

12. Silvanus curvispinus Pal and Sengupta

Silvanus curvispinus Pal and Sengupta, 1977, Oriental Ins.

11(2) : 278-279 (Type-loc.: Assam: India).

This is a distinct species, nearest to the species S. gibbus but can be easily separated by its prothorax excluding the anterior spines somewhat elliptical, outer margin of anterior spine of prothorax curved inwardly, lateral depressions on pronotal disc absent, puncturation on pronotum coarser, antennal joint 9 elongated and hind trochanter in male with a spine.

General appearance (Fig. 34) elongated, moderately depressed, uniformly reddish brown and covered with short, semierect golden pubescence.

Head : Exposed part of head wider than long, eyes large and length of eye slightly less than half of length of head, length of temple about as long as two eye facets, temple extended laterally beneath eye and its outer apical angle broad, puncturation on vertex coarse and dense and that of near anterior margin of clypeus finer, setae short and projected towards middle line. Antenna moderately long and slender, scape moderately large, pedicel as long as scape and narrower, joints 3-5 equal and slightly shorter than pedicel, joint 6 shorter than joint 5, joint 7 as long as joint 6 and slightly wider, joint 8 shorter than joint 7, joints 9 and 11 slightly elongated and joint 10 slightly transverse. Prothorax convex,

elongated, excluding anterior spines somewhat elliptical, width across anterior spines almost equal to width across middle (1.00: 0.99); anterior spines moderately large and originate gradually from lateral sides, its length about half as long as each eye, outer margin of anterior spine curved and projected in front and its tip blunt; lateral margin evenly curved and with few small denticles, lateral depressions on pronotal disc absent. Puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head, setae projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra slightly more than two times as long as broad, widest near middle, lateral margins wavy and explanate, rows of punctures on elytra deep and large, setae projected posteriorly. Puncturation on ventral side finer than on dorsal side and shiny, hind trochanter with a spine in male.

Measurements of holotype : Total length 3.01 mm, width of head across eyes 0.43 mm, length of antenna 1.08 mm, width of prothorax across middle 0.58 mm, length of elytra 1.53 mm and width across middle 0.73 mm.

Material examined : Holotype, INDIA : ASSAM, Kaziranga, Panbari, 15.xi.1974, T. Sengupta, under bark of Bombax sp. (in Zoological Survey of India, Calcutta).

Distribution : INDIA : Assam.

Genus Silvanoprus Reitter

Silvanoprus Reitter, 1911, Fauna Germanica 3 : 45,46;

Grouvelle, 1912, Annls Soc. ent. Fr. 81 : 341.

Type-species : Silvanoprus fagi (Guérin-Méneville)

Silvanoprus is a fairly large genus erected by Reitter (1911) for the species Silvanus fagi (Guérin-Méneville). Subsequently he and Grouvelle added several species to this genus. Grouvelle (1912) recognised thirteen species namely, fagi (Guérin-Méneville), grouvellei (Reitter), angusticollis (Reitter), parallelcollis (Reitter), feai (Grouvelle), javanicus (Grouvelle), insidiosus Grouvelle, scuticollis (Walker), orientalis (Grouvelle), longicollis Reitter, tenuicollis (Grouvelle), cephalotes (Reitter) and inermis (Reitter) under the genus Silvanoprus. Hetschko (1930) in Junk's 'Coleopterorum Catalogus' listed twelve species and synonymised S. grouvellei (Reitter) with S. fagi (Guérin-Méneville). Halstead (1973) transferred three species of Silvanus to Silvanoprus, which are Silvanus birmanicus Grouvelle, Silvanus frater Grouvelle and Silvanus porrectus Walker. So far, three species namely, S. scuticollis (Walker), S. cephalotes (Reitter) and S. longicollis (Reitter) are known from India. Representatives of this genus are commonly found in haystack and vegetable garbage, also recorded from under side of bark, stored rice, lac and sometimes attracted to light. Silvanoprus is closely related to

Silvanus Latreille and their facies similar, but can be separated in having third tarsal segment lobed below.

In the present study 600 examples have been studied, which are collected by author and other members of Coleoptera Section, Zoological Survey of India from foot hills of Himalaya, gangetic West Bengal, Chhotanagpur plateau, Nilgiri Hills etc. S. angusticollis (Reitter) is recorded for the first time from India, four species are described as new to science and a species which will be described by D.G.H. Halstead is also included, and larva of S. angusticollis is described for the first time (see p. 275).

Definition :

General appearance (Fig.53) elongated, rather narrowed and parallel-sided, moderately depressed, usually yellowish brown or reddish brown and rarely blackish brown.

Head (Fig. 65) elongated, front margin of clypeus almost straight, eyes moderately large and coarsely faceted, temple often flattened beneath eye, vertex with a transverse impressed line behind eyes, tentorium simple with two longitudinal arms connected by a narrow bridge near middle. Antenna moderately long and slender, antennal insertions hidden under projection of frons, 11-jointed, scape broadly elongated, pedicel and joint 3 usually about as long as scape and narrower, joints 4-8

usually slightly shorter than preceding joints, club loose and 3-jointed. Mandible (Fig.72) with 3 apical teeth, mola well-developed and a trace of dorsal mandibular cavity present near base. Maxilla (Fig. 73) with lacinia and galea rather short, lacinia narrow and elongated and without apical spine, galea broad and its apex densely hairy; palpi with segment 2 longer than segment 3, apical segment longest and fusiform. Labium (Fig. 74) with mentum transversely triangular, palpi with apical segment longest and fusiform. Labrum (Fig. 75) transverse and its apical margin rounded.

Prothorax (Fig. 66) usually elongated and rarely transverse, front angle with a spine which more or less prominent and projected forward, lateral margins finely denticulate and usually slightly sinuate across anterior one-third, prosternal process broad and its apical margin almost straight, front coxae moderately widely separated. Coxal cavities round, cavities broadly closed behind.

Meso-metathorax (Fig. 68): Mesocoxae closely situated, cavities broadly opened outwardly, mesosternal process broad at base and notched at middle, sternal fitting between mesocoxae almost in a straight line. Metasternum transverse, median impressed line extends anteriorly near apex of mesosternal process, hind coxae more widely separated than mesocoxae. Metendosternite simple and represented by two appophyses.

Wing and Elytra : Wing (Fig. 71) with single anal vein and radial cell, without anal cell and subcubital fleck. Elytra somewhat parallel-sided, usually slightly sinuate near middle, each elytron (Fig. 70) with 9 rows of strial punctures, without scutellary striole, single and double rows of pubescence on alternate interstices, epipleura narrow and complete upto apex.

Legs (Fig. 67) moderately long, trochanters short and simple, femora swollen towards middle, tibiae slightly broadened at apex and with two apical spurs; tarsal formula 5-5-5 in both sexes, segments 1 and 2 simple segment 1 longer than segment 2, segment 3 strongly lobed below, segment 4 shortest and claws simple.

Abdomen (Fig. 69) elongated, ventrite 1 longer than other ventrites, ventrites 2-5 subequal, intercoxal process of ventrite 1 broad at base and narrowed and slightly pointed at apex; femoral lines closed and usually narrowly separated from posterior margin of hind coxal cavity, and rarely widely separated as in S. longicollis. Aedeagus (Fig. 77) with median lobe rather short and broad and slightly tapered posteriorly, median sturt elongated and spatulate at apex; tegmen with a pair of well-developed, slender and elongated parameres, and its apex usually bifid and fringed with a few setae. Ovipositor (Fig. 76) with well-developed paraprocts, valvifers, coxites and long styli attached on outer margin of apex of coxites.

Habitat : Habitat of this genus was not known. In the present study the representatives of this genus have been collected chiefly from haystack and leaf garbage.

Distribution : Europe, Africa, Madagascar, Cameroon Is., South Asia, West Indies, Guyana. From India this genus was recorded only from Calcutta : West Bengal, Nilgiri Hills : Tamil Nadu and Assam; in the present study the genus Silvanoprus has been recorded from various parts of India, details of distribution mentioned under descriptions of species.

Remarks : Grouvelle (1912) divided Silvanoprus into two groups on the basis of extension of sterno-pleural suture. In the first group he included the species S. fagi, S. grouvellei, S. angusticollis, S. parallellocollis, S. feae, S. javanicus and S. insidiosus, where the sterno-pleural suture reaches the lateral margin of prothorax near anterior spine. In the second group he included the species S. scuticollis, S. orientalis, S. longicollis, S. tenuicollis, S. cephalotes and S. inermis, where the sterno-pleural suture reaches the anterior margin of prothorax. Indian species S. scuticollis and S. cephalotes fall in the second group, other Indian species fall in the first group. Unlike other species, first tarsal segment of S. scuticollis is markedly long and longer than segments 2 and 3 together, and prothorax broader than long and its shape different.

KEY TO THE SPECIES OF SILVANOPRUS FROM INDIA

1. Prothorax broader than long, width of prothorax across anterior spines more than 1.5 times broader than width across posterior angles, prothorax distinctly narrowed posteriorly, lateral margins almost straight, shape of prothorax somewhat triangular (Fig. 53). ...
..... scuticollis (Walker)

Prothorax longer than broad, width of prothorax across anterior spines less than 1.25 times broader than width across posterior angles, prothorax slightly narrowed posteriorly behind middle, lateral margins distinctly curved, shapes of prothorax different ...
.....2

2. Temple of head moderately long and not inflattened beneath eye, about as long as two to three eye facets and inwardly notched (Fig.54). indicus sp.nov.
Temple of head very short or long and distinctly inflattened beneath eye, either short thin and outer apical angle pointed or long and outer apical margin rounded.....
..... 3

3. Temple of head short, length of temple about as long as one or two eye facets and its outer apical angle somewhat pointed; puncturation of head and prothorax reticulate-type, coarse and dense. 4

Temple of head long, length of temple about as long as eye or longer than eye and its outer apical margin rounded; puncturation of head and prothorax ocellate-type, coarse and somewhat globular.....7

4. Front and middle femora with a distinct spine near middle; lateral margins of prothorax more or less uniformly curved outwardly; anterior spine of prothorax small and projected in front and its length about one-fourth or shorter than length of one eye (Fig.55). cephalotes (Reitter)

Front and middle femora devoid of any spine; lateral margins of prothorax distinctly wavy and sinuate across anterior one-third; anterior spine of prothorax larger, about half as long as eye and projected somewhat outwardly.5

5. Anterior spine of prothorax markedly long and extending distinctly beyond front margin of prothorax, lateral margin of prothorax slightly sinuate at origin of anterior spine (Fig.59).prolixicornis sp.nov.

Anterior spine of prothorax comparatively shorter and not extending beyond front margin of prothorax, lateral margin of prothorax distinctly sinuate at origin of anterior spine (Figs.56,58).6

6. Anterior spine of prothorax narrow and slender and about twice as long as broad, outer margin of anterior spine straight and spine projected more towards lateral side, posterior margin of pronotum distinct (Fig.56). ... angusticollis (Reitter)

Anterior spine of prothorax broad and about as broad as long, outer margin of anterior spine slightly curved and spine projected more towards front, posterior margin of pronotum indistinct near middle (Fig.58).

..... nepalensis sp.nov.

7. Antennal scape markedly large and about twice as long as broad, antennal joints 9 and 10 distinctly elongated, temple slightly longer than length of eye; prothorax across anterior spine about as wide as across middle, anterior spine situated distinctly beneath level of anterior margin, outer margin of anterior spine slightly curved inwardly and lateral margin of prothorax markedly sinuate across anterior one-fourth (Fig.63); aedeagus (Fig.84) with apex of median lobe broad, apex of each paramere abruptly broadened.
..... distinguendus sp.nov.(Halstead MS.name)

Antennal scape more or less large and maximum 1.5 times as long as broad, antennal joint 9 about as broad as long or slightly elongated and joint 10 about as broad as long, temple slightly shorter or about as long as eye; prothorax widest across anterior spine, anterior spine situated at level of anterior margin, outer margin of anterior spine either straight or slightly curved outwardly and lateral margin of prothorax slightly sinuate across anterior one-fourth (Figs.60,61,62); aedeagus (Figs.82,83) with apex of median lobe broadly pointed, apex of each paramere gradually narrowed.8

8. Antennal scape large and robust and joints 2-8 markedly narrower than scape; puncturation on pronotum coarse and uniform throughout, anterior spine projected forward and its tip somewhat pointed (Fig. 60); each paramere with only single long apical seta (Fig.82). longicollis (Reitter)

Antennal scape moderately large and joints 2-8 slightly narrower than scape; puncturation on pronotum slightly coarser towards posterior half than towards anterior half, anterior spine projected somewhat outwardly and its tip less pointed (Fig.62); each paramere with a short pre-apical seta in addition to one long apical seta (Fig.83).
..... palnicus sp.nov.

13. Silvanoprus scuticollis (Walker)

Silvanus scuticollis Walker, 1859, Ann. Mag. nat. Hist.

(3) 3 : 53; Grouvelle, 1908, Annls. Soc. ent. Fr.

77 : 491.(Type-loc.: Sri Lanka).

Silvanus triangulus Reitter, 1876, Col. Hefte 15 : 60.

Silvanoprus scuticollis (Walker) : Grouvelle, 1912,

Annls Soc. ent. Fr. 81 : 342.

Grouvelle (1908) first recorded this species from India (Calcutta) and synonymised the species Silvanus triangulus Reitter with this species. This is a common and widespread species in India and available from North to South India almost throughout where surveys were made. S. scuticollis is distinct because of its transverse and characteristic shape of prothorax.

General appearance (Fig.53) elongated, moderately depressed, yellow or reddish brown; covered with short, semierect golden pubescence.

Head: Exposed part of head wider than long, eyes large and coarsely faceted and slightly shorter than half of length of head; temple short, equal or slightly longer than width of one eye facet, its outer apical angle slightly pointed; puncturation on vertex coarse and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and

slender, scape moderately large, pedicel and joint 3 slightly shorter and narrower than scape, joints 4-8 subequal and shorter than joint 3, joints 9 and 10 transverse and joint 11 about as long as broad. Prothorax wider than long, distinctly narrowed posteriorly, widest across anterior spines and distinctly wider than head across eyes; anterior spine large, about two-third of length of an eye and projected forward; lateral margins almost straight and diverging in front, finely denticulate; lateral depressions on pronotum slightly developed, puncturation on pronotum coarse and dense and similar to that of vertex of head, setae projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra less than two times as long as broad, widest near middle, lateral margins wavy and slightly explanate, rows of punctures deep and large, interstices narrower than width of each puncture, setae projected posteriorly. Puncturation on ventral side finer than on vertex of head and pronotum. Aedeagus (Fig.77) with median lobe slightly tapered at apex, each paramere with a pair of apical setae: one long and other short.

Measurements : Total length 2.17-2.55 mm, width of head across eyes 0.50-0.58 mm, length of antenna 0.89-1.00 mm, width of prothorax across middle 0.48-0.55 mm, length of elytra 1.26-1.35 mm and width across middle 0.67-0.85 mm.

Materials examined : 146 ex. INDIA : ASSAM, Mikir hills, 2 ex., 14.xi.1974, T. Sengupta, from bunch of dead leaves of forest; Phulbari, 3 ex., 24.xi.1974, T. Sengupta, leaf garbage; Kaziranga, 75 m., 1 ex., 1976, Wittmer & Baroni; SIKKIM, Rangpo, 450 m, 10 ex., 10.iv.1976, T.K. Pal, haystack; WEST BENGAL, Jalpaiguri district, Dhupguri, 3 ex., 14.iv.1971, T. Sengupta, garbage with hays; same locality, 1 ex., 15.iv. 1971, T. Sengupta, sweeping bushes; Darjeeling district, Sukna, 1 ex., 5.v.1976, T.K. Pal, haystack; Nadia district, Suravis- than, 2 ex., 28.vii.1974, D.N. Biswas, new haystack; 24 Par- ganas district, Sagar Island, 10 ex., 24.iii.1975, T.K. Pal, haystack; Kakdwip, 30 ex., 25.iii.1975, T.K. Pal, haystack; Diamond Harbour, 15 ex., 25.iii.1975, T.K. Pal, haystack; Howrah district, Sankrail, 35 ex., 30.iii.1975-10.iii.1976, T.K. Pal, haystack; BIHAR, Chaibasa, 2 ex., 8.iii.1971, T. Sengupta, haystack; same locality, 1 ex., 11.xi.1970, T. Sengupta; Chaibasa, Kaswargaria, 1 ex., 8.iii.1971, T. Sengupta, haystack; Namkum, 2 ex., 6.xi.1971, T. Sengupta, lac; UTTAR PRADESH, Pantnagar, 2 ex., 24.iii.1972, T. Sengupta, haystack; Gorakhpur, 2 ex., 24.ix.1974, T. Sengupta, haystack; same locality, 16 ex., 25.x.1973, T. Sengupta, haystack; Nainital district, Dhikala, 5 ex., 24.x.1976, at light; Dehra Dun, New forest, 1 ex., 18.x.1944, F. Ent., on dry grass; TAMIL NADU, Coimbatore, 1 ex., 29.iii.1977, T. Sengupta, haystack.

Distribution : INDIA : Assam, Sikkim, West Bengal, Bihar, Uttar Pradesh, Tamil Nadu; SRI LANKA; MALAYSIA; INDONESIA (Sumatra); JAPAN; EAST AFRICA; MADAGASCAR; FRANCE; GUYANA; WEST INDIES.

14. Silvanoprus indicus sp.nov.

This species is near S. angusticollis (Reitter) but can be distinguished by its temple of head longer, not inflattened beneath eye and its outer apical margin broad; anterior spine of prothorax usually smaller and less pointed at apex; aedeagus with its median lobe distinctly elongated, narrowed posteriorly and rather blunt at apex.

General appearance (Fig.54) elongated, moderately depressed, yellowish to reddish brown; covered with short, semi-erect golden pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly less than half of length of head, temple moderately long and about as long as 2.5 eye facets, puncturation on vertex coarse and dense and that of towards anterior margin of clypeus slightly finer, setae short and projected towards middle line. Antenna moderately long and slender, scape moderately large, pedicel slightly shorter and narrower than scape, joints 3-7 subequal, joint 8 shorter than joint 7, joint 9 slightly elongated, joint 10 slightly

transverse and joint 11 about as long as broad. Prothorax elongated, moderately convex, slightly narrowed posteriorly, anterior margin slightly rounded; anterior spine short, originates gradually from lateral side and its apex somewhat broadly pointed; lateral margins curved and sinuate at extremities, lateral depressions on pronotal disc slightly marked, puncturation on pronotum coarse and dense and similar to that of vertex of head, setae short and projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra about two times as long as broad, widest behind middle, lateral margins wavy and explanate, rows of punctures deep and large, interstices narrower than width of each puncture. On ventral side puncturation slightly finer than on dorsal side. Aedeagus (Fig.78) with median lobe broadly elongated, parameres bilobed at apex, outer lobe of each paramere with one long seta and inner lobe with two short setae.

Measurements of holotype : Total length 2.30 mm, width of head across eyes 0.50 mm, length of antenna 1.08 mm, width of prothorax across middle 0.37 mm, length of elytra 1.42 mm and width across middle 0.70 mm.

Holotype ♂, INDIA: ASSAM, Mikir Hills, 14.xi.1975, T. Sengupta, bunch of dried leaves of forest. Aedeagus dissected and mounted on cover slip and pinned with the holotype; Paratypes 10 ex., same data as holotype; Paratypes 3 ex., MEGHALAYA, Tura, 23.xi.1974,

T. Sengupta, under dry cut grass; Paratypes 29 ex., SIKKIM, Rangpo, 450 m, 19.iv.1976, A.R. Bhaumik, haystack (all in Zoological Survey of India, Calcutta); Paratypes 5 ex., BHUTAN : Samchi, 3000 m, 7-11.iv.1972, Nat. Hist. Museum Basel-Bhutan Expedition 1972 (3 Paratypes in Nat. Hist. Museum, Basel and 2 Paratypes in Zoological Survey of India, Calcutta).

Distribution : INDIA : Assam, Meghalaya, Sikkim; BHUTAN.

15. Silvanoprus cephalotes (Reitter)

Silvanus cephalotes Reitter, 1876, Col. Hefte 15 : 62;
Grouvelle, 1908, Annls Soc. ent. Fr. 77 : 492. (Type-
loc.: Japan).

Silvanus longicollis : Grouvelle (nec. Reitter), 1908,
Annls Soc. ent. Fr. 77 : 492.

Silvanoprus longicollis : Grouvelle (nec. Reitter), 1912,
Annls Soc. ent. Fr. 81 : 342.

Silvanoprus cephalotes (Reitter) : Grouvelle, 1912,
Annls Soc. ent. Fr. 81 : 342.

Grouvelle (1908) first recorded this species from India (from Nilgiri hills as longicollis) and subsequently, he in 1912 transferred it to Silvanoprus. The present redescription is based on two examples determined by Dr. D.G.H. Halstead.

Grouvelle (1908) recorded Silvanus longicollis from India and the characters given by him is very similar to the specimens determined as cephalotes by Halstead. Therefore, S. longicollis (Reitter) from India determined by Grouvelle well might be a member of cephalotes. This species can be distinguished by its short temple, lateral margins of prothorax slightly rounded and anterior spine of prothorax very small.

General appearance (Fig.55) elongated, moderately depressed, yellowish or reddish brown; covered with short, semi-erect, golden pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly less than half of length of head, temple about as long as width of an eye facet and its outer apical angle slightly pointed, puncturation on vertex coarse and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long, scape moderately large, pedicel and joint 3 about as long as scape, joints 4-8 subequal and shorter than joint 3, joint 9 about as long as broad, joints 10 and 11 slightly transverse. Prothorax convex, elongated, widest near middle; anterior spine small, about one-fourth or shorter than length of an eye and projected forward; lateral margins curved outwardly and slightly sinuate near anterior one-fourth, finely denticulate; lateral depressions on pronotum slightly developed, puncturation on pronotum coarse and

dense and similar to that of vertex of head, setae short and projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra more than two times as long as broad, widest near middle, lateral margins wavy and explanate, rows of punctures deep and large, interstices narrower than width of each puncture, setae projected posteriorly. Punctuation on ventral side of head and prothorax almost similar to that of dorsal side, that of meso-metathorax and abdomen slightly finer. Aedeagus (Fig.79) with median lobe slightly tapered at apex, each paramere with a pair of setae : one long and other short.

Measurements : Total length 2.20-2.42 mm, width of head across eyes 0.30-0.51 mm, length of antenna 0.80-1.05 mm, width of prothorax across middle 0.41-0.48 mm, length of elytra 1.29-1.55 mm and width across middle 0.63-0.70 mm.

Materials examined : 288 ex. INDIA: MEGHALAYA, Shillong, 5 ex., 27.iv.1976, T. Sengupta, haystack; Tura, 3 ex., 25.xi.1974, T. Sengupta, under dry cut grass; ASSAM, Mikir hills, 11 ex., 14.xi.1974, T. Sengupta, from bunch of dried leaves of forest; Kaziranga, 4 ex., 14.xi.1974, T. Sengupta, garbage with hays; Phulbari, 1 ex., 24.xi.1974, T. Sengupta, leaf garbage; SIKKIM, Rangpo, 450 m, 11 ex., 10.iv.1976, T.K. Pal, haystack; WEST BENGAL, Jalpaiguri district, Birpara 1 ex., viii.1974, A.K. Datta, at light; Burdwan district, Burdwan,

5 ex., 10.vii.1976, T.K. Pal, haystack; 24 Parganas district, Sagar Island, 30 ex., 24.iii.1975, T.K. Pal, haystack; Kakdwip, 22 ex., 25.iii.1975, T.K. Pal, haystack; Diamond harbour 50 ex., 25.iii.1975, T.K. Pal, haystack; Howrah district, Sankrail, 80 ex., 30.iii.1975, -10.iii.1976, T.K. Pal, haystack; BIHAR, Ranchi, 3 ex., 5.vi.1975, T.K. Pal, haystack; Chaibasa, 1 ex., 28.xii.1970, T. Sengupta, haystack; same locality, 3 ex., 19. x.1975, T. Sengupta, haystack; DELHI, 15 ex., 12.v.1972, T. Sengupta, haystack of Jower; UTTAR PRADESH, Pantnagar, 2 ex., 24.iii.1972, T. Sengupta, haystack; Gorakhpur, 1 ex., 25.x.1973, T. Sengupta, haystack; Anandnagar, 25 km from Lachmipur, 2 ex., 9.x.1976, T. Sengupta, haystack; Nainital district, Dhikala, 12 ex., 24.x.1976, T. Sengupta, at light; KARNATAKA, Bangalore, 15 ex., 10.xii.1971, T. Sengupta, haystack; TAMIL NADU, Coimbatore, 420 m, 1 ex., ii.1970, T.R.S. Nathan; NEPAL : Katmandu, 5 ex., 28.iii.1972, T. Sengupta, haystack; Daman, 3 ex., 30. iii.1972, T. Sengupta, under heaps of dead grass; BHUTAN : Samchi, 300 m, 2 ex., 7-11.v.1972, Nat. Hist. Mus. Basel-Bhutan Expedition, 1972.

Distribution : INDIA: Meghalaya, Assam, Sikkim, West Bengal, Bihar, Delhi, Uttar Pradesh, Karnataka, Tamil Nadu; BHUTAN; NEPAL; SRI LANKA; INDONESIA (Java); JAPAN; CHINA.

This is also a common and widespread species of Indian Silvanoprus and has been recorded from North to South India almost throughout where surveys were made.

16. Silvanoprus angusticollis (Reitter)

Silvanus angusticollis Reitter, 1876, Col. Hefte 15 :
59 (Type-loc. : Japan).

Silvanoprus angusticollis (Reitter): Grouvelle, 1912,
Annls Soc. ent. Fr. 81 : 341.

Reitter (1911) described this species from Japan. Grouvelle (1912) transferred it to Silvanoprus. So far this species is recorded only from Japan. In the present study it is being recorded for the first time from India. This species can be easily differentiated from the former species by its prothorax with anterior spines larger and lateral margins distinctly sinuate near anterior one-third.

General appearance (Fig.56) elongated, moderately depressed, reddish brown to blackish brown; covered with short, semierect, golden pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly less than half of length of head, length of temple shorter than one eye facet and its outer apical angle pointed, puncturation on vertex coarse and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and slender, scape moderately large, pedicel about as long as scape and narrower, joint 3 slightly shorter than pedicel, joints 4-8

subequal and shorter than joint 3, joints 9 and 11 about as long as broad and joint 10 slightly transverse. Prothorax convex, elongated, widest across anterior spines and slightly narrowed posteriorly behind middle; anterior spine originates gradually from side, moderately large, slightly shorter than half of length of each eye, projected anteriorly and slightly outwardly and its tip somewhat pointed; lateral margins curved, indistinctly sinuate near anterior one-third and slightly sinuate near posterior angles, finely denticulate; lateral depressions on pronotum slightly developed, puncturation on pronotum coarse and dense and similar to that of vertex of head, setae short and projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra about two times as long as broad, widest near middle, lateral margins wavy and explanate, rows of punctures deep and large, interstices narrower than width of each puncture, setae projected posteriorly. Puncturation on ventral side slightly finer than on vertex of head and pronotum. Aedeagus (Fig.81) with median lobe distinctly acuminate at apex; apex of each paramere bilobed and lobes are almost equally long, inner lobe with a long seta and outer lobe with two shorter setae.

Measurements : Total length 2.55-4.01 mm, width of head across eyes 0.50-0.55 mm, length of antenna 1.08-1.17 mm, width of prothorax across middle 0.48-0.58 mm, length of elytra 1.52-1.85 mm and width across middle 0.73-0.91 mm.

Remarks : 3 examples from Shillong : Meghalaya have been examined which have the lateral margins of prothorax more sinuate near origin of anterior spines and apex of anterior spine more distinctly pointed (Fig. 57)

Materials examined : 68 ex. INDIA : MEGHALAYA, Shillong, 3 ex., 29.xi.1974, T. Sengupta, leaf garbage, SIKKIM, Gangtok, 1704 m, 2 ex., 24.iv.1976, T.K. Pal, under bark of Schima wallichii; same locality, 14 ex., 24.iv.1976, T.K. Pal, garbage of Cryptomaria leaf; Pakyang, 29 ex., 27.iv.1976, T.K. Pal, under bark; WEST BENGAL, Kalimpong, 1219 m, 2 ex., 17.iv.1971, T. Sengupta, haystack; UTTAR PRADESH, Kosi, 1 ex., 18.x.1976, T. Sengupta, haystack; KASHMIR, Dachigam Sanctuary, 14 ex., 1.vi.1972, T. Sengupta, haystack; TAMIL NADU, Oote, 1 ex., 3.xii.1971, T. Sengupta, under bark of fallen log; BHUTAN : 21 km O Wangdi Phodr., 1700-2000 m, 1 ex., Nat. Hist. Mus. Basel-Bhutan Expedition, 1972; NEPAL : Dandapakhar, 1700 m, 1 ex., 7.vi.1976, Wittmer & Baroni.

Distribution : INDIA : Meghalaya, Sikkim, West Bengal (Darjeeling dist.), Uttar Pradesh, Kashmir, Tamil Nadu; BHUTAN; NEPAL; JAPAN.

17. Silvanoprus prolixicornis sp.nov.

This species is near Silvanoprus angusticollis (Reitter) but can be differentiated by its anterior spine of prothorax being more broadly elongated and lateral margins of prothorax

less sinuate near anterior one-third, joints of antennal club less transverse and puncturation on head and pronotum slightly coarser; aedeagus with its median lobe less tapered at apex and each paramere with its inner lobe distinctly elongated.

General appearance (Fig. 59) elongated, moderately depressed yellowish brown; covered with short, semierect golden pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye shorter than half of length of head, temple about as long as one eye facet and its outer apical angle somewhat pointed, lateral margins of head rather elevated above antennal insertions, puncturation on vertex coarse and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and slender, scape moderately large, pedicel about as long as scape and slightly narrower, joint 3 slightly shorter and narrower than pedicel, joints 4-8 subequal and slightly shorter than joint 3, joint 9 about as long as broad and joints 10 and 11 slightly transverse. Prothorax slightly elongated, convex and slightly narrowed posteriorly, widest across anterior spines, anterior margin slightly curved outwardly, anterior margin slightly lower than tips of anterior spines, anterior spine moderately large and its tip somewhat pointed; lateral margins almost straight

and slightly sinuate on either sides of middle, finely denticulate; lateral depressions on pronotal disc slightly developed, puncturation on pronotum coarse and dense and similar to that of vertex of head, setae projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra about two times as long as broad, lateral margins slightly wavy, rows of punctures deep and large, interstices narrower than width of each puncture, setae short and projected posteriorly. Puncturation on ventral side finer than on vertex and pronotum. Aedeagus (Fig. 80) with median lobe broadly elongated and slightly acuminate at apex; apex of each paramere bilobed, inner lobe elongated with a long seta, outer shorter lobe with a short seta and an additional seta above outer lobe.

Measurements of holotype : Total length 2.70 mm, width of head across eyes 0.52 mm, length of antenna 1.15 mm, width of prothorax across middle 0.55 mm, length of elytra 1.65 mm and width across middle 0.82 mm.

Holotype ♂, INDIA : UTTAR PRADESH, Almorah, Airadeo, 11.vii.1937, J.C.M. Gardner, ex. Alnus nitidus. Aedeagus dissected and mounted on cover slip and pinned with the holotype (in Forest Research Institute, Dehra Dun).

Distribution : INDIA : Uttar Pradesh.

18. Silvanoprus nepalensis sp.nov.

General appearance of this species is somewhat similar to S. angusticollis (Reitter) but can be readily separated by its prothorax being more elongated, meeting point of outer margin of anterior spine and lateral margin of prothorax distinctly sinuate, outer margin of anterior spine curved and its tip more distinctly pointed, posterior margin of pronotum not distinct near middle.

General appearance (Fig.58) elongated, moderately depressed, blackish brown and covered with short, semierect, golden pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly less than half of length of head, length of temple shorter than one eye facet and its outer apical angle pointed, puncturation on vertex coarse and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and slender, scape moderately large, pedicel about as long as scape and narrower, joint 3 slightly shorter and narrower than pedicel, joints 4-8 subequal and shorter than joint 3, joints 9 and 11 about as long as broad and joint 10 transverse. Prothorax convex, elongated, widest across anterior spines and slightly narrowed posteriorly; anterior spines originate less abruptly from sides, moderately

large and half as long as eye, broad at base, projected outwardly and its tip pointed, outer margin of anterior spine slightly curved inward; lateral margins curved, distinctly sinuate near anterior one-third, finely denticulate; posterior margin of pronotum inconspicuous near middle, lateral depressions on pronotum slightly marked, puncturation on pronotum coarse and dense and similar to that of vertex of head, setae short and projected towards middle line. Scutellum moderately large, transverse and pubescent. Elytra about two times as long as broad, widest near middle, lateral margins wavy and explanate, rows of punctures deep and large, interstices narrower than width of each puncture, setae projected posteriorly. Puncturation on ventral side finer than on vertex and pronotum.

Measurements of holotype : Total length 2.39 mm, width of head across eyes 0.47 mm, length of antenna 1.02 mm, width of prothorax across middle 0.44 mm, length of elytra 1.47 mm and width across middle 0.75 mm.

Holotype 1 ex., NEPAL : Katmandu, 28.iii.1972, T. Sengupta haystack (in Zoological Survey of India, Calcutta).

Distribution : NEPAL.

19. Silvanoprus longicollis (Reitter)

Silvanus longicollis Reitter, 1876, Col. Hefte 15 : 60

(Type-loc. : Sri Lanka).

Silvanus longicollis Grouvelle (auct. not Reitter), 1908,

Annls Soc. ent. Fr. 77 : 491, 492.

Silvanoprus longicollis Grouvelle (auct. not Reitter), 1912,

Annls Soc. ent. Fr. 81 : 341.

Silvanoprus javanicus (Grouvelle) : Grouvelle, 1912,

Annls Soc. ent. Fr. 81 : 341, Syn.nov.

Reitter (1876) described this species from Sri Lanka.

Grouvelle (1912) recorded this species from India (Assam). The present redescription along with synonyms is based on one example determined by Dr. D.G.H. Halstead and valuable comments given by him. Grouvelle (1912) recorded Silvanoprus javanicus from India (Assam) and the characters of javanicus is very similar to the specimen determined by Dr. Halstead as S. longicollis. This species is characterised by its long temple, large antennal scape, and ocellate punctures on head and prothorax.

General appearance (Fig.60) elongated, moderately depressed, yellowish to blackish brown; covered with short, semi-erect, golden pubescence.

Head : Exposed part of head wider than long, eyes rather small and coarsely faceted, temple long, length of temple slightly shorter than length of eye and its outer margin rounded;

puncturation on vertex coarse, ocellate and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and slender, scape large; joints 2-8 subequal, shorter and markedly narrower than scape; joints 9-11 about as broad as long. Prothorax convex, elongated, widest across anterior spines, almost parallel-sided; anterior spine small, shorter than half of length of eye and projected forward; lateral margins almost straight to slightly wavy and finely denticulate, posterior margin of pronotum usually confluent with rim of foramen, lateral depressions on pronotum slightly developed; puncturation on pronotum coarse, ocellate and similarly dense as on vertex of head. Scutellum moderately large and transverse. Elytra more than twice as long as broad, widest near middle, side margins wavy and slightly explanate, rows of punctures deep and large, interstices slightly narrower than width of each puncture. On ventral side puncturation finer than on vertex and pronotum. Aedeagus (Fig.82) with median lobe slightly tapered at apex, each paramere with a long apical seta.

Measurements : Total length 2.17-2.38 mm, width of head across eyes 0.39-0.44 mm, length of antenna 0.92-0.94 mm, width of prothorax across middle 0.39-0.45 mm, length of elytra 1.29-1.41 mm. and width across middle 0.57-0.68 mm.

Remarks : 1 example from Dainadubi Reserve Forest, Assam has been examined which has its prothorax proportionately broader and its side margins slightly wavy (Fig.61).

Materials examined : 44 ex. INDIA : MEGHALAYA, Garo hills, Dainadubi Reserve Forest, 9 ex., 18.xi.1974, T. Sengupta, leaf garbage; Sarengina, Dainadubi, 3 ex., 19.xi.1974, T. Sengupta, dead cut grass garbage with hays; Tura, 2 ex., 23.xi.1974, T. Sengupta, under dry cut grass; WEST BENGAL, Jalpaiguri district, Dhupguri, 2 ex., 14.iv.1971, T. Sengupta, leaf litter; Howrah district, Sankrail, 20 ex., 30.iii.1975-10.iii.1976, T.K. Pal, haystack; UTTAR PRADESH, Gorakhpur, 2 ex., 15.viii.1973, T. Sengupta, fodler garbage; Nainital district, Dhikala, 5 ex., 25.x.1976, T. Sengupta, under bark of Shorea robusta and Mallotus philippensis, TAMIL NADU, Coimbatore, 420 m, 1 ex., ii. 1970, T.R.S. Nathan.

Distribution : INDIA : Meghalaya, Assam, West Bengal, Uttar Pradesh, Tamil Nadu; SRI LANKA; MALAYSIA; INDONESIA (Java); CHINA; JAPAN; MADAGASCAR; EAST AFRICA.

20. Silvanoprus distinguendus sp.nov. (Halstead MS.name)

This species is closely related to Silvanoprus longicollis (Reitter) but can be easily separated by its antennal scape about two times as long as broad, antennal joints 9 and 10 distinctly elongated, temple slightly longer than length of eye, anterior spines of prothorax situated beneath the level of anterior margin of prothorax and lateral margins of prothorax distinctly sinuate across anterior one-fourth; aedeagus with its apical projection of median lobe broad and blunt, apex of each paramere abruptly

broadened and with one long and two shorter apical setae.

Dr. D.G.H. Halstead has earlier examined two examples of this species from Palni Hills : Tamil Nadu, and he will describe the species elsewhere.

General appearance (Fig.63) elongated, moderately depressed, yellowish brown; covered with short, semierect, golden pubescence.

Head : Exposed part of head wider than long, eyes rather short and coarsely faceted; temple long, slightly longer than length of eye and its outer margin slightly rounded, puncturation on vertex coarse, ocellate and moderately dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and slender, scape large and about two times as long as broad; joints 2-8 narrower, subequal and shorter than scape; joints 9 and 10 distinctly and joint 11 slightly elongated. Prothorax convex, elongated and almost parallel-sided, width across anterior spines almost equal to width across middle; anterior spine small, about half as long as eye and projected upward; anterior spine situated beneath level of anterior margin and its outer margin curved inwardly; lateral margins slightly wavy distinctly sinuate across anterior one-fourth, finely denticulate; posterior margin of pronotum slightly separated from rim of foramen, lateral depressions on pronotum indistinct; puncturation near front margin of

pronotum finer than on vertex of head and on remaining part coarse, ocellate and similar to that of vertex of head.

Scutellum moderately large and transverse. Elytra about two times as long as broad, widest near middle, side margins wavy and slightly explanate, rows of punctures deep and large, interstices narrower than width of each puncture. On ventral side puncturation finer than on vertex of head and pronotum, hind trochanter with a short spinous projection in male.

Aedeagus (Fig.84) with apical projection of median lobe broad and blunt, paramere abruptly broadened at apex, each paramere with one long and two shorter apical setae.

Measurements : Total length 2.63-2.68 mm, width of head across eyes 0.44-0.48 mm, length of antenna 1.36-1.38 mm, width of prothorax across middle 0.42-0.44 mm, length of elytra 1.41-1.51 mm and width across middle 0.73-0.76 mm.

Materials examined : SRI LANKA : North Central, Medawachchiya, 2 ex., 6.ii.1970, Mussard Besuchet Löbl.

Distribution : INDIA : Tamil Nadu; SRI LANKA.

21. Silvanoprus palnicus sp.nov.

This species is closely related to S. longicollis (Reitter) but can be separated by its antennal scape narrower and other joints comparatively broader; prothorax with its side margins

distinctly wavy, anterior spine projected somewhat outwardly and its apex less pointed, puncturation towards posterior side slightly coarser than towards anterior side.

General appearance (Fig.62) elongated, moderately depressed and yellowish brown; covered with short, semierect, golden pubescence.

Head : Exposed part of head wider than long, eyes rather short and coarsely faceted, temple long and slightly shorter than length of eye and its outer margin rounded; puncturation on vertex coarse, ocellate and dense and that of towards anterior margin of clypeus slightly finer. Antenna moderately long and slender, scape moderately large; joints 2-8 narrower, subequal and shorter than scape; joint 9 elongated, joint 10 slightly transverse and joint 11 about as broad as long. Prothorax convex, elongated, widest across anterior spines; anterior spine small, about half as long as eye, projected somewhat outwardly and its tip less pointed; lateral margins slightly wavy, sinuate near origin of anterior spines, finely denticulate; posterior margin of pronotum confluent with rim of foramen, lateral depressions on pronotum slightly marked; puncturation on pronotum coarse, ocellate and dense and similar to that of head near anterior margin, and puncturation towards posterior side slightly coarser. Scutellum moderately large and transverse. Elytra more than twice as long as broad, widest near middle, side margins

wavy and explanate, rows of punctures deep and large, interstices slightly narrower than width of each puncture. Puncturation on ventral side of head and prothorax almost similar as on dorsal side and on remaining parts finer. Aedeagus (Fig.83) with apex of median lobe slightly tapered at apex; parameres long and slender, each paramere with a short pre-apical seta in addition to one long apical seta.

Measurements of holotype : Total length 2.54 mm, width of head across eyes 0.41 mm, length of antenna 1.02 mm, width of prothorax across middle 0.39 mm, length of elytra 1.32 mm and width across middle 0.57 mm.

Holotype ♂, INDIA : TAMIL NADU, Palni hills, 13-15.ix.22 Kemp. Aedeagus dissected and mounted on cover slip and pinned with the holotype; Paratype 1 ex., data same as holotype (in Zoological Survey of India, Calcutta).

Distribution : INDIA : Tamil Nadu.

Genus Silvanoides Halstead

Silvanoides Halstead, 1973, Bull. Br. Mus. nat. Hist. (Ent.)
29(2) : 87.

Type-species : Silvanoides cribricollis (Grouvelle)

Halstead (1973) established the genus Silvanoides and described two species from Philippine Is., New Guinea and