, Kaziranga. 21, ♂, Gorugathan. 22-25. Variation in antennal segments 2-4: 22, *S. paradoxus* Sengupta, ♀, Shillong. 23, Idem, ♂, Lopchu. 24, Kaziranga. 25, *S. tarunus* n.sp., ♂. 26. Parameral plate of *S. paradoxus* Sengupta. 27-42. Aedeagus of: 27, *S. paradoxus* Sengupta, Chai-basa. 28, 29, Idem, Tiger Hill. 30, 31, Idem Kaziranga. 32, 33, *S. barunus* s.sp. 34, 35, *S. kashmirensis* n.sp. 36, 37, *S. nigratus* n.sp., Kaziranga. 38, 39, *S. carinatus* Sengupta. 40, 41, *S. minaticus* n.sp. 42, *S. malabicus* n.sp.



Figs 43–82: 43–55 Aedeagus of: 43, 44, *Stephostethus arunus* n.sp., Lava. 45, 46, 47, *S. arunus* n.sp., Bhutan. 48, 49, *S. nigratus* n.sp., Lava. 50, *S. malinicus* n.sp. 51, *S. tarunus* n.sp. 52, 53, *S. nepalensis* n.sp. 54, 55, *S. renukae* n.sp. 56–82. Male tibiae showing apical spines of: *S. arunus* n.sp., front tibia. 57, *S. kashmirensis* n.sp., front tibia. 58, *S. paradoxus* Sengupta, front tibia. 59, Idem, middle tibia. 60, Idem, hind tibia. 61, *S. barunus* n.sp., front tibia. 62, Idem, middle tibia. 63, *S. tarunus* n.sp., front tibia. 64, Idem, middle tibia. 65, Idem, hind tibia. 66, *S. nigratus* n.sp. ♀, front tibia. 67, Idem ♀, hind tibia. 68, Idem ♂, front tibia. 69, Idem ♂, middle tibia. 70, *S. malinicus* n.sp., front tibia. 71, Idem, hind tibia. 72, *S. minaticus* n.sp., front tibia. 73, *S. malbicus* n.sp., front tibia. 74, Idem, hind tibia. 76, *S. renukae* n.sp., front tibia. 77, *S. carinatus* Sengupta from Bhutan, front tibia. 78, Idem, middle tibia. 79, Idem, hind tibia. 80, *S. carinatus* Sengupta from Nainital, front tibia. 81, Idem, middle tibia. 82, Idem, hind tibia.

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